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REFERENCE

Jiaju Zhou

HANDBOOK OF ACTIVE MARINE NATURAL PRODUCTS

VOLUME 6: ALIPHATIC METABOLITES

Jiaju Zhou

Handbook of Active Marine Natural Products

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Jiaju Zhou

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Handbook of Active Marine Natural Products

Volume 6: Aliphatic Metabolites

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Preface

The English edition *Handbook of Active Marine Natural Products* (*HAMNP*) *with 8 Volumes* is a selective version of the Marine Natural Products Dataset. The whole dataset was collected and developed by the Molecular Design Group, Institute of Process Engineering, Chinese Academy of Sciences during 1998–2016. Totally, it covers 19,722 entries of secondary metabolites from marine living things, where 8,350 compound entries have pharmacological activity data. The 8,350 compound entries were arranged into eight volumes to form the set of handbooks as follows:

Volume 1: Terpenoids, *Part 1*
Volume 2: Terpenoids, *Part 2*
Volume 3: Alkaloids, *Part 1*
Volume 4: Alkaloids, *Part 2*
Volume 5: Polyketides and Steroids
Volume 6: Aliphatic Metabolites
Volume 7: O-Heterocycles and Aromatics
Volume 8: Peptides and Others

This set of eight HAMNP books gathers the structure, origin, and bioactivity, as well as other relevant information, of 8,350 active marine natural products from 3,025 marine organisms.

The HAMNP handbooks represent a largest collection of active secondary metabolites from marine organisms, and all kinds of scientific data have been reorganized as well-formatted data so that the books became helpful to researchers as a convenient reference. The materials covered in these books include those through systematic collection up to 2012, and further accompanied with the latest data published in several core journals until 2016.

The work covered in these HAMNP books was accomplished in two phases. The initial phase ranged from 1998 to 2001 and the main phase from 2011 to 2018. In the original version of the dataset, more than 22,000 compounds have been collected, including duplicated compounds from different authors. The comprehensive data compilation process include data specification definition, cross-validation, assessment confirmation, identification of duplicated structures, and merging of relevant information, leading to the final accomplishment of the current 19,722 datasets.

In brief, the main compilation process of the HAMNP books is given as follows. First, collect the name list, origin, and structure of chemical compounds from successive annual reviews (see Core References R01 and R02 in Introduction) and literature reviews. Second, double-check the documents to verify and complete other information. Third, confirm the structural information and other types of data using orthogonal information from other sources with cross-validation methods. Fourth, the structures of more than 22,000 compounds are rechecked and the information is integrated by manual identification and computer programs. Finally, the comprehensive

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information on the 19,722 compounds constitutes the dataset. Here, 8,350 active sets were picked up from the dataset to form the current HAMNP handbook.

Three problems need to be solved to compile a multidisciplinary reference book. First, every definition and concept should be explicit when expanding knowledge, connotation, and extension included, without any research details. Second, the reliability assessment is essential for all kinds of data, because the devil is in the detail. Third, it is essential to search, identify, and integrate data of duplicated chemical compounds. Fortunately, well-developed software packages can help us automatically identify the majority of duplicated chemical compounds. The remaining issues can be resolved along with manual processing.

It is the guiding principle of the author to make the book to be pithy, thorough, precise, and intelligible. In fact, we always view ourselves as HAMNP's readers, with the exclusive objective to let readers gain the most useful knowledge in the shortest possible time.

The core contents and highlights of the HAMNP books are the "three diversities," that is, the diversity of chemical structures, the diversity of biological resources, and the diversity of pharmacological activities. In terms of chemical structure diversity, we refer to the classification system from references, then further improve and expand it based on the latest research and development to define our classification framework of structures. Once readers browse the contents of the books, the classification system is straightforward. For the diversity of biological resources, it is recommended to refer to Index 3 in each volume – Compound Marine Organism Source Index, and Index 4 in each volume – Compound Marine Source Sampling Geographic Location Index. For the diversity of pharmacological activities, it is recommended to refer to Index 5 in each volume – Compound Pharmacological Activity Index.

These HAMNP handbooks are expected to help readers who are engaged in research, in teaching, and in the development of marine natural products. It should also benefit college students, postgraduates, marine resource managers, and those who are interested in the chemistry and pharmacology of marine natural products. We would feel fortunate if it works as expected.

Jiaju Zhou
Institute of Process Engineering (IPE),
Chinese Academy of Sciences (CAS)
February 2019

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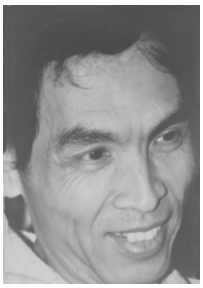
About the Author



Prof. Jiaju Zhou was born in October 1939 in Tianjin, China. He graduated from Rare Earth Inorganic Chemistry Specialty, Chemistry Department, Peking University, in 1963 under a six-year program. Before he retired in 2008, Zhou was the leader of Molecule Design Group, IPE, CAS. Zhou's areas of research include rare earth chemistry, mineral analytical chemistry, chemical industry process simulation (in IPE, CAS and UBC, Canada), design of crystal structural database (in OSRD, NIST, Gaithersburg, MD, USA), scientific database R&D, and computer-aided and artificial intelligence drug design. Zhou developed the first TCM database (TCMDB) with 23,033 entries. Since 2008, he has worked on Marine Natural Products project and has developed the Marine Natural Products Database (MNPDB) with 19,722 entries.

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Introduction

The *Handbooks of Active Marine Natural Products* covers eight volumes. This book is *Volume 6*: *Aliphatic Metabolites*, which includes 890 active compounds.

Format of Compound Entry. A compound entry starts with a title line, which has two items: the compound's unique code (from 1 to 890 for volume 6) and the main name. The following seven items form the title line as a body, and the graphic structure is placed at the end:

Title line (code number, main name)
A. Synonyms of the compound (if any)
B. Structural type
C. Formula (relative molecular mass)
D. Physicochemical properties
E. Marine source(s)
F. Pharmacological data (if any)
G. Reference(s)
Graphic structure

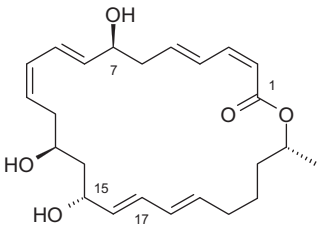
Chemical Names and A. Synonyms. Generally, a compound may have one scientific name and several trivial names. In the handbooks, based on original articles, we select one name as the "main name." The main name appeared at the title line of each compound entry. In most cases, a trivial name was selected as the main name, and in some cases, the main name is a scientific name. Any synonyms, if any, are presented after the title line as an item of the entry body.

B. Structural Type. Structural type is the second item, ordered by the contents order.

F. Normalization of Pharmacological Data. All of 890 MNP components in this book have pharmacological data, which are very valuable. Because different expressions are used for the same kind of data in different articles, we have to define and normalize thousands of pharmacological terms, so that the data could be expressed in a unified way, and be easily understood by readers.

Stereochemistry in Graphic Structure. We protracted all compound structures down to the atomic bond level, including complicated glycosides, with stereochemical information based on the data in the original papers. For example, the structure with full stereochemistry of compound 848 macrolactin A is

https://doi.org/10.1515/9783110655797-203



Let us further explain the data structure of source terms and pharmacological terms.

Source Terms

The source data of compound 848 macrolactin A is

Source:
An unidentified marine bacterium (psychrophilic, cold water, gram-positive, slurry of sterile seawater and sediment, depth of 980 m sediment core, Northern Pacific Ocean),
an unidentified marine bacterium (deep water),
marine bacterium *Bacillus marinus*.

The format is as follows (banding the English-type name and the Latin name together):

Source:
English-type name + Latin name of source 1 (sampling place, sampling season water depth),
English-type name + Latin name of source 2 (sampling place, sampling season water depth),
English-type name + Latin name of source 3.

Pharmacological Terms

The pharmacological terms in the handbooks are presented in a multilayered structure. In the top layer, there are more than 20 types of most important pharmacological activity terms. They are cytotoxic (in vitro anticancer), antineoplastic (in vivo anticancer), antibacterial, antifungal, antiviral, anti-HIV, anti- inflammatory, antioxidant, antimalarial, NO production inhibitors, enzyme inhibitors, cardiovascular activity, smooth muscle relaxant and stimulant, toxin and medium lethal dose (LD_{50}), and so forth. Readers need to be familiar with these Tope lever pharmacological terms (see Table 1).

Table 1: Twenty-Four Main Pharmacological Terms in Tope Lever.

Order in Index 5	Pharmacological Terms in Tope Lever
1	Anti-AD
2	Antibacterial
3	Antifungal
4	Anti-HIV
5	Anti-inflammatory
6	Antileishmanial
7	Antimalarial
8	Antineoplastic (in vivo)
9	Antioxidant
10	Antiplasmodial
11	Antitrypanosomal
12	Antituberculosis
13	Antiviral
14	Cardiovascular activity
15	Cell cycle inhibitor
16	Cell division inhibitor
17	Cell growth inhibitor
18	Cell adhesion inhibitor
19	Cytotoxic (in vitro)
20	Enzyme inhibitors
21	NO production inhibitors
22	Smooth muscle relaxant and stimulant
23	Toxin
24	Medium lethal dose (LD_{50})

For each term there is a regulation about how to describe related pharmacological data. The following is an example. Under the subtitle "Pharm:" of compound 848 macrolactin A, a set of multiple biodata is presented as follows:

Pharm:
Antibacterial (standard agar plate-assay disk methods, *Bacillus subtilis*, 5 μg/disk; *Staphylococcus aureus*, 20 μg/disk);
cytotoxic (B16-F-10, IC_{50} = 3.5 μg/mL);
cytotoxic (Hep2 and MA-104 carrier cell lines);
antiviral (HSV-1, IC_{50} = 5.0 μg/mL; HSV-2, IC_{50} = 8.3 μg/mL);
T-lymphoblast cell protectant (against hmn HIV viral replication, 10 μg/mL);
neuronal cell protectant.

The format is as follows:

Pharm:
Term name 1 (formatted detail information)
Term name 2 (formatted detail information)
Term name 3 (formatted detail information)
Term name 4 (formatted detail information)
Term name 5 (formatted detail information)
Term name 6 (formatted detail information)

Under the *term name Cytotoxic*, a set of multiple cytotoxic biodata is presented as follows:

cytotoxic (
B16-F-10, IC_{50} = 3.5 μg/mL;
Hep2 carrier cell lines;
MA-104 carrier cell lines).

The format is as follows:

Term name (*in vitro*,
target cancer cell 1, quantitative data (if any),
target cancer cell 2, quantitative data (if any),
target cancer cell 3, quantitative data (if any),
brief description of related mechanism if any)).

In order to standardize abbreviations of cancer cells, such as P_{388}, A549, HT29, MEL28, CCRF-CEM, and DLD-1, we defined and used 438 cancer cell codes (CCC) in the handbooks. For explanation of these codes, please see Appendix 2 "Cancer Cell Codes."

By means of the formatted and structuralized methods, we normalized expressions of almost all the pharmacological data presented in the books. For complete information in volume 6, of all 669 normalized pharmacological activity terms, please see "Index 5 Compound Pharmacological Activity Index."

In summary, these handbooks with eight volumes provide an integrated collection of 8,350 marine natural products' chemical components isolated from 3,025 marine organisms and a large amount of pharmacological activity data of these components. It might be used not only as a handbook to look for structures and bioactivities of marine natural products and marine organisms source information, but also as a fundamental platform for studying the marine natural products with a systematic and integrative approach.

Acknowledgments

First, as the author of those books, I would like to give my heartfelt thanks to Dr. David Lide and B.J. Lide, who were my directors 30 years ago when I worked in OSRD, NIST (former NBS), USA, in 1985–1986 for nine months. They gave me a rare opportunity to learn how to use a software platform and how to treat a complicated scientific information data system. It is my research experience in NBS that helped me to compile easily the current huge project on Marine Natural Products. At the same time, I also give my *sincere* thanks to my NBS's colleagues: Dr. John Rumble, Mrs. Geraldine Dalton, Mrs. Phoebe Fagan, and other OSRD members.

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11 Mr. Wucheng Tang, Engineer, Institute of Process Engineering, Chinese Academy of Sciences, Beijing 100190, China (part of original paper collection)

Finally, I thank my family members. Without their complete and never-ending support, this book would never have been possible.

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How to Use the HAMNP Books

In essence, from data computerization point of view, scientific knowledge is the expression of interrelation between research objects in different types. During a long coastline without computer, people learn and spread scientific knowledge in traditional ways, including education, reading, and exchanging information with each other. In today's world, using computer's powerful functions, we have a new way to learn systematical, complete knowledge. In short, a study process in the new way is to *search and learn some relationships*.

Next, we discuss concretely how to use the HAMNP books.

In these books, there are three kinds of data and three pairs of important relations. Three kinds of data are (1) marine living sources (source); (2) secondary metabolites (compounds); and (3) pharmacological activities (pharm-activity). The three pairs of important relations are (1) relationship between source and compounds; (2) relationship between compounds and pharm-activity; and (3) relationship between source and pharm-activity. In the case of asking questions, each relation has two directions; hence, together there are six types of questions:

Type 1: from known source to unknown compound
Type 2: from known compound to unknown source
Type 3: from known compound to unknown pharm-activity
Type 4: from known pharm-activity to unknown compound
Type 5: from known source to unknown pharm-activity
Type 6: from known pharm-activity to unknown source (Figure 1)

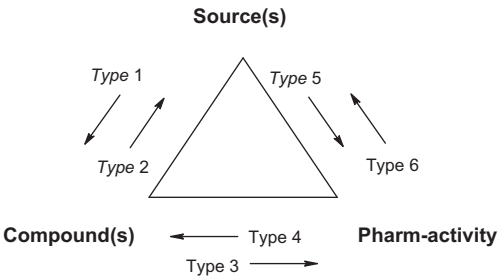

Figure 1: Kinds of Data and Six Types of Questions.

(1) An Illustration of Type 1 (and Type 3, Type 5) Question

Up to now, what aliphatic compounds are isolated from stony corals of genus *Montipora*?From index 3 of volume 6, one will get the following related data in detail:

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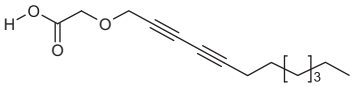
Montipora digitata 160, 306, 307.
Montipora sp. 164, 181, 182, 245, 246, 247, 248, 249, 250, 251, 252, 253, 305, 306, 307, 335, 370.
Montipora spp. 224.

The answer of the current question must be these 19 aliphatic compounds: 160, 164, 181, 182, 224, 245, 246, 247, 248, 249, 250, 251, 252, 253, 305, 306, 307, 335, 370.

Then, readers can enjoy studying these 19 compounds by reading the book, including their pharm-activity (question of types 3 and 5). For example, with entry 306, a reader will know that the compound 306 Montiporic acid A had already been isolated from stony corals *Montipora digitata* (eggs), *Madrepora oculata* and *Montipora* sp., and it has cytotoxic activity (A549, ED_{50} = 6.31 μg/mL; SK-OV-3, ED_{50} = 7.50 μg/mL; SK-MEL-2, ED_{50} = 7.97 μg/mL; XF498, ED_{50} = 7.72 μg/mL; HCT15, ED_{50} = 8.30 μg/mL; control cisplatin: A549, ED_{50} = 0.75 μg/mL; SK-OV-3, ED_{50} = 1.09 μg/mL; SK-MEL-2, ED_{50} = 2.18 μg/mL; XF498, ED_{50} = 1.18 μg/mL; HCT15, ED_{50} = 0.85 μg/mL; P_{388}, IC_{50} = 5.0 μg/mL); antibacterial activity (*Escherichia coli*); and feeding attractant activity (prosobranch *Drupella cornus*).



(2) An Illustration of Type 4 (and Type 2, Type 6) Question

"What are isolated compounds with pharmacological activity against hmn non-small cell lung cancer A549 from aliphatic compounds? And what are their marine sources?"

To browse Index 5 of volume 6, searching "Cytotoxic, A549" and "Cytotoxic inactive, A549," the following results were obtained (the "Cytotoxic inactive" means that pharmacological assay has been done, but the result is not active or activity being very low):

Cytotoxic, A549 141, 142, 154, 155, 156, 160, 162, 187, 194, 198, 199, 200, 204, 205, 206, 215, 216, 219, 221, 224, 249, 250, 251, 252, 306, 307, 336, 337, 352, 386, 408, 425, 435, 436, 443, 445, 459, 463, 474, 481, 492, 499, 500, 524, 531, 532, 588, 589, 590, 808, 822, 869.
Cytotoxic, A549/ATCC: CCL8 417, 418, 419.
Cytotoxic, A549, 6:4 mixture of stolonoxide C and stolonoxide D 497, 497, 498, 498.
Cytotoxic, A549, 9:1 mixture of stolonoxide A and stolonoxide B 495, 495, 496, 496.
Cytotoxic, A549/ATCC 426, 465.

Cytotoxic inactive, A549 122, 135, 141, 165, 181, 182, 196, 197, 217, 218, 220, 245, 246, 247, 248, 258, 259, 305, 335, 338, 370, 386, 441, 540, 875.
Cytotoxic inactive, A549/ATCC 464, 466.

Further, from the entry bodies of the 61 active aliphatic compounds (141, 142, 154~156, 160, 162, 187, 194, 198–200, 204–206, 215, 216, 219, 221, 224, 249–252, 306, 307, 336, 337, 352, 386, 408, 417–419, 425, 426, 435, 436, 443, 445, 459, 463, 465, 474, 481, 492, 495–500, 524, 531, 532, 588~590, 808, 822, and 869) all sources can be obtained (see Table 2).

Table 2: Answer to the Above Type 4, 2, and 6 Questions.

Vol	Code	Compound Name	Type	Related Sources
6	141	Woodylide A	Branched alkenic compounds	Sponge *Plakortis simplex* (Yongxing I., South China Sea, China)
6	142	Woodylide B	Branched alkenic compounds	Sponge *Plakortis simplex* (Yongxing I., South China Sea, China)
6	154	Dideoxypetrosynol D	Acetylenic alcohols	Sponge *Petrosia* sp. (Korea waters)
.....	.....	.....	.....	.....
6	808	Jaspine A	Sphingolipids	Sponge *Jaspis* sp.
6	822	Penazetidine A	Sphingolipids	Sponge *Penares sollasi* (Indo-Pacific)
6	869	Elenic acid	Long-chain aromatic systems	Sponge *Plakortis* spp. Sponge *Plakinastrella* sp. (Indonesia)

In summary, by using three parts of the books – the contents (ordered by structural classifications), the text (8,350 compound entries in volumes 1–8), and the indexes – readers can easily gain well-formatted systematically related knowledge in multidisciplinary fields.

List of Abbreviations and Acronyms

[^{3}H]AMPA	[^{3}H]-1-amino-3-hydroxy-5-methyl-4-isoxazolepropionic acid
[^{3}H]CGS-19755	*N*-methyl-D-aspartic acid (NMDA) receptor antagonist
[^{3}H]CPDPX	[^{3}H]-1,3-dipropyl-8-cyclopentylxanthine
[^{3}H]DPDPE	opioid peptide
[^{3}H]KA	[^{3}H]-kainic acid
‡	homonym mark
3Y1	rat fibroblasts
5-FU	5-fluorouracil
6-MP	6-mercaptopurine
6-OHDA	6-hydroxydopamine
AAI	antioxidant activity index (final DPPH concentration/EC_{50})
ABRCA	amphotericin B-resistant *Candida albicans*
$ABTS^{\bullet+}$	2,2′-azino-bis-(3-ethyl benzthiazoline 6-sulfonic acid), radical
ACAT	Acyl-CoA: cholesterol acyl transferase
ACE	angiotensin-converting enzyme
AChE	acetylcholinesterase
ACTH	adrenocorticotropic hormone
ADAM9	ADAM9 protease
ADAM10	ADAM10 protease
ADM	adriamycin
AGE	advanced glycation end products
AIDS	acquired immune deficiency syndrome
AKT	ribosomal protein
AKT1	protein kinase
ALK	protein kinase
AMPB	amphotericin B
AP-1	transcription factor
APOBEC3G	hmn innate intracellular antiviral factor (recombinant protein)
aq	aqueous solution
ARCA	amphotericin-resistant *Candida albicans*
ARK5	protein kinase
ATCC	American Type Culture Collection
ATPase	adenosine triphosphatase
Aurora-B	protein kinase
AXL	protein kinase
AZT	3′-azido-3′-deoxythymidine
BACE	β-secretase
BACE1	β-secretase
BCG	Bacille Calmette-Guérin
Bcl-2	a cell survival promoting factor
BoMC	further abbreviation on *Bioorg. Med. Chem.*
BoMCL	further abbreviation on *Bioorg. Med. Chem. Lett.*
bp	boiling point
c	concentration
CaMKIII	protein kinase
cAMP	cyclic adenosine monophosphate
CAPE	caffeic acid phenethyl ester

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caspase-3	caspase-3 protein
CB	cytochalasin B
CC_{50}	IC_{50} of cytotoxicity (concentration of the 50% cytotoxic effect)
CCR5	chemokine receptor 5
CD	concentration required to double the specific activity
Cdc2	cyclin-dependent kinase
Cdc25	protein Cdc25 phosphatase
Cdc25a	protein phosphatase
Cdc25b	recombinant hmn phosphatase
CDDP	*cis*-diaminedichloroplatinum (cisplatin)
CDK	cyclin-dependent kinase
CDK1	protein kinase
CDK2	protein kinase
CDK4	protein kinase
CDK4/cyclin D1	cyclin-dependent kinase 4 (CDK4) in complex with its activator cyclin D1
P25	protein kinase
p25	protein kinase
CDK7	protein kinase
c-erbB-2	protein kinase
CETP	cholesteryl ester transfer protein
cGMP	cyclic guanylic acid, cyclic guanosine monophosphate
CGRP	calcitonin gene-related peptide
ChAT	choline acetyltransferase
CMV	CMV protease
CNS	central nervous system
COMPARE	COMPARE is an algorithm to analyze data
ConA	concanavalin A
COX-1	cyclooxygenase-1
COX-2	cyclooxygenase-2
CPB	further abbreviation on *Chem. Pharm. Bull.*
$cPLA_2$	cytosolic 85 kDa phospholipase
CPT	camptothecin
CRPF	chloroquine-resistant *Plasmodium falciparum*
CRPF FcM29	chloroquine-resistant *Plasmodium falciparum* FcM29
CSPF	chloroquine-sensitive *Plasmodium falciparum*
Cyp1A	aromatase cytochrome P450 1A
CYP1A	cytochrome P450 1A
CYP450 1A	cytochrome P450 1A
d	day
D	diameter (mm)
Delta	difference in $\log_{10}$ GI_{50} (mol/L) value of the most sensitive cell line and MG-MID value
DGAT	diacylglycerol acyltransferase
DHFR	dihydrofolate reductase
DMSO	dimethyl sulfoxide
DNA	deoxyribonucleic acid
DOX	doxorubicin
DPI	diphenylene indonium
DPPH	1,1-diphenyl-2-picrylhydrazyl free radical

DRPF	drug-resistant *Plasmodium falciparum*
DRS	drug-resistant *Staphylococcus* sp.
DSPF	drug-sensitive *Plasmodium falciparum*
DYRK1A	protein kinase
EBV	Epstein–Barr virus
EC	effective concentration
EC_{50}	medium effective concentration
ED_{50}	effective dose for 50%
ED_{50}	medium effective dose (sometimes for the medium effective concentration)
EGF	epidermal growth factor
EGFR	epidermal growth factor receptor
EL-4	lymphoma cell line with resistance to natural killer cells
ELISA	enzyme-linked immunosorbent assay
EPI	epirubicin
ERK	extracellular signal-regulated protein kinase
ESBLs	extended spectrum β-lactamase
EurJOC	further abbreviation on *Eur. J. Org. Chem.*
FAK	protein kinase
FBS	fetal bovine serum
FLT3	a protein tyrosine kinase
Flu-A	influenza virus type A
Flu-B	influenza virus type B
fMLP/CB	*N*-formyl-L-methionyl-L-leucyl-L-phenylalanine/cytochalasin B
FOXO1a	downstream target of PTEN tumor suppressor
fp	freezing point
FPT	farnesyl protein transferase
FRCA	fluconazole-resistant *Candida albicans*
FtsZ	a structural homolog of eukaryotic tubulin, a GTPase
FXR	farnesoid X receptor
GABA	γ-aminobutyric acid
GI_{50}	the concentration of sample necessary to inhibit the growth to 50% of the control
GlyR	glycine-gated chloride channel receptor
gp41	a transmembrane protein of HIV-1 (recombinant protein)
gpg	guinea pig
GPR12	G protein-coupled receptor 12; it can be a significant molecular target for treating a variety of neurological disorders
GRP78	molecular chaperone (chaperone)
GST	glutathione *S*-transferases
GTP	guanosine triphosphate
GU4	*Candida albicans*-sensitive GU4 strain
GU5	*Candida albicans*-resistant GU5 strain
h	hour
H1N1	influenza virus H1N1
H3N2	influenza virus H3N2
H5N1	influenza virus A H5N1
HBV	hepatitis B virus
HC_{50}	medium hemolytic concentration
HCMV	hmn cytomegalovirus

HCV	hepatitis C virus
HD	a positive control compound; no concrete explanation in original paper (J. Qin, et al, BoMCL, 2010, 20, 7152)
HER2	tyrosine kinase
HF	hypersensitivity factor
HIF-1	hypoxia-inducible factor-1
HIV	hmn immunodeficiency virus
HIV-1	hmn immunodeficiency virus type 1
HIV-1 IIIB	hmn immunodeficiency virus type 1 IIIB
HIV-1 in	hmn immunodeficiency virus type 1 integrase
HIV-1 $_{RF}$	hmn immunodeficiency virus RF
HIV-1-rt	hmn immunodeficiency virus type 1 reverse transcriptase
HIV-2	hmn immunodeficiency virus type 2
HIV-rt	hmn immunodeficiency virus reverse transcriptase
HLE	hmn leukocyte elastase
HMG-CoA	3-hydroxy-3-methylglutaryl coenzyme A reductase
hmn	human
HNE	hmn neutrophil elastase
$HO^{\bullet}$	hydroxyl radical
hPPARd	hmn peroxisome proliferator-activated receptor delta
HSV	herpes simplex virus
HSV-1	herpes simplex virus 1
HSV-2	herpes simplex virus 2
hTopo I	hTopo I isomerase
HXB2	T-cell tropic viral strain
IC	inhibiting concentration
IC_{50}	median inhibiting concentration
IC_{90}	inhibiting concentration for 90%
IC_{100}	absolute inhibiting concentration
ICR	imprinting control region mouse
ID	inhibition diameter (mm)
ID_{50}	median inhibiting dose
IDE	insulin-degrading enzyme
IDO	indoleamine 2,3-dioxygenase
IFV	influenza virus
IgE	immunoglobulin E
IGF1-R	protein kinase
IgM	immunoglobulin M
IL	interleukin
IL-1	interleukin-1
IL-1α	interleukin-1α
IL-1β	interleukin-1β
IL-2	interleukin-2
IL-4	interleukin-4
IL-5	interleukin-5
IL-6	interleukin-6
IL-8	interleukin-8
IL-12	interleukin-12
IL-13	interleukin-13

IM	immunomodulator
IMPDH	inosine monophosphate dihydrogenase
IN	integrase
iNOS	inducible nitric oxide synthase
InRt	inhibitive rate
ip	intraperitoneal injection
iv	intravenous injection
IZ	inhibition zone (mm)
IZD	inhibition zone diameter (mm)
IZR	inhibition zone radii (mm)
JACS	further abbreviation on *J. Am. Chem. Soc.*
Jak2	Janus kinase 2
JCS Perkin I	further abbreviation on *J. Chem. Soc., Perkin Trans. I*
JMC	further abbreviation on *J. Med. Chem.*
JNK	c-Jun NH_2-terminal kinase
JNP	further abbreviation on *J. Nat. Prod.*
JOC	further abbreviation on *J. Org. Chem.*
KDR	a protein tyrosine kinase
KU-812	hmn basophilic granulocyte
LAV	T-cell tropic viral strain
LC_{50}	concentration at which only 50% of the cells are viable
LCV	lymphocyte viability
LD	lethal dose
LD_{100}	100% lethal dose
LD_{50}	medium lethal dose
LD_{99}	99% lethal dose
LDH	lactate dehydrogenase
LOX	lipoxygenase
LPS	lipopolysaccharide
LTB_4	leukotriene B_4
LTC_4	leukotriene C_4
LY294002	phosphatidylinositol-3-kinase inhibitor; used as a positive control in anti-inflammatory assay
MABA	microplate Alamar blue assay
MAGI test	also called single life cycle test, reflects only one round of infection
MAPKAPK-2	mitogen-activated protein kinase-activated protein kinase 2
MAPKK	mitogen-activated protein kinase kinase
MBC	minimum bactericidal concentration
MBC_{90}	minimum bactericidal concentration for 90%
$MBEC_{90}$	minimum biofilm eradication counts for 90%
MCV	poxvirus *Molluscum contagiosum* virus
MDR	multidrug resistance
MDR1	major facilitator superfamily 1; one type of efflux pump in *C. albicans*, which functions as an H^+-antiporter
MDRPF	multidrug-resistant *Plasmodium falciparum*
MDRSA	multidrug-resistant *Staphylococcus aureus*
MDRSP	multidrug-resistant *Streptococcus pneumoniae*
MEK1 wt	protein kinase
MET wt	protein kinase

MG-MID	mean value of $\log_{10}$ GI_{50} (mol/L) over all cell lines tested
MIA	minimal inhibitory amounts (μg/disk)
MIC	minimum inhibitory concentration
MIC_{50}	minimal inhibitive concentration for 50%
MIC_{80}	minimal inhibitive concentration for 80%
MIC_{90}	minimal inhibitive concentration for 90%
MID	minimum inhibitory dose
min	minute
MLD	minimum lethal dose
MLR	mixed lymphocyte reaction
MMOA	molecular mechanism of action
MMP	matrix metalloproteinases
MMP-2	matrix metalloproteinase-2
MoBY-ORF	molecular barcoded yeast open-reading frame library method
mp	melting point
MPtpA	mycobacterial protein tyrosine phosphatase A
MPtpB	mycobacterial protein tyrosine phosphatase B
mPTPB	*Mycobacterium tuberculosis* protein tyrosine phosphatase B
MREC	methicillin-resistant *Escherichia coli*
MRSA	methicillin-resistant *Staphylococcus aureus*
MRSE	methicillin-resistant *Staphylococcus epidermidis*
MSR	macrophage scavenger receptor
MSSA	methicillin-sensitive *Staphylococcus aureus*
MSSE	methicillin-sensitive *Staphylococcus epidermidis*
MT1-MMP	membrane type 1 matrix metalloproteinase
MT4	MT4 cells containing HIV-1 IIIB virus
MTT	3-(4,5-dimethylthiazole-2-yl)-2,5-diphenyltetrazolium bromide
MTT assay	a cytotoxicity measurement method, tetrazolium-based colorimetric assay, see L. V. Rubinstein, et al., Nat. Cancer Inst., 82, 1113~1118 (1990)
mus	mouse
n	number of parallel experiments
nACh	nicotinic acetylcholine
NADH	reduced nicotinamide adenine dinucleotide
NDM-1	New Delhi metallo-β-lactamase-1
NEK2	protein kinase
NEK6	protein kinase
NF-κB	NF-κB serves as a central regulator of hmn immune, inflammatory, and antiapoptotic responses (Ghosh et al., 1998, Ann. Rev. Immunol, 16, 225-260).
NFRD	NADH-fumarate reductase
NGF	nerve growth factor
NMDA	*N*-methyl-D-aspartate
$NO^{\bullet}$	nitric oxide free radical
NPR	further abbreviation on *Nat. Prod. Rep*.
$O_2^{\bullet -}$	superoxide free radical
$ONOO^-$	peroxy nitrite free radical
ORAC	oxygen radical absorbance capacity
orl	oral
p24	p24 protein

P2Y receptors	one type of purine receptors, which includes P1 (adenosine receptors) and P2 receptors [ionotropic P2X and metabotropic (G protein-coupled) P2Y]
$P2Y_{11}$ receptor	one of eight P2Y subtypes
P450	cytochrome P450
p56lck	tyrosine kinase
PAcF	platelet activating factor
PAF	platelet aggregation factor
PD	Parkinson's disease
pD_2 (=pEC_{50})	negative logarithm (–log *M*) of molar concentration required to produce 50% of the maximum response (EC_{50})
PDE5	phosphodiesterase 5
PDGF	platelet-derived growth factor
PfGSK-3	kinase
Pfnek-1	a NIMA-related protein kinase of *Plasmodium falciparum*
PfPK5	kinase
PfPK7	kinase
PGE_2	prostaglandin E2
PHK	primary hmn keratinocytes
PIM1	protein kinase
PK	protein kinase
PKA	protein kinase A
PKC	protein kinase C
PKC-ε	protein kinase C-ε
PKD	ribosomal protein
PKG	protein kinase G
PLA	phospholipase A
PLA_2	phospholipase A_2
PLCγ1	ribosomal protein
PLK1	protein kinase
PM	further abbreviation on *Planta Med.*
PMA (=TPA)	phorbol-12-myristate-13-acetate
PMNL	hmn polymorphonuclear leukocyte
PP	protein phosphatase
PP1	protein phosphatase PP1
PP2A	protein phosphatase PP2A
$pp60^{V\text{-}SRC}$	tyrosine kinase
PPAR	peroxisome proliferator-activated receptor
PPDK	pyruvate phosphate dikinase
PR	protease
PRK1	protein kinase
PRNG	penicillin-resistant *Neisseria gonorrhoeae*
PRSP	penicillin-resistant *Staphylococcus pneumoniae*
PTEN	tumor suppressor, an identified tumor suppressor gene located on hmn chromosome 10q23.3
PTK	protein tyrosine kinase
PTP1B	protein tyrosine phosphatase 1B, an important target for treatment of type II diabetes
PTPB	protein tyrosine phosphatase B
PTPS2	protein tyrosine phosphatase S2

PV-1	*Polio* virus
PXR	pregnane X receptor
QR	NAD(P)H: quinone reductase
Range	difference in $\log_{10}$ GI_{50} (mol/L) value of the most sensitive cell line and the least sensitive cell
rat	white rat
rbt	rabbit
RLAR	rat lens aldose reductase
RNA	ribonucleic acid
ROS	reactive oxygen species (involved in genesis of various cancers, arteriosclerosis, rheumatism, and aging)
RS321	code of a yeast
RSV	respiratory syncytial virus
RT	reverse transcriptase
RU	response unit of binding capacity to HIV-1 targets, 1 RU = 1 pg/mm^2
RyR1-FKBP12	RyR1-FKBP12 Ca^{2+} channel, a tetrameric heterodimeric channel protein (~2000 kDa) associated with smaller 12 kDa immunophilin FKBP12
S6	ribosomal protein
SAK	a protein kinase
SARS	severe acute respiratory syndrome
ScRt	scavenging rate
SF162	macrophage-tropic viral strain
SI	IC_{50} of testing cells/IC_{50} of HUVECs
SI	selective index = cytotoxic CC_{50}/target EC_{50}
SI	selective index = cytotoxic IC_{50}/target IC_{50}
SI	selective index = cytotoxic IC_{50}/target MIC
SI	selective index = cytotoxic TC_{50}/target IC_{50}
SIRT2	hmn sirtuin type 2 (a NAD^+-dependent cytoplasmic protein that is co-localized with HDAC6 on microtubules. SIRT2 has been shown to deacetylate α-tubulin and to control mitotic exit from the cell cycle)
sp.	species
spp.	species (plural)
SR	sarcoplasmic reticulum
SRB	sulforhodamine B assay
SRC	protein kinase
SV40	SV40 virus
Syn.	synonym
T/*C*	survival ratio [survival time of treated animal (*T*) was compared to that of control animal (*C*) expressed as a percent (*T*/*C*%)]
TACE	*α*-secretase (a serine protease)
Taq DNA polymerase	a DNA polymerase isolated from the thermophilic bacterium *Thermus aquaticus*
TBARS	thiobarbituric acid-reactive substance assay
TC_{50}	50% cytotoxic concentration
TEAC	Trolox equivalent antioxidant capacity
TGI	100% growth inhibition
TMV	tobacco mosaic virus
TNF*α*	tumor necrosis factor-*α*
TPA (=PMA)	12-*O*-tetradecanoyl phorbol 13-acetate

TPK	tyrosine protein kinase
TRP	transient receptor potential cationic channel
TRPA1	transient receptor potential cationic channel of subfamily A1
TRPV1	transient receptor potential cationic channel of subfamily V1
TRPV3	transient receptor potential cationic channel of subfamily V3
TXB_2	thromboxane B_2
TZM-bl	host cell in HIV-1 neutralization assay
USP7	a deubiquitylating enzyme hydrolyzing isopeptide bond at C-terminus of ubiquitin is an emerging cancer target
VCAM	vascular cell adhesion molecule
VCAM-1	vascular cell adhesion molecule-1
VCR	vincristine
VEGF	vascular endothelial growth factor
VEGF-A	vascular endothelial growth factor A
VEGFR2	tyrosine kinase VEGFR2
VE-PTP	protein phosphatase
VGSC	voltage-gated sodium channel
VHR	vaccinia open-reading frame H1-related protein phosphatase
Vif	viral infectivity factor of HIV-1
VP-16	etoposide (Sigma product), a positive control for cytotoxic assay
VRE	vancomycin-resistant *Enterococcus* sp.
VREF	vancomycin-resistant *Enterococcus faecium*
VSE	vancomycin-sensitive *Enterococcus* sp.
VSSC	voltage-sensitive sodium channel
VSV	*Vesicular stomatitis* virus
WST-8	2-(2-methoxy-4-nitrophenyl)-3-(4-nitrophenyl)-5-(2,4-disulfo-phenyl)-2*H*-tetrazolium, monosodium salt
XTT	sodium 3'-[1-(phenylaminocarbonyl)-3,4-tetrazolium] bis(4-methoxy-6-nitrobenzene)sulfonic acid
YU2-V3	viral strain

List of Cancer Cell Codes

This set of codes for 438 cancer cells, named as *CCC codes*, are defined and tried out in the books by the author. The codes of some normal cells are also listed below.

293T	kidney epithelial cells
3T3-L1	murine fibroblasts
5637	superficial bladder cancer (cell)
786-0	hmn renal cancer (cell)
9KB	hmn *epidermatoid* nasopharyngeal carcinoma (cell)
A-10	rat aorta cells
A2058	hmn (cell)
A278	hmn ovarian tumor (cell)
A2780	hmn ovarian tumor (cell)
A2780CisR	hmn ovarian tumor (cell)
A2780/DDP	hmn ovarian tumor (cell)
A2780/Tax	hmn ovarian tumor (cell)
A375	hmn melanoma (cell)
A375-S2	hmn melanoma (cell)
A431	hmn epidermic cancer (cell)
A498	hmn renal cancer (cell)
A549	hmn nonsmall cell lung cancer (cell)
A549 NSCL	hmn nonsmall cell lung cancer (cell)
A549/ATCC	hmn nonsmall cell lung cancer (cell)
ACC-MESO-1	hmn malignant pleural mesothelioma (cell)
ACHN	hmn renal cancer (cell)
AGS	gastric adenocarcinoma (cell)
AsPC-1	hmn pancreatic cancer (cell)
B16	mouse melanoma (cell)
B16F1	mouse melanoma (cell)
B16-F-10	mouse melanoma (cell)
BC	hmn breast cancer (cell)
BC-1	hmn breast cancer (cell)
BCA-1	hmn breast cancer (cell)
BEAS2B	normal hmn lung bronchial cells
Bel7402	hmn liver cancer (cell)
BG02	normal hmn embryonic stem cells
BGC823	hmn gastric cancer (cell)
BOWES	hmn cells
BR1	DNA repair competent Chinese hamster ovary (cell)
BSC	normal monkey kidney cells
BSC-1	normal African Green Monkey kidney cells
BSY1	breast cancer (cell)
BT-483	hmn breast carcinoma (cell)
BT549	hmn galactophore cancer (cell)
BT-549	hmn breast cancer (cell)
BXF-1218L	hmn bladder cancer (cell)
BXF-T24	hmn bladder cancer (cell)
BXPC	hmn pancreas cancer (cell)

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BXPC3	hmn pancreas cancer (cell)
C6	rat glioma (cell)
C26	hmn colon carcinoma (cell)
C38	murine colon adenocarcinoma (cell)
CA46	hmn Burkitt's lymphoma (cell)
Ca9-22	hmn gingival carcinoma (cell)
CaCo-2	hmn epithelial colorectal adenocarcinoma (cell)
CAKI-1	hmn renal cancer (cell)
Calu	prostate carcinoma (cell)
Calu3	nonsmall cell lung cancer (cell)
CCRF-CEM	hmn T-cell acute lymphoblastic leukemia (cell)
CCRF-CEMT	leukemia (cell)
CEM	hmn leukemia (cell)
CEM-TART	T cells that express both HIV-1 tat and rev
CFU-GM	hmn/murine hematopoietic progenitor cells
CHO	Chinese hamster ovary cells
CHO-K1	subclone of normal Chinese hamster ovary cells
CML K562	chronic myelogenous leukemia (cell)
CNE	hmn nasopharyngeal carcinoma (cell)
CNE2	hmn nasopharyngeal carcinoma (cell)
CNS SF295	hmn brain tumor (cell)
CNXF-498NL	hmn glioblastoma cancer (cell)
CNXF-SF268	hmn glioblastoma cancer (cell)
Colo320	hmn colorectal cancer (cell)
Colo357	hmn colorectal cancer (cell)
Colon26	colorectal cancer (cell)
Colon38	mus colorectal cancer (cell)
Colon205	colorectal cancer (cell)
Colon250	colorectal cancer (cell)
CV-1	monkey kidney fibroblasts
CXF-HCT116	hmn colon cancer (cell)
CXF-HT29	hmn colon cancer (cell)
DAMB	hmn mammary carcinoma (cell)
DG-75	hmn B lymphocyte (cell)
DLAT	Dalton's lymphoma ascites tumor (cell)
DLD-1	hmn colorectal adenocarcinoma (cell)
DLDH	hmn colorectal adenocarcinoma (cell)
DMS114	hmn lung cancer (cell)
DMS273	hmn small cell lung cancer (cell)
Doay	hmn medulloblastoma (cell)
Dox40	hmn myeloma (cell)
DU145	prostate cancer (cell)
DU4475	breast cancer (cell)
E39	hmn renal carcinoma (cell)
EAC	Ehrlich ascites carcinoma (cell)
EKVX	hmn nonsmall cell lung cancer (cell)
EM9	topoisomerase I-sensitive Chinese hamster ovary (cell)
EMT-6	mouse tumor cells
EPC	carp epithelium (cell)

EVLC-2	SV40 large T-antigen immortalized hmn umbilical vein cells
F1	hmn amniotic epithelial cells
FADU	pharynx-sq cancer (cell)
Farage	hmn lymphoma (cell)
Fem-X	melanoma (cell)
Fl	hmn amniotic epithelial cell line
FM3C	mus mammary tumor (cell)
G402	hmn renal leiomyoblastoma
GM7373	bovine endothelial (cell)
GR-III	adenocarcinoma (cell)
GXF-251L	hmn stomach cancer (cell)
H116	hmn colorectal cancer (cell)
H125	hmn colorectal cancer (cell)
H441	hmn lung adenocarcinoma (cell)
H460	hmn lung cancer (cell)
H522	hmn nonsmall cell lung cancer (cell)
H1299	hmn lung adenocarcinoma (cell)
H1325	hmn nonsmall cell lung cancer (cell)
H1975	hmn cancer (cell)
H2122	hmn nonsmall cell lung cancer (cell)
H2887	hmn nonsmall cell lung cancer (cell)
H69AR	multidrug-resistant small cell lung cancer (cell)
H929	hmn myeloma (cell)
H9c2	rat cardiac myoblasts
HBC4	breast cancer (cell)
HBC5	breast cancer (cell)
HBL100	breast cancer (cell)
HCC366	hmn nonsmall cell lung cancer (cell)
HCC2998	hmn colorectal cancer (cell)
HCC-S102	hepatocellular carcinoma (cell)
HCT	hmn colorectal cancer (cell)
HCT8	hmn colorectal cancer (cell)
HCT15	hmn colorectal cancer (cell)
HCT29	hmn colon adenocarcinoma (cell)
HCT116	hmn colorectal cancer (cell)
HCT116/mdr+	overexpress mdr+ hmn colorectal cancer (cell)
HCT116/topo	resistant to etoposide hmn colorectal cancer (cell)
HCT116/VM46	multidrug-resistant colorectal cancer (cell)
HEK-293	normal hmn epithelial kidney cells
HEL	hmn embryonic lung fibrocytes
HeLa	hmn cervical epithelial carcinoma (cell)
HeLa-APL	hmn cervical epithelial cancer (cell)
HeLa-S3	hmn cervical epithelial cancer (cell)
Hep2	hmn liver carcinoma (cell)
Hep3B	hmn liver cancer (cell)
HepA	hmn liver cancer ascites (cell)
Hepa1c1c7	mus liver cancer (cell)
HepG	hmn liver cancer (cell)
HepG2	hmn liver cancer (cell)

HepG3	hmn liver cancer (cell)
HepG3B	hmn liver cancer (cell)
HEY	hmn ovarian carcinoma (cell)
HFF	hmn foreskin fibroblasts
HL60	hmn promyelocytic leukemia (cell)
HL7702	hmn liver tumor (cell)
HLF	hmn lung fibroblasts
HM02	hmn gastric adenocarcinoma (cell)
HMEC	hmn microvascular endothelial cells
HMEC1	hmn microvascular endothelial cells
HNXF-536L	hmn head and neck cancer (cell)
HOP-18	hmn nonsmall cell lung cancer (cell)
HOP-62	hmn nonsmall cell lung cancer (cell)
HOP-92	hmn nonsmall cell lung cancer (cell)
Hs578T	hmn breast cancer (cell)
Hs683	hmn oligodendroglioma (black dots) (cell)
HSV-1	nonmalignant cell
HT	hmn lymphoma (cell)
HT29	hmn colorectal cancer (cell)
HL60	M. Daferner, et al., Z. Naturforsch., Teil C, 1999, 54, 474
HT115	hmn colorectal cancer (cell)
HT460	hmn tumor (cell)
HT1080	hmn fibrosarcoma (cell)
HTC116	hmn acute promyelocytic leukemia (cell)
HTCLs	hmn tumors (cells)
HuCCA-1	hmn cholangiocarcinoma cancer (cell)
Huh7	hmn hepatoma (cell)
HUVEC	hmn umbilical vein endothelial cell
HUVECs	hmn umbilical vein endothelial cell
IC-2^{WT}	murine cell line
IGR-1	hmn melanoma (cell)
IGROV	hmn ovarian cancer (cell)
IGROV1	hmn ovarian cancer (cell)
IGROV-ET	hmn ovarian cancer (cell)
IMR-32	hmn neuroblastoma (cell)
IMR-90	hmn diploid lung fibroblasts
J774	mus monocyte/macrophage (cell)
J774.1	mus monocyte/macrophage (cell)
J774.A1	mus monocyte/macrophage (cell)
JB6 Cl41	mouse epidermal cells
JB6 P^{+}Cl41	mouse epidermal cells
JurKat	hmn leukemia (cell)
JurKat-T	hmn T-cell leukemia (cell)
K462	hmn leukemia (cell)
K562	hmn chronic myelogenous leukemia (cell)
KB	hmn nasopharyngeal carcinoma (cell)
KB16	hmn nasopharyngeal carcinoma (cell)
KB-3	hmn *epidermoid* carcinoma (cell)
KB-3-1	hmn *epidermoid* carcinoma (cell)

KB-C2	hmn carcinoma (cell)
KB-CV60	hmn carcinoma (cell)
KBV200	MDR nasopharyngeal carcinoma (cell)
Ketr3	hmn renal cancer (cell)
KM12	hmn colorectal cancer (cell)
KM20L2	hmn colorectal cancer (cell)
KMS34	hmn myeloma (cell)
KU812F	hmn leukemia (cell)
KV/MDR	multidrug-resistant cancer (cell)
KYSE30	hmn esophageal cancer (cell)
KYSE70	hmn esophageal cancer (cell)
KYSE180	hmn esophageal cancer (cell)
KYSE520	hmn esophageal cancer (cell)
L_{1210}	mouse lymphocytic leukemia (cell)
L_{1210}/Dx	doxorubicin-resistant L_{1210} (cell)
L363	hmn myeloma (cell)
L-428	leukemia (cell)
L5178	mouse lymphosarcoma (cell)
L5178Y	mouse lymphosarcoma (cell)
L-6	rat skeletal myoblasts (cell)
L929	mouse fibroblasts
LLC-PK_1	pig kidney cells
LMM3	mouse mammary adenocarcinoma (cell)
LNCaP	hmn prostate cancer (cell)
LO2	hmn liver cells
LoVo	hmn colorectal cancer (cell)
LoVo-DOX	hmn colorectal cancer (cell)
LOX	hmn melanoma (cell)
LOX-IMVI	hmn melanoma (cell)
LX-1	hmn lung cancer (cell)
LXF-1121L	hmn lung cancer (cell)
LXF-289L	hmn lung cancer (cell)
LXF-526L	hmn lung cancer (cell)
LXF-529L	hmn lung cancer (cell)
LXF-629L	hmn lung cancer (cell)
LXFA-629L	lung adenocarcinoma (cell)
LXF-H460	hmn lung cancer (cell)
M14	melanoma (cell)
M16	murine colon adenocarcinoma (cell)
M17	adriamycin-resistant breast cancer (cell)
M17-Adr	adriamycin-resistant breast cancer (cell)
M21	melanoma (cell)
M5076	ovarian sarcoma (cell)
MAGI	Hela-CD4-LTR-β-gal (indicator) cells containing HIV-1 IIIB virus
MALME-3	melanoma (cell)
MALME-3M	melanoma (cell)
MAXF-401	hmn breast cancer (cell)
MAXF-401NL	hmn breast cancer (cell)
MAXF-MCF7	hmn breast cancer (cell)

MCF	hmn breast cancer (cell)
MCF-10A	hmn breast epithelial (cell)
MCF7	hmn breast cancer (cell)
MCF7 Adr	drug-resistant hmn breast MCF7 cancer (cell)
MCF7/Adr	drug-resistant hmn breast MCF7 cancer (cell)
MCF7/ADR-RES	drug-resistant hmn breast cancer MCF7 (cell)
MCF12	hmn esophageal cancer (cell)
MDA231	hmn breast cancer (cell)
MDA361	hmn breast cancer (cell)
MDA435	hmn breast cancer (cell)
MDA468	hmn breast cancer (cell)
MDA-MB	hmn breast cancer (cell)
MDA-MB-231	hmn breast cancer (cell)
MDA-MB-231/ATCC	hmn breast cancer (cell)
MDA-MB-435	hmn breast cancer (cell)
MDA-MB-435s	hmn breast cancer (cell)
MDA-MB-468	hmn breast cancer (cell)
MDA-N	hmn breast cancer (cell)
MDCK	Madin–Darby canine (cell)
ME180	cervical cancer (cell)
MEL28	hmn melanoma (cell)
MES-SA	hmn uterine (cell)
MES-SA/DX5	hmn uterine (cell)
MEXF-276L	hmn melanoma (cell)
MEXF-394NL	hmn melanoma (cell)
MEXF-462NL	hmn melanoma (cell)
MEXF-514L	hmn melanoma (cell)
MEXF-520L	hmn melanoma (cell)
MG63	hmn osteosarcoma (cell)
MGC-803	hmn cancer (cell)
MiaPaCa	hmn pancreas cancer (cell)
Mia-PaCa-2	hmn pancreas cancer (cell)
MKN1	hmn gastric cancer (cell)
MKN7	hmn gastric cancer (cell)
MKN28	hmn gastric cancer (cell)
MKN45	hmn gastric cancer (cell)
MKN74	hmn gastric cancer (cell)
MM1S	hmn myeloma (cell)
Molt3	leukemia (cell)
Molt4	hmn T lymphocyte leukemia (cell)
Mono-Mac-6	mononuclear cells
MPM ACC-MESO-1	hmn malignant pleural mesothelioma
MRC-5	normal hmn diploid embryonic cells
MRC5CV1	SV40-transformed hmn fibroblasts
MS-1	mice endothelial cells
MX-1	hmn mammary carcinoma xenografts
N18-RE-105	neuronal hybridoma (cell)
N18-T62	mus neuroblastoma (cell)
NAMALWA	leukemia (cell)

NBT-T2 (BRC-1370)	rat bladder epithelial cells
NCI-ADR	hmn ovarian sarcoma (cell)
NCI-ADR-Res	hmn ovarian sarcoma (cell)
NCI-H23	hmn nonsmall cell lung cancer (cell)
NCI-H69	hmn lung cancer (cell)
NCI-H82	hmn lung cancer (cell)
NCI-H187	hmn small cell lung cancer (cell)
NCI-H226	hmn nonsmall cell lung cancer (cell)
NCI-H322M	hmn nonsmall cell lung cancer (cell)
NCI-H446	hmn lung cancer (cell)
NCI-H460	hmn nonsmall cell lung cancer (cell)
NCI-H510	hmn lung cancer (cell)
NCI-H522	hmn nonsmall cell lung cancer (cell)
neuro-2a	mouse neuroblastoma (cell)
NFF	nonmalignant neonatal foreskin fibroblasts
NHDF	normal hmn dermal fibroblasts
NIH3T3	nontransformed fibroblasts
NIH3T3	normal fibroblasts
NMuMG	nontransformed epithelial cells
NOMO-1	hmn acute myeloid leukemia
NS-1	murine cells
NSCLC	hmn bronchopulmonary nonsmall cell lung cancer
NSCLC HOP-92	hmn nonsmall cell lung cancer (cell)
NSCLC-L16	hmn bronchopulmonary nonsmall cell lung carcinoma
NSCLC-N6	hmn bronchopulmonary nonsmall cell lung cancer (cell)
NSCLC-N6-L16	hmn bronchopulmonary nonsmall cell lung carcinoma
NUGC-3	hmn gastric cancer (cell)
OCILY17R	hmn lymphoma (cell)
OCIMY5	hmn myeloma (cell)
OPM2	hmn myeloma (cell)
OVCAR-3	ovarian adenocarcinoma (cell)
OVCAR-4	ovarian adenocarcinoma (cell)
OVCAR-5	ovarian adenocarcinoma (cell)
OVCAR-8	ovarian adenocarcinoma (cell)
OVXF-1619L	ovary cancer (cell)
OVXF-899L	ovary cancer (cell)
OVXF-OVCAR3	ovary cancer (cell)
P_{388}	mus lymphocytic leukemia (cell)
P_{388}/ADR	P_{388} adriamycin-resistant (cell)
P_{388}/Dox	mus leukemia cells expressing resistance toward doxorubicin
P_{388}D1	mus macrophage cells
PANC1	hmn pancreas cancer (cell)
panc89	pancreatic cancer (cell)
PAXF-1657L	hmn pancreas cancer (cell)
PAXF-PANC1	hmn pancreas cancer (cell)
PBMC	hmn normal peripheral blood mononuclear cells
PC12	hmn lung cancer (cell)
PC-12	rat pheochromocytoma (cell)
PC3	hmn prostate cancer (cell)

PC3M	hmn prostate cancer (cell)
PC3MM2	hmn prostate cancer (cell)
PC-9	hmn lung cancer (cell)
PRXF-22RV1	hmn prostate cancer (cell)
PRXF-DU145	hmn prostate cancer (cell)
PRXF-LNCAP	hmn prostate cancer (cell)
PRXF-PC3M	hmn prostate cancer (cell)
PS (=P_{388})	PS system, P_{388} mouse lymphocytic leukemia (cell)
PV1	nonmalignant cell
PXF-1752L	mesothelioma cancer (cell)
QG56	hmn lung carcinoma (cell)
QGY-7701	hmn hepatocellular carcinoma (cell)
QGY-7703	hmn liver cancer (cell)
Raji	hmn EBV-transformed Burkitt's lymphoma B cell
RAW264.7	mouse macrophages
RB	hmn prostate cancer (cell)
RBL-2H3	rat basophilic cells
RF-24	papillomavirus 16 E6/E7 immortalized hmn umbilical vein cells
RKO	hmn colon cancer (cell)
RKO-E6	hmn colon cancer (cell)
RPMI7951	hmn malignant melanoma (cell)
RPMI8226	hmn myeloma (cell)
RXF-1781L	renal cancer (cell)
RXF-393	renal cancer (cell)
RXF-393NL	renal cancer (cell)
RXF-486L	renal cancer (cell)
RXF-631L	renal cancer (cell)
RXF-944L	renal cancer (cell)
S_{180}	mouse sarcoma (cell)
S_{180}A	sarcoma 180 ascite cells
SAS	hmn oral cancer
SCHABEL	mouse lymphoma cancer (cell)
SF268	hmn brain tumor (cell)
SF295	hmn brain tumor (cell)
SF539	hmn brain tumor (cell)
SGC7901	hmn gastric cancer (cell)
SH-SY5Y	hmn neuroblastoma (cell)
SK5-MEL	hmn melanoma (cell)
SKBR3	hmn breast cancer (cell)
SK-Hep1	hmn liver carcinoma (cell)
SK-MEL-2	hmn melanoma (cell)
SK-MEL-5	hmn melanoma (cell)
SK-MEL-28	hmn melanoma (cell)
SK-MEL-S	hmn melanoma (cell)
SK-N-SH	neuroblastoma (cell)
SK-OV-3	ovarian adenocarcinoma (cell)
SMMC-7721	hmn liver cancer (cell)

SN12C	hmn renal cancer (cell)
SN12k1	hmn renal cancer (cell)
SNB19	hmn brain tumor (cell)
SNB75	hmn CNS cancer (cell)
SNB78	hmn brain tumor (cell)
SNU-C4	hmn cancer (cell)
SR	leukemia (cell)
St4	gastric cancer (cell)
stromal cell	bone marrow stromal cells
SUP-B15	leukemia (cell)
Sup-T1	T-cell lymphoma cancer cells
SW480	hmn colorectal adenocarcinoma (cell)
SW620	hmn colorectal adenocarcinoma (cell)
SW1573	hmn nonsmall cell lung cancer (cell)
SW1736	hmn thyroid cancer (cell)
SW1990	hmn pancreatic cancer (cell)
T24	hmn liver cancer (cell)
T-24	hmn transitional bladder carcinoma (cell)
T47D	hmn breast cancer (cell)
THP-1	hmn acute monocytic leukemia (cell)
TK10	hmn renal cancer (cell)
tMDA-MB-231	hmn breast cancer (cell)
tsFT210	mouse cancer (cell)
TSU-Pr1	invasive bladder cancer (cell)
TSU-Pr1-B1	invasive bladder cancer (cell)
TSU-Pr1-B2	invasive bladder cancer (cell)
U251	CNS tumor/glioma (cell)
U266	myeloma (cell)
U2OS	hmn osteosarcoma (cell)
U373	glioblastoma/astrocytoma (cell)
U373MG	hmn brain cancer (cell)
U-87-MG	caucasian glioblastoma (cell)
U937	hmn monocytic leukemia (cell)
UACC-257	melanoma (cell)
UACC62	melanoma (cell)
UO-31	hmn renal cancer (cell)
UT7	hmn leukemia (cell)
UV20	DNA cross-linking agent-sensitive Chinese hamster ovary (cell)
UXF-1138L	hmn uterus cancer (cell)
V79	Chinese hamster (cell)
Vero	green monkey kidney tumor (cell)
WEHI-164	mus fibrosarcoma (cell)
WHCO1	hmn esophageal cancer (cell)
WHCO5	hmn esophageal cancer (cell)
WHCO6	hmn esophageal cancer (cell)
WI26	hmn lung fibroblasts
WiDr	hmn colon adenocarcinoma (cell)

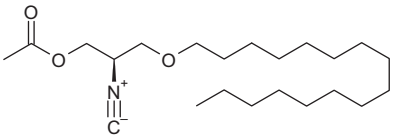
WMF	hmn prostate cancer (cell)
XF498	hmn CNS cancer (cell)
XRS-6	topoisomerase II-sensitive Chinese hamster ovary (cell)
XVS	topoisomerase II-sensitive CHO cell
ZR-75-1	hmn breast cancer (cell)

1 Aliphatic Metabolites

1.1 Saturated Aliphatic Chain Compounds

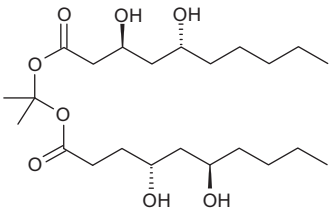
1 Actisonitrile

Type: Unbranched saturated aliphatic compounds. $C_{22}H_{41}NO_3$ Source: Nudibranch *Actinocyclus papillatus* (Weizhou I., Guangxi, China). Pharm: Cytotoxic (H9c2, IC_{50} = (23 ± 6)μmol/L). Ref: E. Manzo, et al, Org. Lett., 2011, 13, 1897



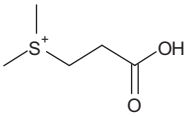
2 Aureobasidin

Type: Unbranched saturated aliphatic compounds. $C_{23}H_{44}O_8$ Amorph. powder. Source: Marine-derived fungus *Aureobasidium* sp. from marine aquatic plant *Posidonia oceanica*. Pharm: Antifoulant; inhibits larval settlement (*Balanus amphitrite* larvae); antibacterial (*Staphylococcus aureus, Escherichia coli* and *Bacillus subtilis*). Ref: A. Abdel-Lateff, et al, Nat. Prod. Commun., 2009, 4, 389



3 (2-Carboxyethyl)dimethylsulfonium(1+)

Dimethyl-*β*-propiothetin Type: Unbranched saturated aliphatic compounds. $C_5H_{11}O_2S^{1+}$ Needles (EtOH) (chloride), mp 134 °C (dec), mp 129 °C, p*K*a 3.35. Source: Green algae *Ulva lactuca* and *Enteromorpha intestinalis*. Pharm: Feeding stimulant (fish). Ref: S. Sciuto, et al, JNP, 1988, 51, 322

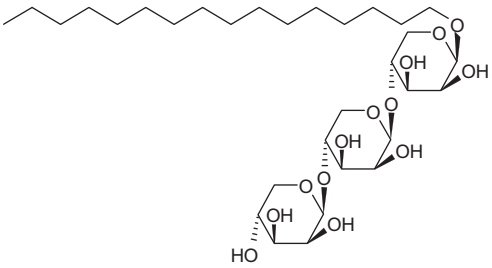


4 Cervicoside

1-Hexadecanol *O*-[*β*-*D*-Arabinopyranosyl-(1→4)-*β*-*D*-arabinopyranosyl-(1→4)-*β*-*D*-arabinopyranoside] Type: Unbranched saturated aliphatic compounds. $C_{31}H_{58}O_{13}$ Source:

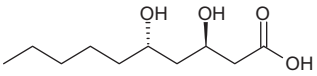
https://doi.org/10.1515/9783110655797-001

Soft coral *Sinularia cervicornis*. Pharm: Cytotoxic. Ref: X. -X. He, et al, Zhongshan Daxue Xuebao Ziran Kexueban, 2002, 41, 114; CA, 137, 198514j



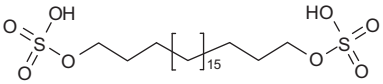
5 (3*R*,5*S*)-3,5-Dihydroxydecanoic acid

Type: Unbranched saturated aliphatic compounds. $C_{10}H_{20}O_4$ Yellowish oil. Source: Marine-derived fungus *Aureobasidium* sp. from marine aquatic plant *Posidonia oceanica*. Pharm: Inhibits larval settlement (*Balanus amphitrite* larvae); antibacterial (*Staphylococcus aureus, Escherichia coli* and *Bacillus subtilis*). Ref: A. Abdel-Lateff, et al, Nat. Prod. Commun., 2009, 4, 389



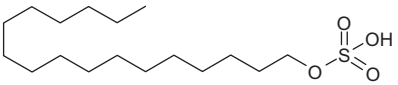
6 Heneicosane-1,21-diyl disulfate

Type: Unbranched saturated aliphatic compounds. $C_{21}H_{44}O_8S_2$ Source: Ascidian *Ascidia mentula* (Mediterranean Sea). Pharm: Antiproliferative (IGR-1, IC_{50} ≈ 100 μg/mL; J774, IC_{50} ≈ 170 μg/mL; WEHI-164, IC_{50} ≈ 150 μg/mL; P_{388}, IC_{50} ≈ 260 μg/mL). Ref: A. Aiello, et al, Tetrahedron, 1997, 53, 5877



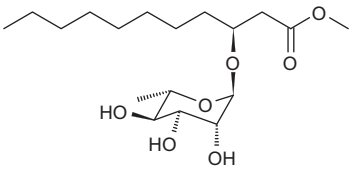
7 1-Heptadecanyl-*O*-sulfate

Type: Unbranched saturated aliphatic compounds. $C_{17}H_{36}O_4S$ Amorph. solid (Na salt). Source: Ascidian *Sidnyum turbinatum* (Mediterranean Sea). Pharm: Antiproliferative (*in vitro*, WEHI-164, IC_{50} = (400 ± 1)μg/mL, control 6-Mercaptopurine, IC_{50} = (1.30 ± 0.02)μg/mL). Ref: A. Aiello, et al, JNP, 2001, 64, 219



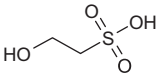
8 *R*-3-Hydroxyundecanoic acid methylester-3-*O*-α-*L*-rhamnopyranoside

Type: Unbranched saturated aliphatic compounds. $C_{18}H_{34}O_7$ Source: Marine-derived fungus from Mangrove *Scyphiphora hydrophyllacea* A1. Pharm: Antibacterial (*Staphylococcus aureus*, IZD = 9.8 mm, MRSA, IZD = 10.7 mm). Ref: Y. B. Zeng, et al, Mar. Drugs, 2012, 10, 598



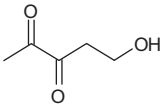
9 Isethionic acid

2-Sulfoethyl alcohol Type: Unbranched saturated aliphatic compounds. $C_2H_6O_4S$ Syrup. Source: Red alga *Ceramium flaccidum*, squid. Pharm: Irritant (eye, skin, and mucous membrane); LD_{50} (mus, ipr) = 50 mg/kg. Ref: K. D. Barrow, et al, Phytochemistry, 1993, 34, 1429



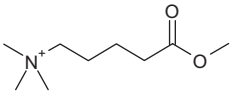
10 Laurencione (open-chain form)

5-Hydroxy-pentane-2,3-dione Type: Unbranched saturated aliphatic compounds. $C_5H_8O_3$ Light green oil. Source: Red alga *Laurencia spectabilis* (Oregon). Pharm: Toxic (brine shrimp). Ref: M. W. Bernart, et al, Phytochemistry, 1992, 31, 1273



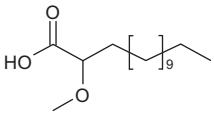
11 (4-Methoxycarbonylbutyl)-trimethylammonium chloride

Type: Unbranched saturated aliphatic compounds. $C_9H_{20}NO_2^{1+}$ Cryst. (chloride). Source: Cockle *Austrovenus stutchburyi* (New Zealand). Pharm: Neurotoxin; LD_{50} (mus, ipr) = 30 mg/kg. Ref: H. Ishida, et al, Toxicon, 1994, 32, 1672



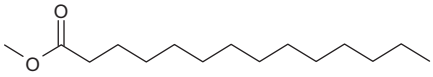
12 2-Methoxytetradecanoic acid

Type: Unbranched saturated aliphatic compounds. $C_{15}H_{30}O_3$ Source: Sponge *Callyspongia fallax* (Caribbean Sea). Pharm: Antifungal. Ref: N. M. Carballeira, et al, JNP, 2001, 64, 620



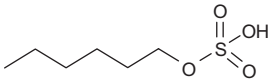
13 Methyl myristate

Type: Unbranched saturated aliphatic compounds. $C_{16}H_{30}O_2$ Source: Deep-sea fungus *Paecilomyces lilacinus* ZBY-1. Pharm: Cytotoxic (100 μg/mL: K562, MCF7, HL60, and BGC823, InRt = 30%–80%). Ref: X. Cui, et al, J. Int. Pharm. Res., 2013, 40, 765 (in Chinese)



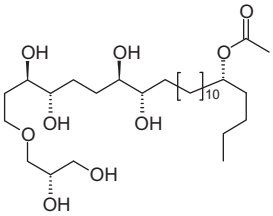
14 Monohexyl sulfate

Type: Unbranched saturated aliphatic compounds. $C_6H_{14}O_4S$ mp 83–84.5 °C (S-benzylthiuronioum salt). Source: Ascidian *Sidnyum turbinatum* (Mediterranean Sea). Pharm: Antiproliferative (*in vitro*, WEHI-164, IC_{50} = (150 ± 2)μg/mL, control 6-Mercaptopurine, IC_{50} = (1.30 ± 0.02)μg/mL). Ref: A. Aiello, et al, JNP, 2001, 64, 219



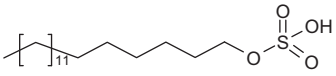
15 Mycalol

Type: Unbranched saturated aliphatic compounds. $C_{29}H_{58}O_9$ Source: Sponge *Mycale acerata* (Terra Nova Bay, Antarctica). Pharm: Cytotoxic (specific inhibitor of hmn anaplastic thyroid carcinomas – most aggressive and currently untreatable thyroid gland malignancies); cytotoxic inactive (other solid tumours). Ref: A. Cutignano, et al, Angew. Chem., Int. Ed., 2013, 52, 9256



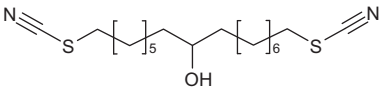
16 Octadecyl hydrogen sulfate

Type: Unbranched saturated aliphatic compounds. $C_{18}H_{38}O_4S$ Hygroscopic cryst., mp 54.1–55.5 °C (sealed tube). Source: Ascidian *Sidnyum turbinatum* (Mediterranean Sea). Pharm: Antiproliferative (*in vitro*, WEHI-164, IC_{50} = (410 ± 1)μg/mL, control 6-Mercaptopurine, IC_{50} = (1.30 ± 0.02)μg/mL). Ref: A. Aiello, et al, JNP, 2001, 64, 219



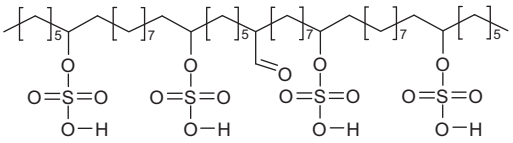
17 Thiocyanatin A

Type: Unbranched saturated aliphatic compounds. $C_{18}H_{32}N_2OS_2$ Oil. Source: Sponge *Oceanapia* sp. (off Northern Rottnest Shelf, Australia). Pharm: Nematocide (commercial livestock parastite *Haemonchus contortus*, LD_{99} = 1.3 μg/mL). Ref: R. J. Capon, et al, JOC, 2001, 66, 7765



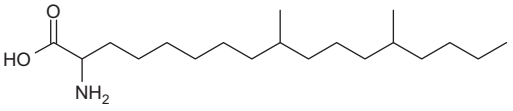
18 Toxadocial A

Type: Unbranched saturated aliphatic compounds. $C_{48}H_{96}O_{17}S_4$ Amorph. solid (tetra-Na salt), $[\alpha]_D$ = −2.2° (*c* = 1, MeOH) (tetra-Na salt). Source: Sponge *Toxadocia cylindrica*. Pharm: Thrombin inhibitor. Ref: Y. Nakao, et al, Tet. Lett., 1993, 34, 1511



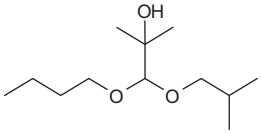
19 2-Amino-9,13-dimethylheptadecanoic acid

Antibiotic 1010-F1 Type: Branched saturated aliphatic compounds. $C_{19}H_{39}NO_2$ Source: Marine-derived streptomycete *Streptomyces* sp. 1010 (cold water, shallow water sediment, near Livingston I., Antarctic). Pharm: Antibacterial (*Bacillus subtilis*, MIC = 50 μg/mL; *Micrococcus luteus*, MIC = 15 μg/mL). Ref: V. Ivanova, et al, Z. Naturforsch., C, 2001, 56, 1 | M. D. Lebar, et al, NPR, 2007, 24, 774 (rev)



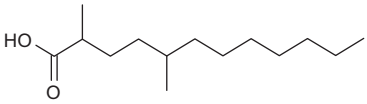
20 1-Butoxy-2-methyl-1-(2-methylpropoxy)-2-propanol

Type: Branched saturated aliphatic compounds. $C_{12}H_{26}O_3$ Oil, $[\alpha]_D^{25}$ = +0.1° (*c* = 0.35, $CHCl_3$). Source: Marine bacterium *Vibrio angustum* S14. Pharm: Induces both acylated homoserine lactone (AHL) regulatory system in *Agrobacterium tumefaciens* and bioluminescence in *Vibrio harveyi*. Ref: R. De Nys, et al, JNP, 2001, 64, 531



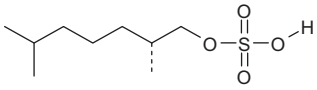
21 2,5-Dimethyldodecanoic acid

2,5-Dimethyllauric acid Type: Branched saturated aliphatic compounds. $C_{14}H_{28}O_2$ $[\alpha]_D^{22}$ = −9.4° (*c* = 4.4, MeOH). Source: Cyanobacterium *Lyngbya aestuarii*. Pharm: Herbicide. Ref: M. Entzeroth, et al, Phytochemistry, 1985, 24, 2875



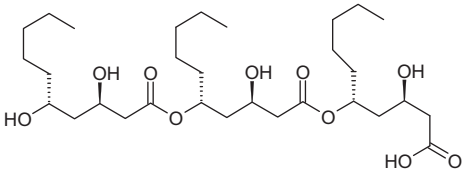
22 2,6-Dimethylheptyl sulfate

Type: Branched saturated aliphatic compounds. $C_9H_{20}O_4S$ Amorph. (Na or K salt), $[\alpha]_D$ = +4.7° (*c* = 0.01, MeOH). Source: Ascidians *Halocynthia roretzi* (Japan waters), *Polycitorella adriaticus* (Croatia) and *Polycitor africaticus* (Mediterranean Sea). Pharm: Cytotoxic. Ref: A. Crispino,et al, JNP, 1994, 57, 1575 | S. De Rosa, et al, JNP, 1997, 60,462



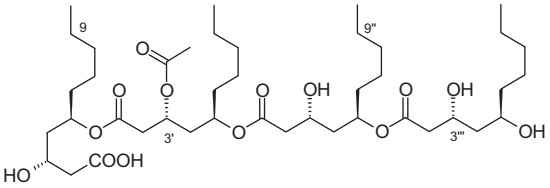
23 Exophilin A

Type: Branched saturated aliphatic compounds. $C_{30}H_{56}O_{10}$ Viscous oil, $[\alpha]_D^{27}$ = −22.3° (*c* = 1, $CHCl_3$). Source: Marine-derived fungus *Exophiala pisciphila* N110102 from sponge *Mycale adhaerens*. Pharm: Antibacterial. Ref: J. Doshida, et al, J. Antibiot., 1996, 49, 1105



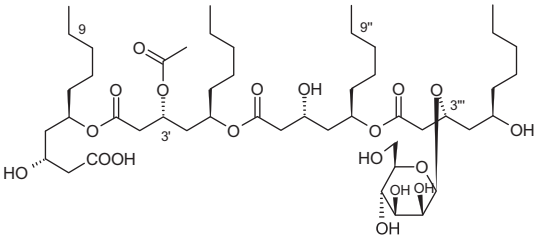
24 Halymecin A

Type: Branched saturated aliphatic compounds. $C_{42}H_{76}O_{14}$ Oil, $[\alpha]_D^{26}$ = −4.3° (*c* = 1.5, CH_2Cl_2). Source: Marine-derived fungus *Fusarium* sp. FE-71-1 from alga *Halymenia dilatata* (Palau, Oceania). Pharm: Antimicroalgal. Ref: C. Chen, et al, J. Antibiot., 1996, 49, 998



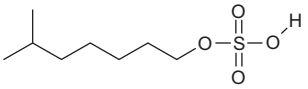
25 Halymecin B

Type: Branched saturated aliphatic compounds. $C_{48}H_{86}O_{19}$ Oil, $[\alpha]_D^{26}$ = −24.4° (*c* = 6.6, CH_2Cl_2). Source: Marine-derived fungus *Fusarium* sp. FE-71-1 from red alga *Halymenia dilatata* (Palau, Oceania). Pharm: Antimicroalgal. Ref: C. Chen, et al, J. Antibiot., 1996, 49, 998



26 6-Methylheptyl sulfate

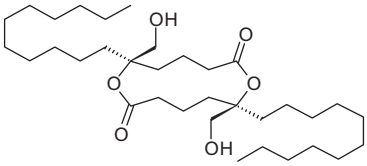
Type: Branched saturated aliphatic compounds. $C_8H_{18}O_4S$ Colorless amorph. solid. Source: Ascidian *Halocynthia papillosa* (Mediterranean Sea). Pharm: Cytotoxic (WEHI-164, IC_{50} = (15.0 ± 1)μg/mL; C6, IC_{50} = (545.4 ± 7.5)μg/mL). Ref: A. Aiello, et al, JNP, 2000, 63, 1590



27 Tanikolide dimer

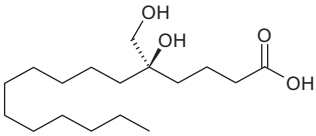
6,12-Bis(hydroxymethyl)-6,12-diundecyl-1,7-dioxacyclododecane-2,8-dione Type: Branched saturated aliphatic compounds. $C_{34}H_{64}O_6$ $[\alpha]_D^{25}$ = +2.9° (*c* = 0.25, $CHCl_3$). Source: Cyanobacterium *Lyngbya majuscula* (Tanikely I., Madagascar). Pharm: Hmn sirtuin type 2 (SIRT2) inhibitor (selective, IC_{50} = 176 nmol/L in one

assay format and 2.4 μmol/L in another, potent). Ref: M. Gutiérrez, et al, JOC, 2009, 74, 5267



28 Tanikolide secoacid

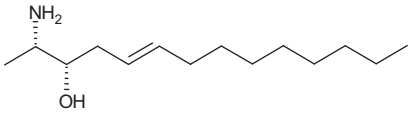
5-Hydroxy-5-(hydroxymethyl)hexadecanoic acid (Secotanikolide) Type: Branched saturated aliphatic compounds. $C_{17}H_{34}O_4$ Cryst., $[\alpha]_D^{25} = -10°$ (c = 0.87, $CHCl_3$). Source: Cyanobacterium *Lyngbya majuscula* (Tanikely I., Madagascar). Pharm: Cytotoxic (H460 cancer cell line, moderate). Ref: M. Gutiérrez, et al, JOC, 2009, 74, 5267



1.2 Alkenic Compounds

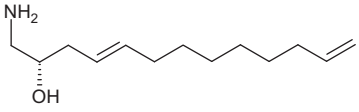
29 2-Amino-5-tetradecen-3-ol

Type: Unbranched alkenic compounds. $C_{14}H_{29}NO$ Source: Ascidian *Pseudodistoma* sp. (South Africa). Pharm: Antimicrobial. Ref: G. J. Hooper, et al, Nat. Prod. Lett., 1995, 6, 31



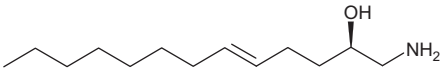
30 1-Amino-4,12-tridecadien-2-ol

Type: Unbranched alkenic compounds. $C_{13}H_{25}NO$ Source: Ascidian *Pseudodistoma* sp. (South Africa). Pharm: Antimicrobial. Ref: G. J. Hooper, et al, Nat. Prod. Lett., 1995, 6, 31



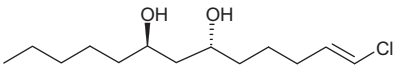
31 (2*R*,5*E*)-1-Amino-5-tridecen-2-ol

Type: Unbranched alkenic compounds. $C_{13}H_{27}NO$ $[\alpha]_D$ = +1.9° (*c* = 0.4, MeOH) (trifluoroacetate salt). Source: Ascidian *Didemnum* sp. (Great Barrier Reef). Pharm: Antifungal. Ref: P. A. Searle, et al, JOC, 1993, 58, 7578



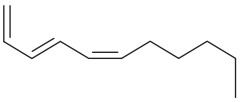
32 (–)-(*E*)-1-Chlorotridec-1-ene-6,8-diol

Type: Unbranched alkenic compounds. $C_{13}H_{25}ClO_2$ Cryst. (pentane), mp 55.7–58 °C, $[\alpha]_D^{27}$ = –12.2° (*c* = 3.3, $CHCl_3$). Source: Cyanobacteria *Schizothrix calcicola* and *Oscillatoria nigroviridis*. Pharm: Non-toxic metabolite. Ref: J. S. Mynderse, et al, Phytochemistry, 1978, 17, 1325



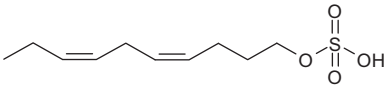
33 Cystophorene

Galbanolene Type: Unbranched alkenic compounds. $C_{11}H_{18}$ Source: Brown alga *Cystophora siliquosa*. Pharm: Sperm attractant. Ref: D. G. Müller, et al, Naturwissenschaften, 1985, 72, 97



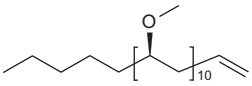
34 4*Z*,7*Z*-Decadien-1-ol-*O*-sulfate

Type: Unbranched alkenic compounds. $C_{10}H_{18}O_4S$ Source: Ascidian *Halocynthia roretzi* (Japan waters). Pharm: Antimicrobial; antifungal; kairomone. Ref: A. Crispino, et al, JNP, 1994, 57, 1575



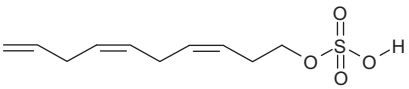
35 4,6,8,10,12,14,16,18,20,22-Decamethoxy-1-heptacosene

Type: Unbranched alkenic compounds. $C_{37}H_{74}O_{10}$ Source: Cyanobacterium *Tolypothrix conglutinata* var. *chlorata* (Fanning I., Kiribati, Oceania). Pharm: Toxin. Ref: J. S. Mynderse, et al, Phytochemistry, 1979, 18, 1181



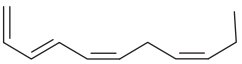
36 3*Z*,6*Z*,9-Decatrien-1-ol-*O*-sulfate

Type: Unbranched alkenic compounds. $C_{10}H_{16}O_4S$ Source: Ascidian *Halocynthia roretzi* (Japan waters). Pharm: Antimicrobial. Ref: S. Tsukamoto, et al, JNP, 1994, 57, 1606



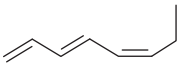
37 Finavarrene

(*3E,5Z,8Z*)-Undeca-1,3,5,8-tetraene Type: Unbranched alkenic compounds. $C_{11}H_{16}$ Liquid, n_D^{14} = 1.5285 Source: Brown algae *Ascophyllum nodosum, Dictyopteris plagiogramma* and *Spermatochnus paradoxus*. Pharm: Smelling principle of gametes of brown algae (genera *Dictyopteris* and *Spermatochnus paradoxus*); sperm attractant. Ref: D. G. Müller, et al, Naturwissenschaften, 1981, 67, 478 | D. G. Müller, et al, Science, 1982, 218, 1119



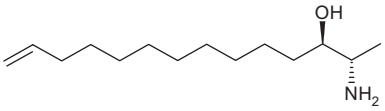
38 Fucoserratene

(*3E,5Z*)-Octa-1,3,5-triene Type: Unbranched alkenic compounds. C_8H_{12} bp_{40mmHg} 56 °C. Source: Brown alga *Fucus sarratus*. Pharm: Female sex attractant. Ref: D. G. Müller, et al, FEBS Lett., 1973, 30, 137



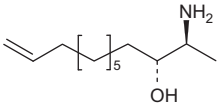
39 Halaminol A

(2*S*)-Amino-13-tetradecen-(3*R*)-ol Type: Unbranched alkenic compounds. $C_{14}H_{29}NO$ $[\alpha]_D$ = +1.7° (*c* = 0.04, CH_2Cl_2). Source: Sponge *Haliclona* sp. (Queensland). Pharm: Antifungal (standard paper disk assay, *Trichophyton mentagrophytes*, IZD = 10 mm); larval settling inducer (ascidians, rapid, prevents subsequent metamorphosis; for larvae of other phyla, inhibits settlement and was toxic). Ref: R. J. Clark, et al, JNP, 2001, 64, 1568. | K. E. Roper, et al, Mar. Biotechnol., 2009, 11, 188.



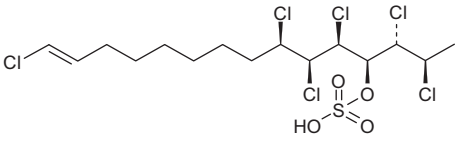
40 Halaminol B 2-Amino-11-dodecen-3-ol

Type: Unbranched alkenic compounds. $C_{12}H_{25}NO$ Oil, $[\alpha]_D$ = +2.1° (*c* = 0.06, CH_2Cl_2). Source: Sponge *Haliclona* sp. (Queensland). Pharm: Antifungal (standard paper disk assay, *Trichophyton mentagrophytes*, IZD = 10 mm). Ref: R. J. Clark, et al, JNP, 2001, 64, 1568



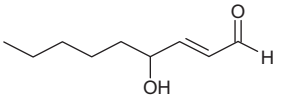
41 Hexachlorosulfolipid

2,3,5,6,7,15-Hexachloro-14-pentadecen-4-ol Type: Unbranched alkenic compounds. $C_{15}H_{24}Cl_6O_4S$ $[\alpha]_D^{25}$ = +20.4° (*c* = 0.0015, MeOH). Source: Soft coral *Dendronephthya griffin*, mussel *Mytilus galloprovincialis*. Pharm: Cytotoxic (J774, IC_{50} = 12.1 μg/mL; WEHI-164, IC_{50} = 16.3 μg/mL; P_{388}, IC_{50} = 10.4 μg/mL) (Ciminiello, 2001); Ref: P. Ciminiello, et al, JOC, 2001, 66, 578 | C. Nilewski, et al, Nature (London), 2009, 457, 573



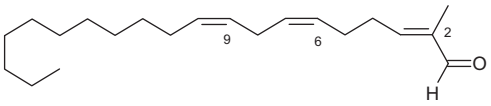
42 4-Hydroxynon-2-enal

Type: Unbranched alkenic compounds. $C_9H_{16}O_2$ Oil, $bp_{0.3mmHg}$ 84–87 °C. Source: Red alga *Liagora farinosa*. Pharm: Ichthyotoxic. Ref: V. J. Paul, et al, Tet. Lett., 1980, 21, 3327



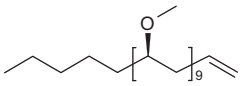
43 (2*E*,6*Z*,9*Z*)-2-Methyl-2,6,9-eicosatrienal

Type: Unbranched alkenic compounds. $C_{21}H_{36}O$ Oil. Source: Calcareous sponge *Leucetta microraphis*. Pharm: Cytotoxic (moderate). Ref: K. Watanabe, et al, JNP, 2000, 63, 258



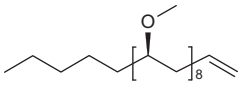
44 4,6,8,10,12,14,16,18,20-Nonamethoxy-1-pentacosene

Type: Unbranched alkenic compounds. $C_{34}H_{68}O_9$ $[\alpha]_D^{25}$ = +4.73° (*c* = 0.43, $CHCl_3$). Source: Cyanobacteria *Tolypothrix conglutinata* var. *chlorata* (Fanning I.), *Scytonema burmanicum* and *Scytonema mirabile*. Pharm: Toxin. Ref: J. S. Mynderse, et al, Phytochemistry, 1979, 18, 1181 | Y. Mori, et al, JOC, 1991, 56, 631



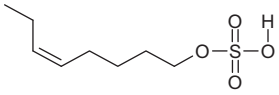
45 4,6,8,10,12,14,16,18-Octamethoxy-1-tricosene

Type: Unbranched alkenic compounds. $C_{31}H_{62}O_8$ $[\alpha]_D^{25}$ = +5.44° (*c* = 0.5, $CHCl_3$). Source: Cyanobacteria *Tolypothrix conglutinata* var. *chlorata* (Fanning I., Kiribati, Oceania), *Scytonema burmanicum* and *Scytonema mirabile*. Pharm: Toxin. Ref: J. S. Mynderse, et al, Phytochemistry, 1979, 18, 1181 | Y. Mori, et al, JOC, 1991, 56, 631



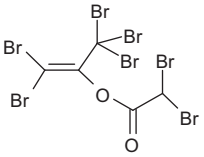
46 (*E*)-5-Octenyl sulfate

Type: Unbranched alkenic compounds. $C_8H_{16}O_4S$ Colorless amorph. solid. Source: Ascidian *Halocynthia papillosa* (Mediterranean Sea). Pharm: Cytotoxic (WEHI-164, IC_{50} = (12.2 ± 0.9)µg/mL; C6, IC_{50} = (515.2 ± 5.2)µg/mL). Ref: A. Aiello, et al, JNP, 2000, 63, 1590



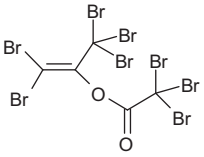
47 Pentabromopropen-2-yl dibromoacetate

Enol dibromoacetate Type: Unbranched alkenic compounds. $C_5HBr_7O_2$ Oil. Source: Red alga *Asparagopsis taxiformis*. Pharm: Aldose reductase inhibitor. Ref: M. Sugano, et al, Tet. Lett., 1990, 31, 7015



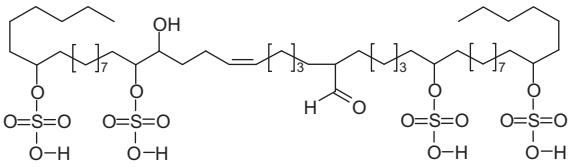
48 Pentabromopropen-2-yl tribromoacetate

Enol tribromoacetate Type: Unbranched alkenic compounds. $C_5Br_8O_2$ mp 120–121 °C. Source: Red alga *Asparagopsis taxiformis*. Pharm: Aldose reductase inhibitor. Ref: M. Sugano, et al, Tet. Lett., 1990, 31, 7015



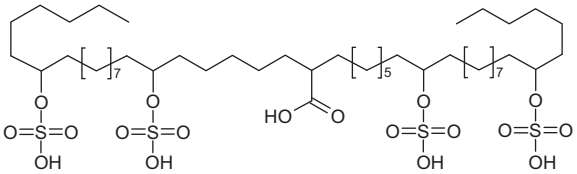
49 Toxadocial C

Type: Unbranched alkenic compounds. $C_{50}H_{98}O_{18}S_4$ Amorph. solid (tetra-Na salt), $[\alpha]_D^{23}$ = +2.2° (*c* = 0.2, MeOH) (tetra-Na salt). Source: Sponge *Toxadocia cylindrica*. Pharm: Thrombin inhibitor. Ref: Y. Nakao, et al, Tetrahedron, 1993, 48, 11183



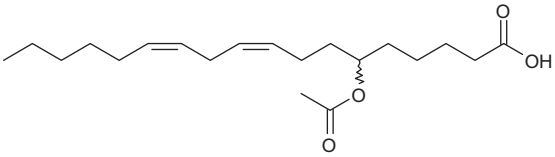
50 Toxadocic acid

Type: Unbranched alkenic compounds. $C_{48}H_{96}O_{18}S_4$ Amorph. solid, $[\alpha]_D^{23}$ = +0.6° (*c* = 0.36, MeOH). Source: Sponge *Toxadocia cylindrica*. Pharm: Thrombin inhibitor. Ref: Y. Nakao, et al, Tetrahedron, 1993, 48, 11183



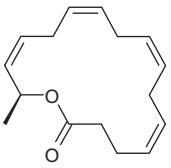
51 6-Acetoxylinoleic acid

Type: Unbranched alkenic acid and lactones. $C_{20}H_{34}O_4$ $[\alpha]_D^{23}$ = –1.04° (*c* = 0.5, $CHCl_3$). Source: Brown alga *Spatoglossum pacificum*. Pharm: Pollen growth inhibitor. Ref: H. Tazaki, et al, Agric. Biol. Chem., 1991, 55, 2149



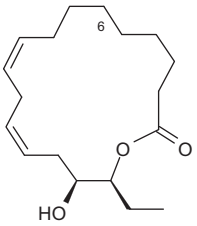
52 Aplyolide A

4,7,10,13-Hexadecatetraen-15-olide Type: Unbranched alkenic acid and lactones. $C_{16}H_{22}O_2$ Oil, $[\alpha]_D^{25} = -57.9°$ (c = 0.4, $CHCl_3$). Source: Sea hare *Aplysia depilans* (Atlantic Coast of Spain, Bay of Naples). Pharm: Ichthyotoxic. Ref: A. Spinella, et al, JOC, 1997, 62, 5471 | T. V. Hansen, et al, Tetrahedron: Asymmetry, 2001, 12, 1407



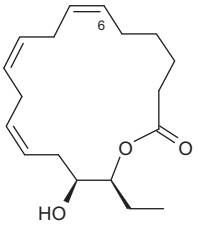
53 Aplyolide B

15-Hydroxy-9,12-octadecadien-16-olide Type: Unbranched alkenic acid and lactones. $C_{18}H_{30}O_3$ Oil, $[\alpha]_D^{25} = -42.8°$ (c = 0.2, $CHCl_3$). Source: Sea hare *Aplysia depilans* (Atlantic Coast of Spain, Bay of Naples). Pharm: Ichthyotoxin. Ref: A. Spinella, et al, JOC, 1997, 62, 5471



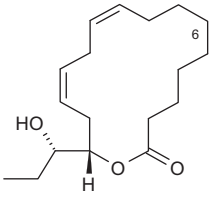
54 Aplyolide C

15-Hydroxy-6,9,12-octadecatrien-16-olide Type: Unbranched alkenic acid and lactones. $C_{18}H_{28}O_3$ Oil, $[\alpha]_D^{25} = -26.7°$ (c = 0.7, $CHCl_3$). Source: Sea hare *Aplysia depilans* (Atlantic Coast of Spain, Bay of Naples). Pharm: Ichthyotoxin. Ref: A. Spinella, et al, JOC, 1997, 62, 5471



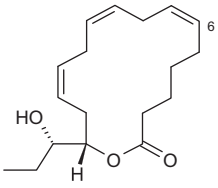
55 Aplyolide D

16-Hydroxy-9,12-octadecadien-15-olide Type: Unbranched alkenic acid and lactones. $C_{18}H_{30}O_3$ Oil, $[\alpha]_D^{25}$ = +28° (*c* = 0.1, $CHCl_3$). Source: Sea hare *Aplysia depilans* (Atlantic Coast of Spain, Bay of Naples). Pharm: Ichthyotoxic. Ref: A. Spinella, et al, JOC, 1997, 62, 5471



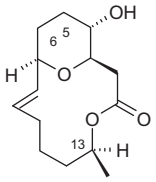
56 Aplyolide E

16-Hydroxy-6,9,12-octadecatrien-15-olide Type: Unbranched alkenic acid and lactones. $C_{18}H_{28}O_3$ Oil, $[\alpha]_D^{25}$ = +46.3° (*c* = 0.3, $CHCl_3$). Source: Sea hare *Aplysia depilans* (Atlantic Coast of Spain, Bay of Naples). Pharm: Ichthyotoxic. Ref: A. Spinella, et al, JOC, 1997, 62, 5471



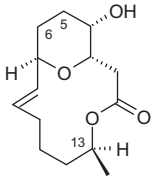
57 Aspergillide A

Type: Unbranched alkenic acid and lactones. $C_{14}H_{22}O_4$ Oil, $[\alpha]_D^{27}$ = −59.5° (*c* = 0.45, $CHCl_3$). Source: Marine-derived fungus *Aspergillus ostianus* 01F313. Pharm: Cytotoxic (L_{1210}, IC_{50} = 2.1 μg/mL). Ref: K. Kito, et al, Org. Lett., 2008, 10, 225 | S. M. Hande, et al, Tet. Lett., 2009, 50, 189 | R. Ookura, et al, Chem. Lett., 2009, 38, 384



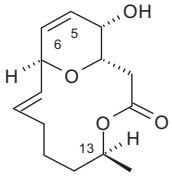
58 Aspergillide B

Type: Unbranched alkenic acid and lactones. $C_{14}H_{22}O_4$ Cryst., $[\alpha]_D^{31}$ = −97.2° (*c* = 0.27, MeOH). Source: Marine-derived fungus *Aspergillus ostianus* 01F313. Pharm: Cytotoxic (L_{1210}, IC_{50} = 71.0 µg/mL). Ref: K. Kito, et al, Org. Lett., 2008, 10, 225 | S. M. Hande, et al, Tet. Lett., 2009, 50, 189 | R. Ookura, et al, Chem. Lett., 2009, 38, 384



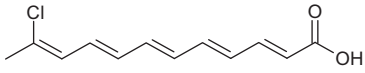
59 Aspergillide C

Type: Unbranched alkenic acid and lactones. $C_{14}H_{20}O_4$ Oil, $[\alpha]_D^{25}$ = +66.2° (*c* = 0.19, MeOH). Source: Marine-derived fungus *Aspergillus ostianus* 01F313. Pharm: Cytotoxic (L_{1210}, IC_{50} = 2.0 µg/mL). Ref: K. Kito, et al, Org. Lett., 2008, 10, 225 | T. Nagasawa, et al, Org. Lett., 2009, 11, 761



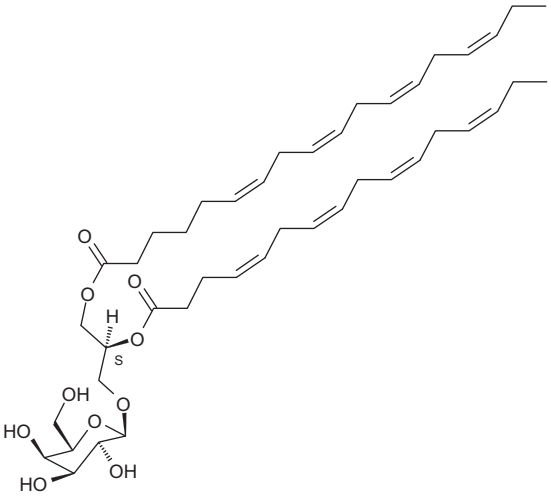
60 Aurantoic acid

Type: Unbranched alkenic acid and lactones. $C_{12}H_{13}ClO_2$ Amorph. yellow solid. Source: Lithistid sponge *Theonella swinhoei* (depth of 20–50 m, Bunaken Marine Park, North Sulawesi, Indonesia). Pharm: Cytotoxic (C6, HeLa, and H9c2, MIC = 70 µmol/L). Ref: R. F. Angawi, et al, JNP, 2009, 72, 2195 | P. L. Winder, et al, Mar. Drugs, 2011, 9, 2644 (rev)



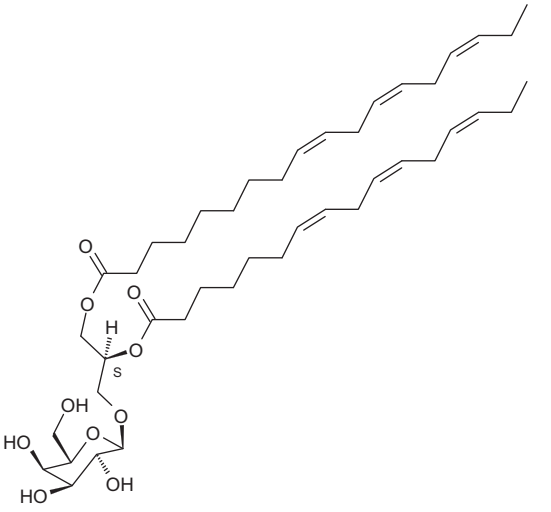
61 Capsofulvesin A

Type: Unbranched alkenic acid and lactones. $C_{43}H_{66}O_{10}$ Source: Green alga *Capsosiphon fulvescens* (edible). Pharm: Hypoglycemic (aldose reductase inhibitor) (rat lens aldose reductase RLAR inhibitor *in vitro* assays, IC_{50} = 52.53 μmol/L, control Quercetin, IC_{50} = 6.80 μmol/L). Ref: M. N. Islam, et al, Eur. J. Nutr., 2014, 53, 233



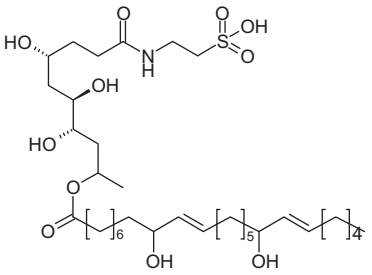
62 Capsofulvesin B

Type: Unbranched alkenic acid and lactones. $C_{43}H_{70}O_{10}$ Source: Green alga *Capsosiphon fulvescens* (edible). Pharm: Hypoglycemic (aldose reductase inhibitor) (rat lens aldose reductase RLAR inhibitor *in vitro* assays, IC_{50} = 101.92 μmol/L, control Quercetin, IC_{50} = 6.80 μmol/L). Ref: M. N. Islam, et al, Eur. J. Nutr., 2014, 53, 233



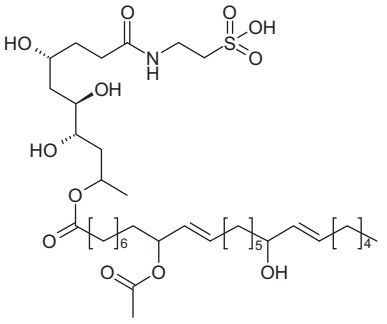
63 Carteriosulfonic acid A

Type: Unbranched alkenic acid and lactones. $C_{36}H_{67}NO_{11}S$ Amorph. solid, $[\alpha]_D^{25}$ = −20° (*c* = 0.07, MeOH). Source: Sponge *Carteriospongia* sp. (San Miguel I., Philippines). Pharm: Kinase GSK-3*β* inhibitor ($_{32}$P labeling assay, IC_{50} = 12.5 µmol/L). Ref: M. W. B. McCulloch, et al, JNP, 2009, 72, 1651 | D. Skropeta, et al, Mar. Drugs, 2011, 9, 2131 (rev)



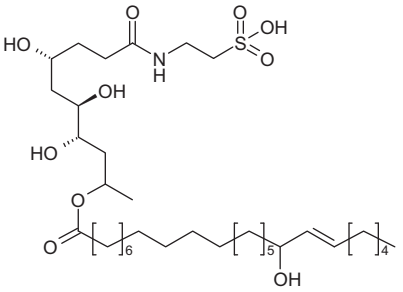
64 Carteriosulfonic acid B

Type: Unbranched alkenic acid and lactones. $C_{38}H_{69}NO_{12}S$ Amorph. solid, $[\alpha]_D^{25}$ = −13° (*c* = 0.1, MeOH). Source: Sponge *Carteriospongia* sp. (San Miguel I., Philippines). Pharm: Kinase GSK-3*β* inhibitor ($_{32}$P labeling assay, IC_{50} = 6.8 µmol/L). Ref: M. W. B. McCulloch, et al, JNP, 2009, 72, 1651 | D. Skropeta, et al, Mar. Drugs, 2011, 9, 2131 (rev)



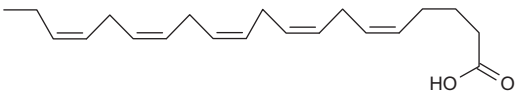
65 Carteriosulfonic acid C

Type: Unbranched alkenic acid and lactones. $C_{34}H_{65}NO_{10}S$ Amorph. solid, $[\alpha]_D^{25}$ = −43° (*c* = 0.12, MeOH). Source: Sponge *Carteriospongia* sp. (San Miguel I., Philippines). Pharm: Kinase GSK-3*β* inhibitor ($_{32}$P labeling assay, IC_{50} = 6.8 µmol/L). Ref: M. W. B. McCulloch, et al, JNP, 2009, 72, 1651 | D. Skropeta, et al, Mar. Drugs, 2011, 9, 2131 (rev)



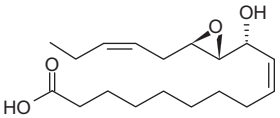
66 (5,8,11,14,17)-Eicosapentaenoic acid

EPA; Timnodonic acid; Icosapent Type: Unbranched alkenic acid and lactones. $C_{20}H_{30}O_2$ Oil. Source: Red alga *Neodilsea yendoana*. Pharm: Antioxidant (nutriceutical); platelet aggregation inhibitor; allelopathic. Ref: M. Suzuki, et al, Phytochemistry, 1996, 43, 63



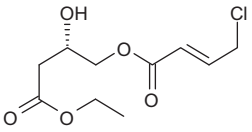
67 (9*Z*,11*R*,12*S*,13*S*,15*Z*)-12,13-Epoxy-11-hydroxyoctadeca-9,15-dienoic acid

Type: Unbranched alkenic acid and lactones. $C_{18}H_{30}O_4$ Oil, $[\alpha]_D^{27}$ = +40.3° (*c* = 1.2, $CHCl_3$). Source: Green alga *Acrosiphonia coalita*. Pharm: Phytoalexin. Ref: M. W. Bernart, et al, JNP, 1993, 56, 238



68 Honaucin B

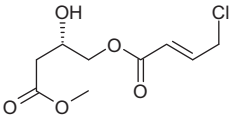
Type: Unbranched alkenic acid and lactones. $C_{10}H_{15}ClO_5$ Source: Cyanobacterium *Leptolyngbya crossbyana* (Hōnaunau reef, Hawaii). Pharm: Inhibits NO production and expression of several pro-infiammatory cytokines (RAW264.7 cells); inhibits bioluminescence (*Vibrio harveyi*). Ref: H. Choi, et al, Chem. Biol., 2012, 19,589



69 Honaucin C

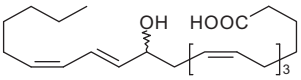
Type: Unbranched alkenic acid and lactones. $C_9H_{13}ClO_5$ Source: Cyanobacterium *Leptolyngbya crossbyana* (Hōnaunau reef, Hawaii). Pharm: Inhibits NO production

and expression of several pro-infiammatory cytokines (RAW264.7 cells); inhibits bioluminescence (*Vibrio harveyi*). Ref: H. Choi, et al, Chem. Biol., 2012, 19,589



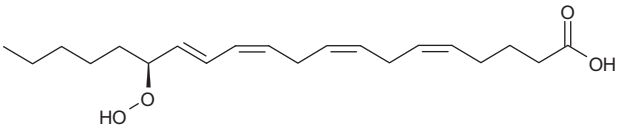
70 15-HTPE

(6*Z*,9*Z*,12*Z*,15*ξ*,16*E*,18*Z*)-15-Hydroxy-6,9,12,16,18-tetracosapentaenoic acid Type: Unbranched alkenic acid and lactones. $C_{24}H_{38}O_3$ Amorph. solid. Source: Soft coral *Sinularia numerosa* (Kagoshima Prefecture, Japan). Pharm: Antiangiogenic (inhibited tube-formation in hmn endothelial cell line model). Ref: T. Yamashita, et al, BoMC, 2009, 17, 2181



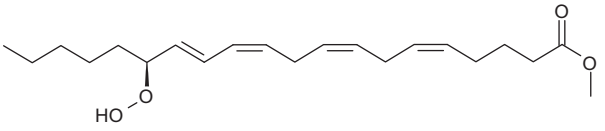
71 (5*Z*,8*Z*,11*Z*,13*E*,15*S*)-15-Hydroperoxy-5,8,11,13-eicosatetraenoic acid

15-HPETE Type: Unbranched alkenic acid and lactones. $C_{20}H_{32}O_4$ $[\alpha]_D$ = −4.6° (MeOH). Source: Brown alga *Laminaria angustata*. Pharm: Prostacyclin synthase inhibitor. Ref: K. Boonprab, et al, Phytochemistry, 2003, 63, 669



72 (5*Z*,8*Z*,11*Z*,13*E*,15*S*)-15-Hydroperoxy-5,8,11,13-eicosatetraenoic acid methyl ester

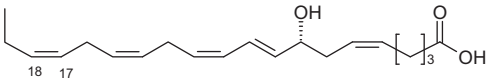
Type: Unbranched alkenic acid and lactones. $C_{21}H_{34}O_4$ $[\alpha]_D$ = −3.5° (MeOH). Source: Brown alga *Laminaria angustata*. Pharm: Prostacyclin synthase inhibitor. Ref: K. Boonprab, et al, Phytochemistry, 2003, 63, 669



73 (5*Z*,8*R*,9*E*,11*Z*,14*Z*,17*Z*)-8-Hydroxycicosa-5,9,11,14,17-pentaenoic acid

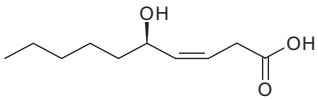
8-HEPE Type: Unbranched alkenic acid and lactones. $C_{20}H_{30}O_3$ Oil, $[\alpha]_D^{24}$ = +33.4° (*c* = 2, $CHCl_3$) (86%ee). Source: Starfish *Patiria miniata*, black coral *Leiopathes* sp.,

barnacle *Balanus balanoides*. Pharm: Hatching factor (barnacles *Balanus balanoides* and *Eliminus modestus*). Ref: M. V. D'Auria, et al, Experientia, 1988, 44, 719 | A. Guerriero, et al, Helv. Chim. Acta, 1988, 71, 1094 | T. K. M. Shing, et al, Tet. Lett., 1994, 35, 1067



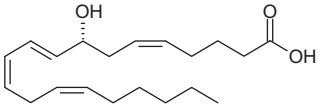
74 (3*Z*,5*R*)-5-Hydroxy-3-decenoic acid

Type: Unbranched alkenic acid and lactones. $C_{10}H_{18}O_3$ Oil. Source: Marine-derived fungus *Aureobasidium* sp. from marine aquatic plant *Posidonia oceanica*. Pharm: Antifungal (*Candida albicans*); antibacterial (*Staphylococcus aureus*, *Escherichia coli* and *Bacillus subtilis*). Ref: A. Abdel-Lateff, et al, Nat. Prod. Commun., 2009, 4, 389



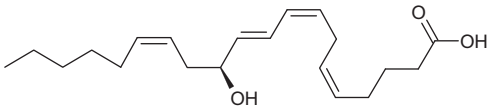
75 (5*Z*,8*R*,9*E*,11*Z*,14*Z*)-8-Hydroxy-5,9,11,14-eicosatetraenoic acid

8-HETE Type: Unbranched alkenic acid and lactones. $C_{20}H_{32}O_3$ $[\alpha]_D^{20}$ = +4° (*c* = 0.48, $CHCl_3$). Source: Starfish *Patiria miniata*, black coral *Leiopathes* sp., horseshoe crab *Limulus polyphemus*. Pharm: Modulator of immune response in *Limulus polyphemus*. Ref: M. V. D'Auria, et al, Experientia, 1988, 44, 719 | A. Guerriero, et al, Helv. Chim. Acta, 1988, 71, 1094 | J. C. MacPherson, et al, Biochim. Biophys. Acta, 1996, 1303, 127



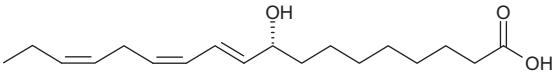
76 (12*S*)-12-Hydroxyeicosatetraenoic acid

Type: Unbranched alkenic acid and lactones. $C_{20}H_{32}O_3$ Source: Red alga *Murrayella periclados* (Caribbean Sea). Pharm: Immunohormone; cell growth inhibitor; proinflammatory agent; toxic (brine shrimp). Ref: M. W. Bernart, et al, Phytochemistry, 1994, 36, 1233



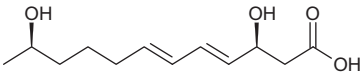
77 (9*R*,10*E*,12*Z*,15*Z*)-9-Hydroxy-10,12,15-octadecatrienoic acid

Type: Unbranched alkenic acid and lactones. $C_{18}H_{30}O_3$ Source: Cyanobacterium *Anabaena flos-aquae* NIES 74. Pharm: Anti-inflammatory. Ref: N. Murakami, et al, Lipids, 1992, 27, 776



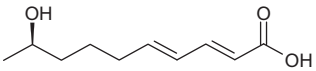
78 Ieodomycin C

Type: Unbranched alkenic acid and lactones. $C_{12}H_{20}O_4$ Pale amorph. solid, $[\alpha]_D^{23}$ = +18° (*c* = 0.1, $CHCl_3$). Source: Marine-derived bacterium *Bacillus* sp. (sediment, Ieodo, South Korea). Pharm: Antibacterial (*Bacillus subtilis* and *Escherichia coli*, MIC = 32–64 μg/mL); antifungal (yeast *Saccharomyces cerevisiae*, MIC = 256 μg/mL). Ref: M. A. M. Mondol, et al, JNP, 2011, 74, 1606



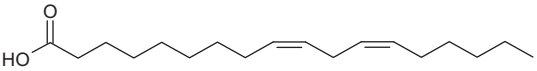
79 Ieodomycin D

Type: Unbranched alkenic acid and lactones. $C_{10}H_{16}O_3$ light yellowish amorph. solid, $[\alpha]_D^{23}$ = +15° (*c* = 0.8, $CHCl_3$). Source: Marine-derived bacterium *Bacillus* sp. (sediment, Ieodo, South Korea). Pharm: Antibacterial (*Bacillus subtilis* and *Escherichia coli*, MIC = 32–64 μg/mL); antifungal (yeast *Saccharomyces cerevisiae*, MIC = 256 μg/mL). Ref: M. A. M. Mondol, et al, JNP, 2011, 74, 1606



80 Linoleate

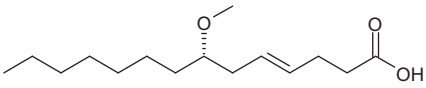
Type: Unbranched alkenic acid and lactones. $C_{18}H_{32}O_2$ Source: Deep-sea fungus *Paecilomyces lilacinus* ZBY-1. Pharm: Cytotoxic (100 μg/mL: K562, MCF7, HL60, and BGC823, InRt = 30%–80%). Ref: X. Cui, et al, J. Int. Pharm. Res., 2013, 40, 765 (in Chinese)



81 Lyngbic acid

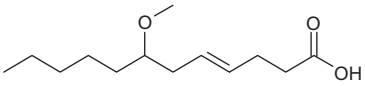
(4*E*)-7-Methoxytetradec-4-enoic acid Type: Unbranched alkenic acid and lactones. $C_{15}H_{28}O_3$ Oil, $bp_{0.005mmHg}$ 120–130 °C, $[\alpha]_D^{23}$ = −14.1° (*c* = 0.34, $CHCl_3$), $[\alpha]_D^{20}$ = −11.3° (*c* = 5, $CHCl_3$), $[\alpha]_D^{25}$ = −4.8° (*c* = 0.22, CH_2Cl_2). Source:

Cyanobacterium *Lyngbya majuscula* (Bush Key, Dry Tortugas, Florida). Pharm: Antibacterial (gram-positive bacteria *Staphylococcus aureas, Bacillus subtilis*); toxic (brine shrimp). Ref: J. H. Cardellina, et al, Phytochemistry, 1978, 17, 2091 | W. H. Gerwick, et al, Phytochemistry, 1987, 26, 1701 | D. Enders, et al, Tetrahedron, 1996, 52, 5805 | Y. Kan, et al, JNP, 2000, 63, 1599 | H. Gross, et al, Phytochemistry 2010, 71, 1729 | J. C. Kwan, et al, JNP, 2010, 73, 463



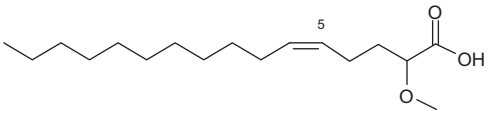
82 (–)-7-Methoxydodec-4(*E*)-enoic acid

Type: Unbranched alkenic acid and lactones. $C_{13}H_{24}O_3$ Pale yellow oil, $[\alpha]_D^{20} = -8°$ (c = 1.8, $CHCl_3$). Source: Cyanobacterium *Lyngbya majuscula* (Mediterranean Sea, France). Pharm: Immunosuppressive (on culture cells with concanavaline k and LPS, ED_{50} = 6 µg/mL). Ref: C. Le, et al, Chin. J. Mar. Drugs. 1999, 18(2), 12 | V. Mesguiche, et al, Tet. Lett., 1999, 40, 7473



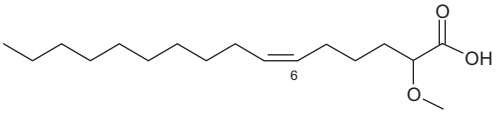
83 (*Z*)-2-Methoxyhexadec-5-enoic acid

Type: Unbranched alkenic acid and lactones. $C_{17}H_{32}O_3$ Source: Sponge *Mycale laxissima* (Caribbean Sea). Pharm: Antibacterial (gram-positive bacteria, *Staphylococcus aureus*, MIC = 0.35 µmol/mL, *Streptococcus faecalis*, MIC = 0.35 µmol/mL). Ref: N. M. Carballiera et al, Lipids, 1992, 27, 72 | N. M. Carballiera, et al, JNP, 1998, 61, 1543



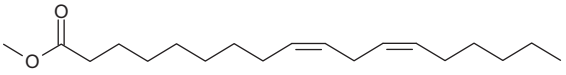
84 (*Z*)-2-Methoxyhexadec-6-enoic acid

Type: Unbranched alkenic acid and lactones. $C_{17}H_{32}O_3$ Source: Sponge *Spheciospongia cuspidifera* (Caribbean Sea). Pharm: Antibacterial (gram-positive bacteria, *Staphylococcus aureus*, MIC = 0.35 µmol/mL, *Streptococcus faecalis*, MIC = 0.35 µmol/mL). Ref: N. M. Carballiera et al, Lipids, 1992, 27, 72 | N. M. Carballiera, et al, JNP, 1998, 61, 1543



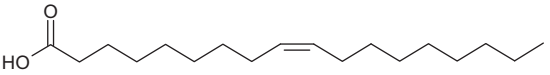
85 Methyl linoleate

Type: Unbranched alkenic acid and lactones. $C_{19}H_{34}O_2$ Source: Deep-sea fungus *Paecilomyces lilacinus* ZBY-1. Pharm: Cytotoxic (100 μg/mL: K562, MCF7, HL60, and BGC823, InRt = 30%–80%). Ref: X. Cui, et al, J. Int. Pharm. Res., 2013, 40, 765 (in Chinese)



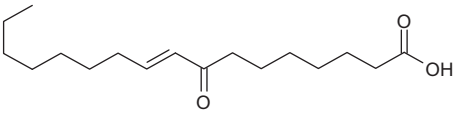
86 Oleinic acid

Type: Unbranched alkenic acid and lactones. $C_{18}H_{34}O_2$ Source: Deep-sea fungus *Paecilomyces lilacinus* ZBY-1. Pharm: Cytotoxic (100 μg/mL: K562, MCF7, HL60, and BGC823, InRt = 30%–80%). Ref: X. Cui, et al, J. Int. Pharm. Res., 2013, 40, 765 (in Chinese)



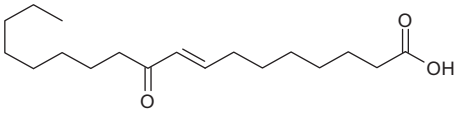
87 9-Oxo-10-octadecenoic acid

Type: Unbranched alkenic acid and lactones. $C_{17}H_{30}O_3$ Oil. Source: Red alga *Gracilaria verrucosa*. Pharm: Anti-inflammatory (modulation of LPS-activated murine macrophages *in vitro*, IC_{50} (apparent) < 20 μg/mL, MMOA: NO, IL-6 and TNF-α inhibition). Ref: H. T. Dang, et al, JNP, 2008, 71, 232



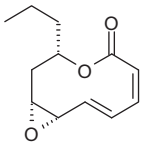
88 10-Oxo-8-octadecenoic acid

Type: Unbranched alkenic acid and lactones. $C_{18}H_{32}O_3$ Oil. Source: Red alga *Gracilaria verrucosa*. Pharm: Anti-inflammatory (modulation of LPS-activated murine macrophages *in vitro*, IC_{50} (apparent) < 20 μg/mL, MMOA: NO, IL-6 and TNF-α inhibition). Ref: H. T. Dang, et al, JNP, 2008, 71, 232



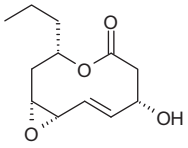
89 Phomolide A

Type: Unbranched alkenic acid and lactones. $C_{12}H_{16}O_3$ Source: Marine fungus *Phomopsis* sp. hzla01-1. Pharm: Antibacterial (*Escherichia coli, Candida albicans, Saccharomyces cerevisiae*). Ref: X. P. Du, et al, J. Antibiot., 2008, 61, 250



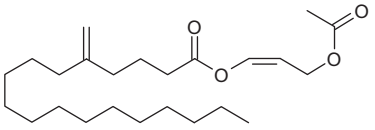
90 Phomolide B

Type: Unbranched alkenic acid and lactones. $C_{12}H_{18}O_4$ Source: Marine fungus *Phomopsis* sp. hzla01-1. Pharm: Antibacterial (*Escherichia coli, Candida albicans, Saccharomyces cerevisiae*). Ref: X. P. Du, et al, J. Antibiot., 2008, 61, 250



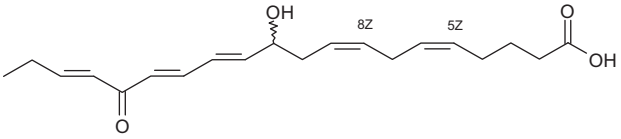
91 Propenediester

Type: Unbranched alkenic acid and lactones. $C_{24}H_{42}O_4$ Source: Cyanobacteria *Lyngbya majuscula* (New Ireland, Papua New Guinea) and *Oscillatoria* sp. (Isla Canales de Afuera, Coiba National Park, Panama). Pharm: Agonist of CB1 cannabinoid receptor (IC_{50} > 10 µmol/L). Ref: M. Gutiérrez, et al, JNP, 2011, 74, 2313



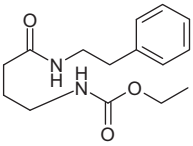
92 Ptilodene

Type: Unbranched alkenic acid and lactones. $C_{20}H_{28}O_4$ Source: Red alga *Ptilota filicina*. Pharm: Antibacterial (inhibits growth of several pathogenic gram-positive and -negative bacteria); 5-lipoxygenase inhibitor (hmn); Na/K-ATPase inhibitor (dog kidney). Ref: W. H. Gerwick, et al, Tet. Lett., 1988, 1505



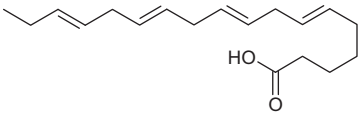
93 Santacruzamate A

Type: Unbranched alkenic acid and lactones. $C_{15}H_{22}N_2O_3$ Source: Cyanobacterium *Symploca*-like sp.(Santa Cruz I., Coiba National Park, Panama). Pharm: Histone deacetylase 4 inhibitor (potent and specific); cytotoxic (several HTCLs). Ref: C. M. Pavlik, et al, JNP, 2013, 76, 2026



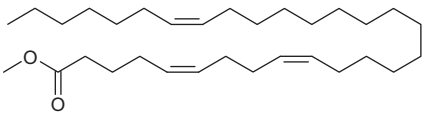
94 Stearidonic acid

Type: Unbranched alkenic acid and lactones. $C_{18}H_{28}O_2$ Pale yellow oil, mp −57 °C. Source: Brown alga *Undaria pinnatifida*, green alga *Ulva fasciata*, herring and other fish oils. Pharm: Anti-inflammatory (inhibition of mouse ear inflammation, IC_{50} = 160–314 µg/ear, MMOA: inhibition of edema, erythema and blood flow). Ref: M. A. Alamsjah, et al, Biosci., Biotechnol., Biochem., 2005, 69, 2186 | M. N. Khan, et al, J. Agric. Food Chem. 2007, 55, 6984



95 (all-*Z*)-5,9,23-Triacontatrienoic acid methyl ester

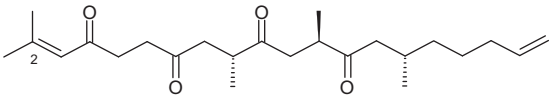
Type: Unbranched alkenic acid and lactones. $C_{31}H_{56}O_2$ Oil. Source: Lithistid sponge *Chondrilla nucula*. Pharm: Elastase inhibitor. Ref: M. Meyer, et al, Lipids, 2002, 37, 1109



96 Amphidinoketide I

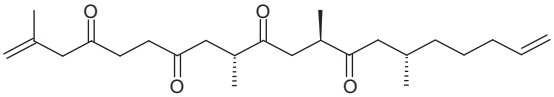
2,9,12,15-Tetramethyl-2,19-eicosadiene-4,7,10,13-tetrone Type: Branched alkenic compounds $C_{24}H_{38}O_4$ Oil, $[\alpha]_D^{25}$ = +25.3° (CH_2Cl_2). Source: Dinoflagellate *Amphidinium* sp. S1-36-5 (St. Thomas, US Virgin Is.). Pharm: Cytotoxic (HCT116,

IC_{50} = 4.98 μg/mL); cytotoxic (antileukemia). Ref: I. Bauer, et al, Tet. Lett., 1995, 36, 991 | L. M. Walsh, et al, Chem. Comm., 2003, 2616



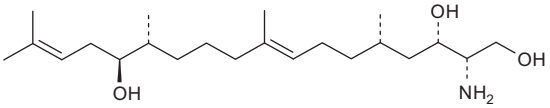
97 Amphidinoketide II

Type: Branched alkenic compounds $C_{24}H_{38}O_4$ Oil, $[\alpha]_D^{25}$ = +33.9° (CH_2Cl_2). Source: Dinoflagellate *Amphidinium* sp. S1-36-5 (St. Thomas, US Virgin Is.). Pharm: Cytotoxic (HCT116, IC_{50} = 73 μg/mL); cytotoxic (antileukemia). Ref: I. Bauer, et al, Tet. Lett., 1995, 36, 991 | L. M. Walsh, et al, Chem. Comm., 2003, 2616



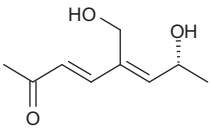
98 Aplidiasphingosine

Type: Branched alkenic compounds $C_{22}H_{43}NO_3$ Oil. Source: Ascidians *Aplidium* spp. Pharm: Antimicrobial; antiviral; cytotoxic. Ref: G. T. Carter, et al, JACS, 1978, 100, 7441 | K. Mori, et al, Tet. Lett., 1981, 22, 4429; 4433



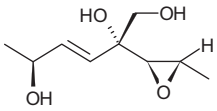
99 *epi*-Aspinonediol

Type: Branched alkenic compounds $C_9H_{14}O_3$ Colorless oil (MeOH), $[\alpha]_D^{25}$ = −5.4° (*c* = 0.14, MeOH). Source: Deep-sea fungus *Aspergillus* sp. 16-02-1 from sediment (Lau Basin hydrothermal vent, depth of 2255 m, temperature 114 °C). Pharm: Cytotoxic (MTT method, HL60, IC_{50} = 32.8 μg/mL (192.9 μmol/L); K562, IC_{50} = 44.3 μg/mL (260.6 μmol/L); 100 μg/mL: HL60, InRt = 72.5%, control Docetaxol, InRt = 49.9%; HeLa, InRt = 14.9%, Docetaxol, InRt = 45.1%; K562, InRt = 79.7%, Docetaxol, InRt = 55.6%; BGC823, InRt = 21.8%, Docetaxol, InRt = 61.5%). Ref: X. Chen, et al, Mar. Drugs, 2014, 12, 3116



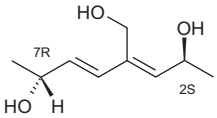
100 Aspinonene

6,7-Epoxy-5-(hydroxymethyl)-3-octene-2,5-diol Type: Branched alkenic compounds $C_9H_{16}O_4$ Oil. Source: Marine-derived fungus *Aspergillus ostianus* 01F313 from unidentified sponge (Pohnpei I., Federated States of Micronesia), terrestrial fungus (*Aspergillus ochraceus* DSM 7428). Pharm: Cytotoxic (L_{1210}, 25 ppm, InRt = 27%). Ref: J. Fuchser, et al, Annalen, 1994, 831 | K. Kito, et al, JNP, 2007, 70, 2022



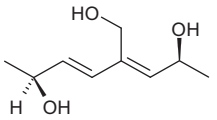
101 Aspinotriol A

(2*S*,3*Z*,5*E*,7*R*)-4-(Hydroxymethyl)-3,5-octadiene-2,7-diol Type: Branched alkenic compounds $C_9H_{16}O_3$ Oil, $[\alpha]_D^{25}$ = −10.1° (*c* = 0.23, MeOH). Source: Marine-derived fungus *Aspergillus ostianus* 01F313 from unidentified sponge (Pohnpei I., Federated States of Micronesia), deep-sea fungus *Aspergillus* sp. 16-02-1 from sediment (Lau Basin hydrothermal vent, depth of 2255 m, temperature 114 °C). Pharm: Cytotoxic (MTT method, 100 μg/mL: HeLa, InRt = 14.1%, control Docetaxol, InRt = 45.1%; K562, InRt = 17.0%, Docetaxol, InRt = 55.6%). Ref: K. Kito, et al, JNP, 2007, 70, 2022 | X. Chen, et al, Mar. Drugs, 2014, 12, 3116



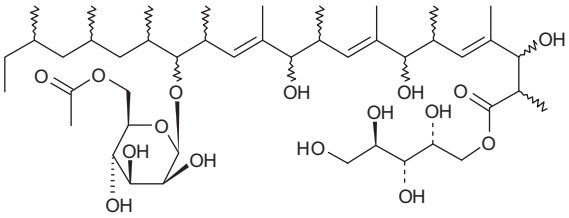
102 Aspinotriol B

Type: Branched alkenic compounds $C_9H_{16}O_3$ Oil, $[\alpha]_D^{25}$ = +6.1° (*c* = 0.21, MeOH). Source: Marine-derived fungus *Aspergillus ostianus* 01F313 from unidentified sponge (Pohnpei I., Federated States of Micronesia), deep-sea fungus *Aspergillus* sp. 16-02-1 from sediment (Lau Basin hydrothermal vent, depth of 2255 m, temperature 114 °C). Pharm: Cytotoxic (MTT method, 100 μg/mL: HL60, InRt = 39.4%, HeLa, InRt = 12.3%, K562, InRt = 20.3%, Docetaxol, InRt = 55.6%;BGC823, InRt = 15.7%). Ref: K. Kito, et al, JNP, 2007, 70, 2022 | X. Chen, et al, Mar. Drugs, 2014, 12, 3116



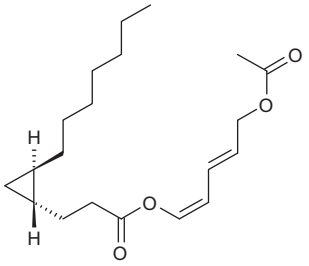
103 Cladionol A

Type: Branched alkenic compounds $C_{45}H_{80}O_{16}$ Amorph. solid, $[\alpha]_D^{22}$ = +36° (*c* = 0.2, MeOH). Source: Marine-derived fungus *Gliocladium* sp. L049 (cultured broth) from sea grass *Syringodium isoetifolium* (Maeda Cape, Okinawa Island). Pharm: Cytotoxic (L_{1210}, IC_{50} = 5 μg/mL; KB, IC_{50} = 7 μg/mL). Ref: Y. Kasai, et al, JNP, 2005, 68, 777 | M. Saleem, et al, NPR, 2007, 24, 1142 (rev)



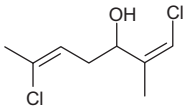
104 Debromogrenadadiene

Type: Branched alkenic compounds $C_{20}H_{32}O_4$ $[\alpha]_D$ = +5° (*c* = 0.1, $CHCl_3$). Source: Cyanobacterium *Lyngbya majuscula* (macroscopic, Grenada). Pharm: Toxic (brine shrimp, LD_{50} = 5 μg/mL); cannabinoid receptor binding activity (*K*i = 4.7 μmol/L). Ref: N. Sitachitta, et al, JNP, 1998, 61, 681



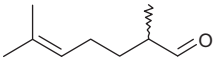
105 (1*E*,5*Z*)-1,6-Dichloro-2-methyl-1,5-heptadien-3-ol

Type: Branched alkenic compounds $C_8H_{12}Cl_2O$ Oil, $[\alpha]_D^{28}$ = −9.8° (*c* = 0.01, $CHCl_3$). Source: Red alga *Plocamium cruciferum* (New Zealand). Pharm: Antimicrobial. Ref: J. W. Blunt, et al, Tet. Lett., 1978, 4417 | P. Bates, et al, Aust. J. Chem., 1979, 32, 2545



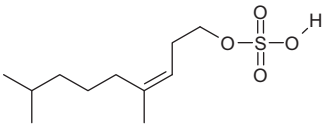
106 2,6-Dimethyl-5-heptenal

Type: Branched alkenic compounds $C_9H_{16}O$ Source: Nudibranch *Malibe leonia* (it feeds upon zooplankton). Pharm: Sweet odour. Ref: S. W. Ayer, et al, Experientia, 1983, 39, 255



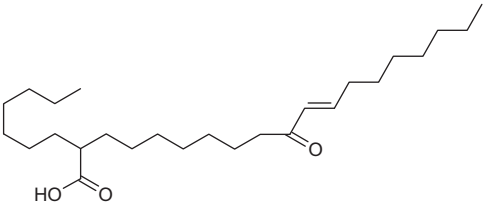
107 (3*Z*)-4,8-Dimethylnon-3-eb-1-yl sulfate

Type: Branched alkenic compounds $C_{11}H_{22}O_4S$ Powder. Source: Ascidian *Microcosmus vulgaris* (Mediterranean Sea), ophiuroid *Ophiocoma echinata* (Columbia). Pharm: Antiproliferative (GM7373, IC_{50} = 45 μg/mL; J774, IC_{50} = 110 μg/mL; WEHI-164, IC_{50} = 55 μg/mL; P_{388}, IC_{50} = 115 μg/mL). Ref: A. Aiello, et al, Tetrahedron, 1997, 53, 11489



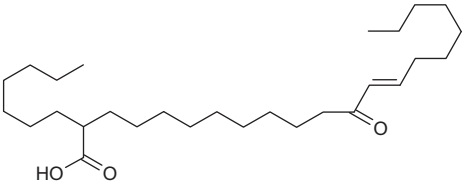
108 Ficulinic acid A

Type: Branched alkenic compounds $C_{26}H_{48}O_3$ mp 33–35 °C. Source: Sponge *Ficulina ficus*. Pharm: Cytotoxic (weak). Ref: M. Guyot, et al, JNP, 1986, 49, 307



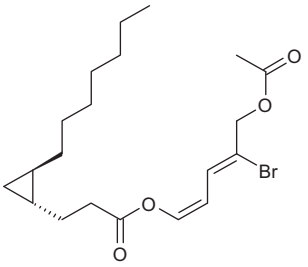
109 Ficulinic acid B

Type: Branched alkenic compounds $C_{28}H_{52}O_3$ mp 31–32 °C. Source: Sponge *Ficulina ficus*. Pharm: Cytotoxic (weak). Ref: M. Guyot, et al, JNP, 1986, 49, 307



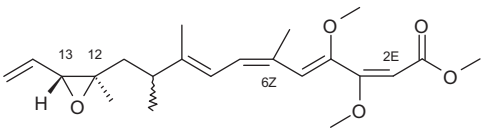
110 Grenadadiene

Type: Branched alkenic compounds $C_{20}H_{31}BrO_4$ $[\alpha]_D$ = −8° (*c* = 0.1, $CHCl_3$). Source: Cyanobacterium *Lyngbya majuscula* (macroscopic, Grenada). Pharm: Cytotoxic (NCI's 60 cell lines, interesting profile of cytotoxicity and has been selected for *in vivo* evaluation). Ref: N. Sitachitta, et al, JNP, 1998, 61, 681



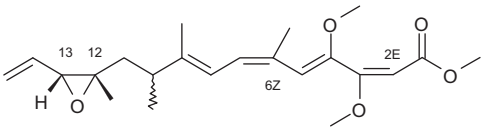
111 Haliangicin A

Antibiotic SMP 2 Type: Branched alkenic compounds $C_{22}H_{32}O_5$ Light yellow oil, $[\alpha]_D^{22}$ = +34.6° (*c* = 0.3, MeOH). Source: Marine myxobacterium *Haliangium ochraceum* AJ13395 Pharm: Antifungal (growth inhibitor of fungi). Ref: R. Fudou, et al, J. Antibiot., 2001, 54, 149; 153 | B. A. Kundim, et al, J. Antibiot., 2003, 56, 630



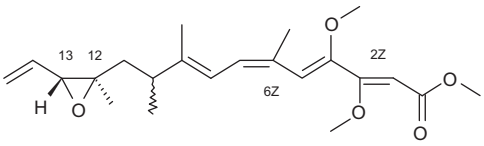
112 *cis*-Haliangicin A

Type: Branched alkenic compounds $C_{22}H_{32}O_5$ Light yellow oil, $[\alpha]_D^{22}$ = +29.3° (*c* = 0.21, MeOH). Source: Marine myxobacterium *Haliangium ochraceum* AJ13395 Pharm: Antifungal. Ref: R. Fudou, et al, J. Antibiot., 2001, 54, 149; 153 | B. A. Kundim, et al, J. Antibiot., 2003, 56, 630



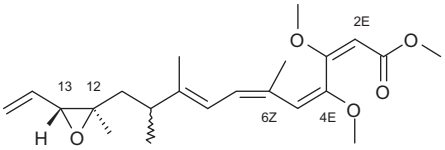
113 Haliangicin B

Type: Branched alkenic compounds $C_{22}H_{32}O_5$ Light yellow oil, $[\alpha]_D^{22}$ = +38° (*c* = 0.11, MeOH). Source: Marine myxobacterium *Haliangium ochraceum* AJ13395 Pharm: Antifungal. Ref: R. Fudou, et al, J. Antibiot., 2001, 54, 149; 153 | B. A. Kundim, et al, J. Antibiot., 2003, 56, 630



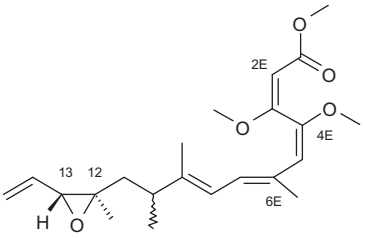
114 Haliangicin C

Type: Branched alkenic compounds $C_{22}H_{32}O_5$ Light yellow oil, $[\alpha]_D^{22} = -40°$ (c = 0.04, MeOH). Source: Marine myxobacterium *Haliangium ochraceum* AJ13395 Pharm: Antifungal. Ref: R. Fudou, et al, J. Antibiot., 2001, 54, 149; 153 | B. A. Kundim, et al, J. Antibiot., 2003, 56, 630



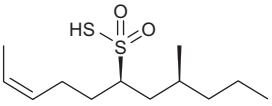
115 Haliangicin D

Type: Branched alkenic compounds $C_{22}H_{32}O_5$ Light yellow oil, $[\alpha]_D^{22} = -20°$ (c = 0.05, MeOH). Source: Marine myxobacterium *Haliangium ochraceum* AJ13395 Pharm: Antifungal. Ref: R. Fudou, et al, J. Antibiot., 2001, 54, 149; 153 | B. A. Kundim, et al, J. Antibiot., 2003, 56, 630



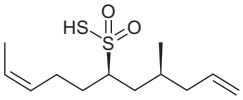
116 Hedathiosulfonic acid A

8-Methyl-2-undecene-6-sulfonothioic acid Type: Branched alkenic compounds $C_{12}H_{24}O_2S_2$ Oil, $[\alpha]_D^{26} = +2.1°$ (c = 0.07, MeOH). Source: Urchin *Echinocardium cordatum* (deep water). Pharm: Toxic (acute). Ref: N. Takada, et al, Tet. Lett., 2001, 42, 6557 | M. Kita, et al, Tetrahedron, 2002, 58, 6405



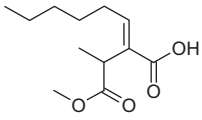
117 Hedathiosulfonic acid B

3-Methyl-1-(3-pentenyl)-5-hexenesulfonothioic acid Type: Branched alkenic compounds $C_{12}H_{22}O_2S_2$ Oil, $[\alpha]_D^{26} = -2.2°$ (c = 0.28, MeOH). Source: Urchin *Echinocardium cordatum* (deep water). Pharm: Toxic (acute). Ref: N. Takada, et al, Tet. Lett., 2001, 42, 6557 | M. Kita, et al, Tetrahedron, 2002, 58, 6405



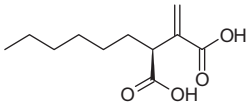
118 2-Hexylidene-3-methylsuccinic acid

Type: Branched alkenic compounds $C_{12}H_{20}O_4$ Oil, $[\alpha]_D^{29}$ = −15.8° (*c* = 0.35, MeOH). Source: Marine-derived fungus *Halorosellinia oceanica* BCC5149 (Thailand), marine fungus *Halorosellinia oceanica*. Pharm: Cytotoxic (KB, IC_{50} = 13 μg/mL; BC-1, IC_{50} = 5 μg/mL). Ref: M. Chinworrungsee, et al, BoMCL, 2001, 11, 1965



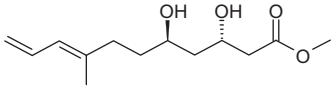
119 (*S*)-Hexylitaconic acid

Type: Branched alkenic compounds $C_{11}H_{18}O_4$ Amorph. solid, $[\alpha]_D^{23}$ = −17.9° (*c* = 0.5, MeOH). Source: Marine-derived fungus *Apiospora montagnei* (psychrophilic, cold water, North Sea) from red alga *Polysiphonia violacea* (inner tissue, North Sea). Pharm: Inhibits interaction of tumour suppressor p53 with Hdm2 (potentially leading to reactivation of p53 and induction of apoptosis in cancer cells). Ref: C. Klemke, et al, JNP, 2004, 67, 1058 | M. D. Lebar, et al, NPR, 2007, 24, 774 (rev)



120 Ieodomycin A

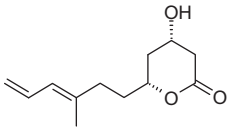
Type: Branched alkenic compounds $C_{13}H_{22}O_4$ Yellowish amorph. solid, $[\alpha]_D^{23}$ = +19° (*c* = 0.9, $CHCl_3$). Source: Marine-derived bacterium *Bacillus* sp. (sediment, Ieodo, South Korea). Pharm: Antibacterial (*Bacillus subtilis* and *Escherichia coli*, MIC = 32–64 μg/mL); antifungal (yeast *Saccharomyces cerevisiae*, MIC = 256 μg/mL). Ref: M. A. M. Mondol, et al, JNP, 2011, 74, 1606



121 Ieodomycin B

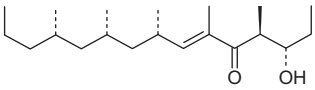
Type: Branched alkenic compounds $C_{12}H_{18}O_3$ White amorph. solid, $[\alpha]_D^{23}$ = +21° (*c* = 0.9, $CHCl_3$). Source: Marine-derived bacterium *Bacillus* sp. (sediment, Ieodo, South Korea). Pharm: Antibacterial (*Bacillus subtilis* and *Escherichia coli*, MIC = 32–64 μg/mL);

antifungal (yeast *Saccharomyces cerevisiae*, MIC = 256 μg/mL). Ref: M. A. M. Mondol, et al, JNP, 2011, 74, 1606



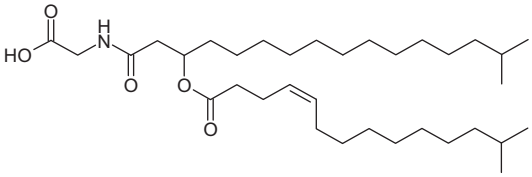
122 Isosiphonarienolone

3-Hydroxy-4,6,8,10,12-pentamethyl-6-pentadecen-5-one Type: Branched alkenic compounds $C_{20}H_{38}O_2$ Oil, $[\alpha]_D^{25}$ = +17.6° (*c* = 0.17, $CHCl_3$). Source: Pulmonate limpet *Siphonaria pectinata* (Cádiz, Spain). Pharm: Cytotoxic (P_{388}, A549, HT29 and MEL28, all $ED_{50} \geq 10$ μg/mL). Ref: M.C. Paul, et al, Tetrahedron, 1997, 53, 2303



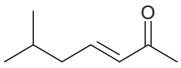
123 *N*-[15-Methyl-3-(13-methyl-4-tetradecenoyloxy)hexadecanoyl]glycine

Type: Branched alkenic compounds $C_{34}H_{63}NO_5$ mp 70–71 °C, $[\alpha]_D^{25}$ = +0.45° (*c* = 7.92, $CHCl_3$). Source: Marine bacterium *Cytophaga* sp. Pharm: N-type Ca^{2+} channel blocker. Ref: T. Morishita, et al, J. Antibiot., 1997, 50, 457



124 7-Methyloct-4-en-3-one

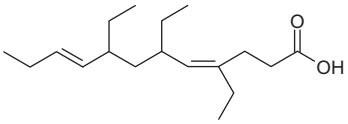
Type: Branched alkenic compounds $C_8H_{14}O$ Oil, bp_{30mmHg} 92–94 °C. Source: Sponge *Plakortis zygompha* (Belize). Pharm: Sweet odour. Ref: D. J. Faulkner, et al, Tet. Lett., 1980, 21, 23



125 Monotriajaponide A

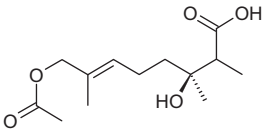
4,6,8-Triethyl-2,4,9-dodecatrienoic acid Type: Branched alkenic compounds $C_{18}H_{32}O_2$ Viscous oil, $[\alpha]_D$ = +63° (*c* = 0.09, $CHCl_3$). Source: sponge *Monotria japonica*. Pharm: Oocyte-lytic activity (selectively lyses immature starfish oocytes *Asterina pectinifera*,

without affecting nuclear morphology, MEC = 50 μg/mL). Ref: M. Yanai, et al, BoMC, 2003, 11, 1715



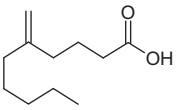
126 Penicimonoterpene

Type: Branched alkenic compounds $C_{13}H_{22}O_5$ Colorless oil, $[\alpha]_D^{20}$ = +1.4° (*c* = 0.83, MeOH). Source: Marine-derived fungus *Penicillium chrysogenum* QEN-24S from red alga *Laurencia* sp. (Weizhou I., Guangxi, China). Pharm: Antifungal (20 μg, *Aspergillus brassicae*, IZD = 17 mm, control Amphotericin B, IZD = 18 mm; *Aspergillus niger*, slight inhibition, Amphotericin B, IZD = 24 mm). Ref: S. -S. Gao, et al, Mar. Drugs, 2011, 9, 59



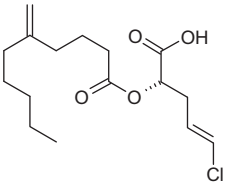
127 Pitinoic acid A

Type: Branched alkenic compounds $C_{11}H_{20}O_2$ Source: Cyanobacterium *Lyngbya-like* sp. (Piti Bay, Guam). Pharm: Inhibits quorum sensing in *Pseudomonas aeruginosa*. Ref: C. M. Pavlik, et al, JNP, 2013, 76, 2026



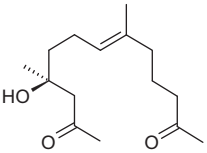
128 Pitinoic acid B

Type: Branched alkenic compounds $C_{16}H_{25}ClO_4$ Source: Cyanobacterium *Lyngbya-like* sp. (Piti Bay, Guam). Pharm: Anti-inflammatory (inhibiting production of pro-inflammatory cytokine expression). Ref: C. M. Pavlik, et al, JNP, 2013, 76, 2026



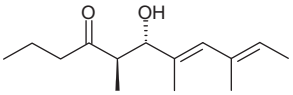
129 Pseudoalteromone B

Type: Branched alkenic compounds $C_{15}H_{26}O_3$ Colorless oil, $[\alpha]_D^{23}$ = −20° (*c* = 0.03, $CHCl_3$). Source: Marine-derived bacterium *Pseudoalteromonas* sp. CGH2XX from soft coral *Lobophytum crassum* (cultured-type, Taiwan). Pharm: Anti-inflammatory (modest). Ref: Y. -H. Chen, et al, Mar. Drugs, 2012, 10, 1566



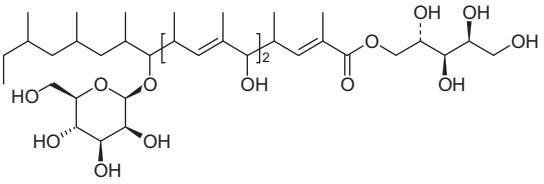
130 Pteroenone

Type: Branched alkenic compounds $C_{14}H_{24}O_2$ $[\alpha]_D$ = +48° (*c* = 0.6, hexane). Source: Gymnosomata *Clione antarctica* (psychrophilic, cold water, shell-less pelagic mollusc pteropod). Pharm: Antifeedant. Ref: W. Y. Yoshida, et al, JOC, 1995, 60, 780 | P. J. Bryan, et al, Mar. Biol., 1995, 122, 271 | M. D. Lebar, et al, NPR, 2007, 24, 774 (rev)



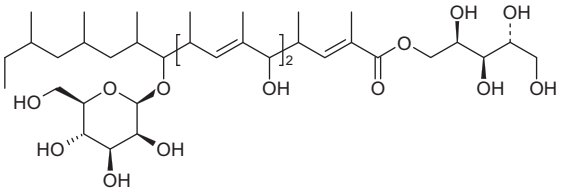
131 Roselipin 1A

Type: Branched alkenic compounds $C_{40}H_{72}O_{14}$ Powder, mp 36–37 °C, $[\alpha]_D^{24}$ = +12° (*c* = 0.1, MeOH). Source: Marine-derived fungus *Gliocladium roseum* KF-1040. Pharm: Diacylglycerol acyltransferase (DGAT) inhibitor. Ref: S. Omura, et al, J. Antibiol., 1999, 52, 586 | H. Tomoda, et al, J. Antibiot., 1999, 52, 689 | N. Tabata, et al, J. Antibiot., 1999, 52, 815



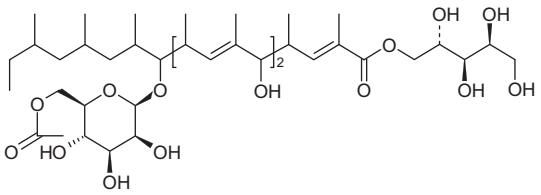
132 Roselipin 1B

Type: Branched alkenic compounds $C_{40}H_{72}O_{14}$ Powder, mp 35–36 °C, $[\alpha]_D^{24}$ = +8° (*c* = 0.1, MeOH). Source: Marine-derived fungus *Gliocladium roseum* KF-1040. Pharm: Diacylglycerol acyltransferase (DGAT) inhibitor. Ref: S. Omura, et al, J. Antibiol., 1999, 52, 586 | H. Tomoda, et al, J. Antibiot., 1999, 52, 689 | N. Tabata, et al, J. Antibiot., 1999, 52, 815



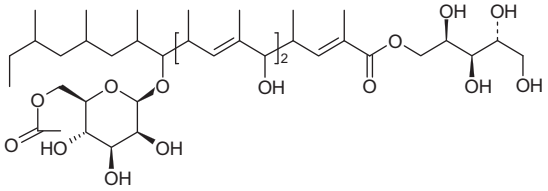
133 Roselipin 2A

Type: Branched alkenic compounds $C_{42}H_{74}O_{15}$ $[\alpha]_D^{24}$ = +22° (*c* = 0.1, MeOH). Source: Marine-derived fungus *Gliocladium roseum* KF-1040. Pharm: Diacylglycerol acyltransferase (DGAT) inhibitor. Ref: S. Omura, et al, J. Antibiol., 1999, 52, 586 | H. Tomoda, et al, J. Antibiot., 1999, 52, 689 | N. Tabata, et al, J. Antibiot., 1999, 52, 815



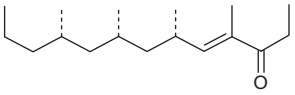
134 Roselipin 2B

Type: Branched alkenic compounds $C_{42}H_{74}O_{15}$ $[\alpha]_D^{24}$ = +10° (*c* = 0.1, MeOH). Source: Marine-derived fungus *Gliocladium roseum* KF-1040. Pharm: Diacylglycerol acyltransferase (DGAT) inhibitor. Ref: S. Omura, et al, J. Antibiol., 1999, 52, 586 | H. Tomoda, et al, J. Antibiot., 1999, 52, 689 | N. Tabata, et al, J. Antibiot., 1999, 52, 815



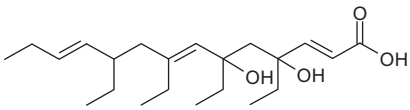
135 Siphonarienone

4,6,8,10-Tetramethyl-4-tridecen-3-one Type: Branched alkenic compounds $C_{17}H_{32}O$ Oil, $[\alpha]_D$ = +13.3° (*c* = 0.7, $CHCl_3$). Source: Pulmonate limpets *Siphonaria pectinata* (Cádiz, Spain, 6°18´W36°32´N) and *Siphonaria grisea*. Pharm: Cytotoxic (P_{388}, A549, HT29 and MEL28, all ED_{50} ≥ 10 μg/mL); antibacterial (gram-positive bacteria). Ref: M. Norte, et al, Tetrahedron, 1990, 46, 1669 | M.C. Paul, et al, Tetrahedron, 1997, 53, 2303



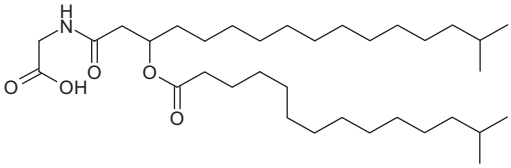
136 4,6,8,10-Tetraethyl-4,6-dihydroxy-2,7,11-tetradecatrienoic acid

Type: Branched alkenic compounds $C_{22}H_{38}O_4$ Oil, $[\alpha]_D$ = +1.2° (*c* = 0.33, $CHCl_3$). Source: Sponge *Plakortis halichondrioides* (Jamaica). Pharm: Cytotoxic (P_{388}, IC_{50} = 10 µg/mL). Ref: A. Rudi, et al, JNP, 1993, 56, 1827



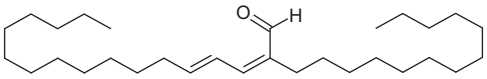
137 Topostin B 567

Type: Branched alkenic compounds $C_{34}H_{65}NO_5$ Source: Marine bacteria *Cytophaga johnsone* and *Cytophaga* sp., eubacterium *Flexibacter topostinus*. Pharm: N-type Ca^{2+} channel blocker. Ref: T. Morishita, et al, J. Antibiot., 1997, 50, 457



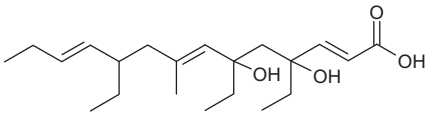
138 (2*E*,4*E*)-2-Tridecyl-heptadeca-2,4-dienal

Type: Branched alkenic compounds $C_{30}H_{56}O$ Source: Red alga *Corallina mediterranea* (Alicante Spain). Pharm: Anti-inflammatory; cytotoxic; LD_{50} = 125 µg/mL. Ref: S. De Rosa, et al, Phytochemistry, 1995, 40, 995



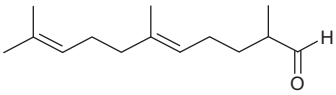
139 4,6,10-Triethyl-4,6-dihydroxy-8-methyl-2,7,11-tetradecatrienoic acid

Type: Branched alkenic compounds $C_{21}H_{36}O_4$ Oil, $[\alpha]_D$ = +4.8° (*c* = 0.46, $CHCl_3$). Source: Sponge *Plakortis halichondrioides* (Jamaica). Pharm: Cytotoxic (P_{388}, IC_{50} = 10 µg/mL). Ref: A. Rudi, et al, JNP, 1993, 56, 1827



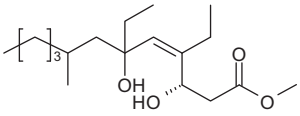
140 2,6,10-Trimethyl-5,9-undecadienal

Type: Branched alkenic compounds $C_{14}H_{24}O$ Sweet smelling oil. Source: Nudibranch *Anisodoris nobilis*. Pharm: Fruity odour. Ref: K. Gustafson, et al, Tetrahedron, 1985, 41, 1101



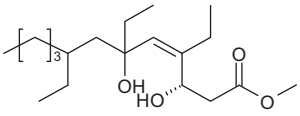
141 Woodylide A

Type: Branched alkenic compounds $C_{18}H_{34}O_4$ Colorless oil, $[\alpha]_D^{22}$ = –15.0° (*c* = 0.06, MeOH). Source: Sponge *Plakortis simplex* (Yongxing I., South China Sea, China). Pharm: Antifungal (*Cryptococcus neoformans* ATCC 90113, IC_{50} = 3.67 μg/mL, control Amphotericin B, IC_{50} = 0.35 μg/mL; *Candida albicans* Y0109, MIC = 32 μg/mL, control Fluconazole,MIC = 0.25 μg/mL; *Trichophyton rubrum*, MIC = 32 μg/mL, Fluconazole, MIC = 2 μg/mL; *Microsporum gypseum*, MIC = 32 μg/mL, Fluconazole, MIC = 8 μg/mL); cytotoxic (A549, IC_{50} = 37.83 μg/mL; HeLa, IC_{50} = 11.22 μg/mL; QGY-7703, IC_{50} = 25.80 μg/mL; MDA231, inactive); cytotoxic (HeLa, IC_{50} = (15.5 ± 1.2)μmol/L; K562, IC_{50} = (23.8 ± 1.2)μmol/L; A549, IC_{50} = (29.3 ± 2.5)μmol/L; Bel7402, IC_{50} > 100 μmol/L, control Adriamycin: HeLa, IC_{50} = (0.6 ± 0.0)μmol/L; K562, IC_{50} = (0.3 ± 0.0)μmol/L; A549, IC_{50} = (0.2 ± 0.0)μmol/L) (Zhang, 2013). Ref: H. -B. Yu, et al, Mar. Drugs, 2012, 10, 1027 | J. Zhang, et al, JNP, 2013, 76, 600



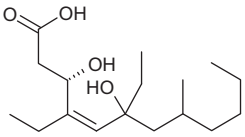
142 Woodylide B

Type: Branched alkenic compounds $C_{19}H_{36}O_4$ Colorless oil, $[\alpha]_D^{22}$ = +5.5° (*c* = 0.06, MeOH). Source: Sponge *Plakortis simplex* (Yongxing I., South China Sea, China). Pharm: Cytotoxic (HeLa, IC_{50} = (15.9 ± 1.1)μmol/L; K562, IC_{50} = (20.0 ± 1.9) μmol/L; A549, IC_{50} = (23.6 ± 1.2)μmol/L; Bel7402, IC_{50} > 100 μmol/L, control Adriamycin: HeLa, IC_{50} = (0.6 ± 0.0)μmol/L; K562, IC_{50} = (0.3 ± 0.0)μmol/L; A549, IC_{50} = (0.2 ± 0.0)μmol/L) (Zhang, 2013). Ref: H. -B. Yu, et al, Mar. Drugs, 2012, 10, 1027 | J. Zhang, et al, JNP, 2013, 76, 600



143 Woodylide C

Type: Branched alkenic compounds $C_{17}H_{32}O_4$ Light yellow oil, $[\alpha]_D^{22} = -11.4°$ (c = 0.14, MeOH). Source: Sponge *Plakortis simplex* (Yongxing I., South China Sea, China). Pharm: Antifungal (*Cryptococcus neoformans* ATCC 90113, IC_{50} = 10.85 μg/mL, control Amphotericin B, IC_{50} = 0.35 μg/mL; *Candida albicans* Y0109, inactive, control Fluconazole,MIC = 0.25 μg/mL; *Trichophyton rubrum*, MIC = 32 μg/mL, Fluconazole, MIC = 2 μg/mL; *Microsporum gypseum*, MIC = 32 μg/mL, Fluconazole,MIC = 8 μg/mL); cytotoxic (HCT116, IC_{50} = 9.4 μg/mL); PTP1B inhibitor (IC_{50} = 4.7 μg/mL, control Sodium orthovanadate, IC_{50} = 88.46 μg/mL). Ref: H. -B. Yu, et al, Mar. Drugs, 2012, 10, 1027



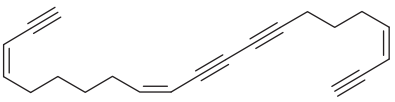
1.3 Acetylenic Compounds

144 Callyberyne A

Callypentayne; (Z,Z)-12,18-Heneicosadiene-1,3,8,10,20-pentayne Type: Acetylenic hydrocarbons. $C_{21}H_{20}$ Oil Source: Sponges *Callyspongia truncata* (Japan waters) and *Callyspongia* sp. Pharm: Induces metamorphosis (larvae of ascidian *Halocynthia roretzi*, ED_{100} = 0.25 μg/mL). Ref: S. Tsukamoto, et al, JNP, 1997, 60, 126

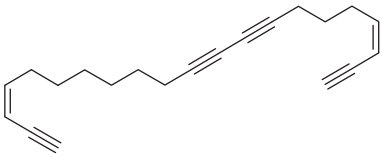
145 Callyberyne B

3,12,18-Heneicosatriene-1,8,10,20-tetrayne Type: Acetylenic hydrocarbons. $C_{21}H_{22}$ Oil. Source: Sponge *Callyspongia* sp. (Japan waters). Pharm: Induces metamorphosis (larvae of ascidian *Halocynthia roretzi*, ED_{100} = 0.13 μg/mL); antifoulant (barnacle *Balanus amphitrite*, ED_{50} = 0.24 μg/mL). Ref: A. Umeyama, et al, JNP, 1997, 60, 131



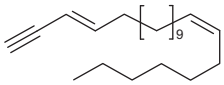
146 Callytetrayne

Type: Acetylenic hydrocarbons. $C_{21}H_{24}$ Oil. Source: Sponges *Callyspongia truncata* (Japan waters) and *Callyspongia* sp. nov Pharm: Induces metamorphosis (larvae of ascidian *Halocynthia roretzi*, ED_{100} = 0.25 μg/mL); antifoulant (ED_{50} = 30 μg/mL). Ref: S. Tsukamoto, et al, JNP, 1997, 60, 126 | A. Umeyama, et al, JNP, 1997, 60, 131



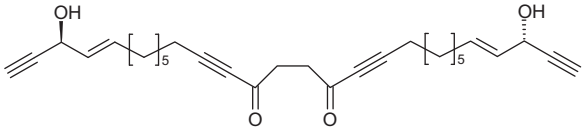
147 (3*E*,15*Z*)-3,15-Docosadien-1-yne

Type: Acetylenic hydrocarbons. $C_{22}H_{38}$ Source: Sponge *Cribrochalina vasculum* (Bahamas). Pharm: Toxic (brine shrimp). Ref: A. Aiello, et al, JNP, 1992, 55, 1275



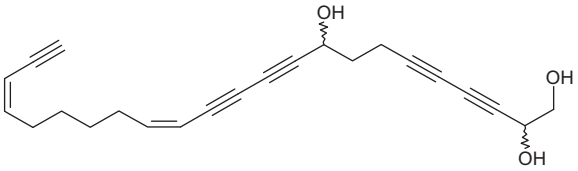
148 Adociacetylene D

3,28-Dihydroxy-4,26-triacontadiene-1,12,18,29-tetrayne-14,17-dione Type: Acetylenic alcohols. $C_{30}H_{38}O_4$ Pale yellow oil, $[\alpha]_D^{22}$ = +18.1° (*c* = 1, $CHCl_3$), $[\alpha]_D^{22}$ = +6° (*c* = 0.1, $CHCl_3$), Source: Sponge *Asocia* sp. (Okinawa). Pharm: Cytotoxic (endothelial cell-neutrophil leukocyte adhesin assay, tumor necrosis factor-*α* (5JRU/mL)-stimulated endothelial cells, 1 μg/mL). Ref: M. Kobayashi, et al, CPB, 1996, 44, 720



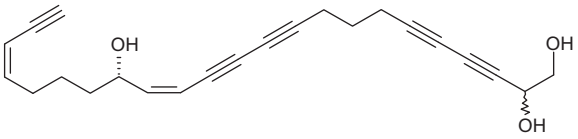
149 Callytriol A

14,20-Tricosadiene-3,5,10,12,22-pentayne-1,2,9-triol Type: Acetylenic alcohols. $C_{23}H_{24}O_3$ Yellow oil. Source: Sponge *Callyspongia truncata* (Japan waters). Pharm: Induces metamorphosis (larvae of ascidian *Halocynthia roretzi*, ED_{100} = 0.25 μg/mL); antifoulant (barnacle *Balanus amphitrite*, ED_{50} = 4.5 μg/mL). Ref: S. Tsukamoto, et al, JNP, 1997, 60, 126



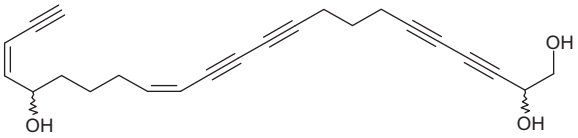
150 Callytriol B

Type: Acetylenic alcohols. $C_{23}H_{24}O_3$ Yellow oil, $[\alpha]_D^{25}$ = +0.96° (*c* = 0.078, MeOH). Source: Sponge *Callyspongia truncata* (Japan waters). Pharm: Induces metamorphosis (larvae of ascidian *Halocynthia roretzi*, ED_{100} = 1.3 μg/mL); antifoulant (barnacle *Balanus amphitrite*, ED_{50} = 0.43 μg/mL). Ref: S. Tsukamoto, et al, JNP, 1997, 60, 126



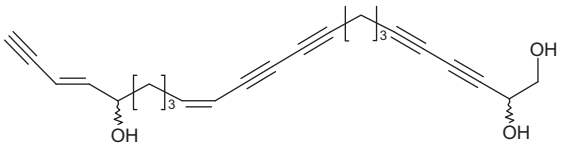
151 Callytriol C

Type: Acetylenic alcohols. $C_{23}H_{24}O_3$ Yellow oil, $[\alpha]_D^{25}$ = −4.5° (*c* = 0.05, MeOH). Source: Sponge *Callyspongia truncata* (Japan waters). Pharm: Induces metamorphosis (larvae of ascidian *Halocynthia roretzi*, ED_{100} = 1.3 μg/mL); antifoulant (barnacle *Balanus amphitrite*, ED_{50} = 0.63 μg/mL). Ref: S. Tsukamoto, et al, JNP, 1997, 60, 126



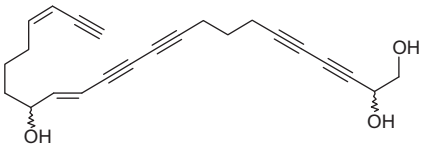
152 Callytriol D

Type: Acetylenic alcohols. $C_{23}H_{24}O_3$ Yellow oil, $[\alpha]_D^{25}$ = −1.5° (*c* = 0.03, MeOH). Source: Sponge *Callyspongia truncata* (Japan waters). Pharm: Induces metamorphosis (larvae of ascidian *Halocynthia roretzi*, ED_{100} = 0.13 μg/mL); antifoulant (barnacle *Balanus amphitrite*, ED_{50} = 0.24 μg/mL). Ref: S. Tsukamoto, et al, JNP, 1997, 60, 126



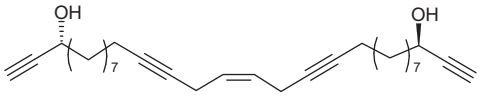
153 Callytriol E

(2ξ,14*E*,16ξ,20*Z*)-14,20-Tricosadiene-3,5,10,12,22-pentayne-1,2,16-triol Type: Acetylenic alcohols. $C_{23}H_{24}O_3$ Yellow oil, $[\alpha]_D^{25}$ = −1.6° (*c* = 0.046, MeOH). Source: Sponge *Callyspongia truncata* (Japan waters). Pharm: Induces metamorphosis (larvae of ascidian *Halocynthia roretzi*, ED_{100} = 1.3 μg/mL); antifoulant (barnacle *Balanus amphitrite*, ED_{50} = 0.38 μg/mL). Ref: S. Tsukamoto, et al, JNP, 1997, 60, 126



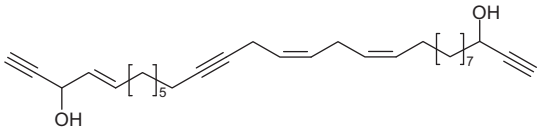
154 Dideoxypetrosynol D

15-Triacontene-1,12,18,29-tetrayne-3,28-diol Type: Acetylenic alcohols. $C_{30}H_{44}O_2$ Amorph. solid, $[\alpha]_D^{23}$ = +38° (*c* = 0.05, $CHCl_3$). Source: Sponge *Petrosia* sp. (Korea waters). Pharm: Cytotoxic (hmn: A549, SK-OV-3, SK-MEL-2, XF498, HCT15). Ref: A. Guerriero, et al, Tet. Lett., 1998, 39, 6395 | J. S. Kim, et al, Tetrahedron, 1999, 55, 2113



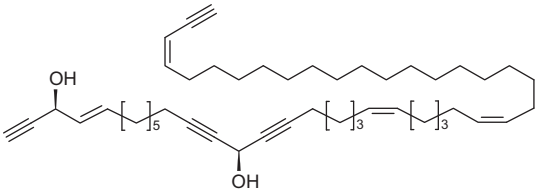
155 Dideoxypetrosynol F

Type: Acetylenic alcohols. $C_{30}H_{44}O_2$ Amorph. solid. Source: Sponge *Petrosia* sp. (Korea waters). Pharm: Cytotoxic (A549, SK-OV-3, SK-MEL-2, XF498, HCT15, all ED_{50}s > 3.0 μg/mL). Ref: J. S. Kim, et al, JNP, 1999, 62, 554 | Y. J. Lim, et al, JNP, 1999, 62, 1215



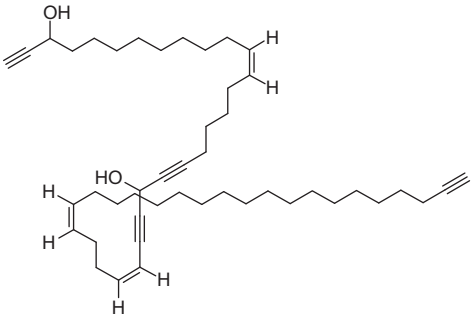
156 Dihomopetrocortyne A

Type: Acetylenic alcohols. $C_{48}H_{74}O_2$ Source: Sponge *Petrosia* sp. (Korea waters). Pharm: Cytotoxic (A549, ED_{50} = 5.2 μg/mL; SK-OV-3, ED_{50} = 5.1 μg/mL; SK-MEL-2, ED_{50} = 1.6 μg/mL; XF498, ED_{50} = 5.8 μg/mL; HCT15, ED_{50} = 3.9 μg/mL; control Cisplatin: A549, ED_{50} = 0.7 μg/mL; SK-OV-3, ED_{50} = 1.3 μg/mL; SK-MEL-2, ED_{50} = 1.0 μg/mL; XF498, ED_{50} = 0.7 μg/mL; HCT15, ED_{50} = 1.1 μg/mL); DNA replication inhibitor (SV40 DNA replication, 20 μmol/L, InRt = 21%; 40 μmol/L, InRt = 38%). Ref: Y. J. Lim, et al, JNP, 2001, 64, 1565



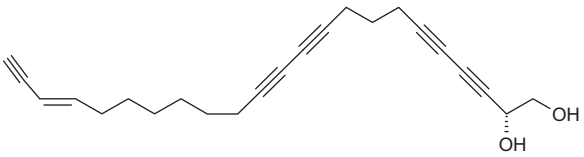
157 4,5-Dihydroisopetroformyne 3

12,23,27-Hexatetracontatriene-1,18,21,45-tetrayne-3,20-diol Type: Acetylenic alcohols. $C_{46}H_{72}O_2$ Oil, $[\alpha]_D^{21}$ = +1.8° (*c* = 0.2, $CHCl_3$). Source: Sponge *Petrosia ficiformis* (Mediterranean Sea). Pharm: Toxic (brine shrimp). Ref: Y. Guo, et al, JNP, 1995, 58, 712



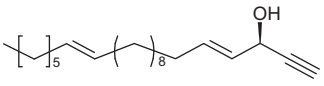
158 14,15-Dihydrosiphonodiol

Type: Acetylenic alcohols. $C_{23}H_{26}O_2$ Source: Sponge *Siphonochalina truncata*. Pharm: HK-ATPase inhibitor. Ref: N. Fusetani, et al, Tet. Lett., 1987, 28, 4311



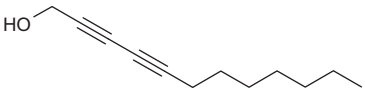
159 4,15-Docosadien-1-yn-3-ol

Type: Acetylenic alcohols. $C_{22}H_{38}O$ $[\alpha]_D$ = −44° (*c* = 0.2, MeOH). Source: Sponge *Cribrochalina vasculum*. Pharm: Immunossuppressive; cytotoxic. Ref: S. P. Gunasekera, et al, JOC, 1990, 55, 6223 | A. Aiello, et al, JNP, 1992.55, 1275 | B. A. Kulkarni, et al, JOC, 1993, 58, 5964 | Y. F. Hallock, et al, JNP, 1995, 58, 1801 | T. Ohtani, et al, JCS Perkin I, 1996, 961



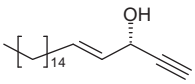
160 2,4-Dodecadiyn-1-ol

Dodecane-2,4-diyn-1-ol Type: Acetylenic alcohols. $C_{12}H_{18}O$ mp 34–36 °C. Source: Stony coral *Montipora digitata* (eggs). Pharm: Cytotoxic (A549, ED_{50} = 5.48 μg/mL; SK-OV-3, ED_{50} = 4.63 μg/mL; SK-MEL-2, ED_{50} = 4.45 μg/mL; XF498, ED_{50} = 5.59 μg/mL; HCT15, ED_{50} = 5.90 μg/mL; control Cisplatin: A549, ED_{50} = 0.75 μg/mL; SK-OV-3, ED_{50} = 1.09 μg/mL; SK-MEL-2, ED_{50} = 2.18 μg/mL; XF498, ED_{50} = 1.18 μg/mL; HCT15, ED_{50} = 0.85 μg/mL). Ref: J. C. Coll, et al, Mar. Biol. (Berlin), 1994, 118, 177 | N. Alam, et al, JNP, 2001, 64, 1059



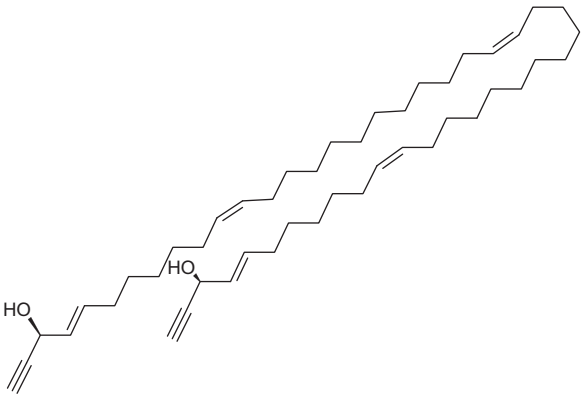
161 (3*S*,4*E*)-Eicos-4-en-1-yn-3*β*-ol

Type: Acetylenic alcohols. $C_{20}H_{36}O$ Solid, $[\alpha]_D$ = +18.3° (*c* = 0.4, MeOH) (+3.8°). Source: Sponge *Cribrochalina vasculum*. Pharm: Cytotoxic (H522 and IGROV1). Ref: Y. F. Hallock, et al, JNP, 1995, 58, 1801 | A. Sharma et al, Tetrahedron: Asymmetry, 1998, 9, 2635 | W. Lu,et al, Tetrahedron, 1999, 55, 4649 | J. Garcia, et al, Tetrahedron: Asymmetry, 1999, 10, 2617



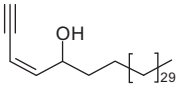
162 Fulvinol

4,11,23,35,42-Hexatetracontapentaene-1,45-diyne-3,44-diol Type: Acetylenic alcohols. $C_{46}H_{76}O_2$ Cryst. (petrol/EtOAc), mp 35–37 °C, $[\alpha]_D^{25}$ = −14.8° (*c* = 0.4, $CHCl_3$). Source: Sponge *Reniera fulva* (Spain). Pharm: Cytotoxic (P_{388}, A549, HT29 and MEL28, all ED_{50} = 1 μg/mL). Ref: M. J. Ortega, et al, JNP, 1996, 59, 1069



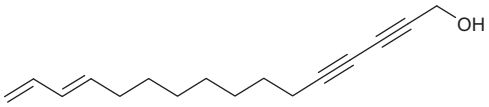
163 (3*Z*,5*E*)-3-Heptatriaconten-1-yn-5-ol

Type: Acetylenic alcohols. $C_{37}H_{70}O$ $[\alpha]_D$ = −18.3° (*c* = 0.8, MeOH). Source: Sponge *Reniochalina* sp. (Chuuk State, Federated States of Micronesia). Pharm: Cytotoxic (ACHN, NCI-H23, MDA-MB-231, HCT15, NUGC-3, and PC3, all GI_{50}s > 10 μg/mL, control Adriamycin, GI_{50} = (0.198–0.708) μg/mL). Ref: H. -S. Lee, et al, Lipids, 2009, 44, 71



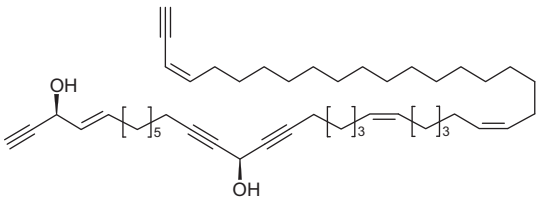
164 13,15-Hexadecadiene-2,4-diyn-1-ol

Type: Acetylenic alcohols. $C_{16}H_{22}O$ Source: Stony corals *Montipora* sp. and *Pectinia lactuca*. Pharm: Ichthyotoxic; antimicrobial. Ref: T. Higa, et al, Chem. Lett., 1990, 145



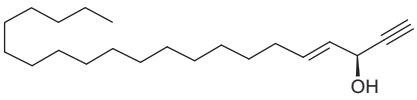
165 Homo-(3*S*,14*S*)-petrocortyne A

Type: Acetylenic alcohols. $C_{47}H_{72}O_2$ Yellow oil. Source: Sponge *Petrosia* sp. (Korea waters). Pharm: DNA replication inhibitor (simian virus SV40, 125 μmol/L, InRt = 59%, 250 μmol/L, InRt = 86%, 500 μmol/L, InRt = 100%); cytotoxic (A549, ED_{50} = 11.3 μg/mL; SK-OV-3, ED_{50} = 2.2 μg/mL; SK-MEL-2, ED_{50} = 0.8 μg/mL; XF498, ED_{50} = 2.5 μg/mL; HCT15, ED_{50} = 1.7 μg/mL; control Cisplatin, A549, ED_{50} = 0.6 μg/mL; SK-OV-3, ED_{50} = 0.9 μg/mL; SK-MEL-2, ED_{50} = 0.7 μg/mL; XF498, ED_{50} = 0.6 μg/mL; HCT15, ED_{50} = 0.6 μg/mL). Ref: Y. J. Lim, et al, JNP, 2001, 64, 46



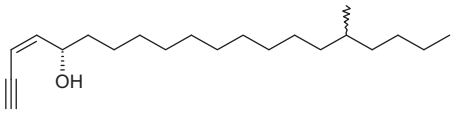
166 (3*S*,4*E*)-3-Hydroxyheneeicos-4-en-1-yne

Type: Acetylenic alcohols. $C_{21}H_{38}O$ Solid, $[\alpha]_D$ = +11.0° (*c* = 0.21, MeOH). Source: Sponge *Cribrochalina vasculum*. Pharm: Cytotoxic (*in vitro*, H522 and IGROV1). Ref: Y. F. Hallock, et al, JNP, 1995, 58, 1801



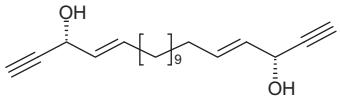
167 (5*S*,3*Z*)-5-Hydroxy-16-methyleicos-3-en-1-yne

Type: Acetylenic alcohols. $C_{21}H_{38}O$ Oil, $[\alpha]_D$ = −23.1° (*c* = 0.33, MeOH). Source: Sponge *Cribrochalina vasculum*. Pharm: Cytotoxic (*in vitro*, H522 and IGROV1). Ref: Y. F. Hallock, et al, JNP, 1995, 58, 1801



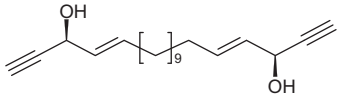
168 (–)-(3*R*,4*E*,16*E*,18*R*)-icosa-4,16-diene-1,19-diyne-3,18-diol

Type: Acetylenic alcohols. $C_{20}H_{30}O_2$ White amorphous powder, $[\alpha]_D^{24}$ = −30.0° (*c* = 0.13, MeOH). Source: Sponge *Callyspongia* sp. (Iriomote I., Okinawa, Japan). Pharm: Cytotoxic (temperature sensitive rat lymphatic endothelial TR-Le cells, IC_{50} = 0.11 μmol/L, 1-yne-3-ol moiety as an essential pharmacophore). Ref: T. Shirouzu, et al, JNP, 2013, 76, 1337



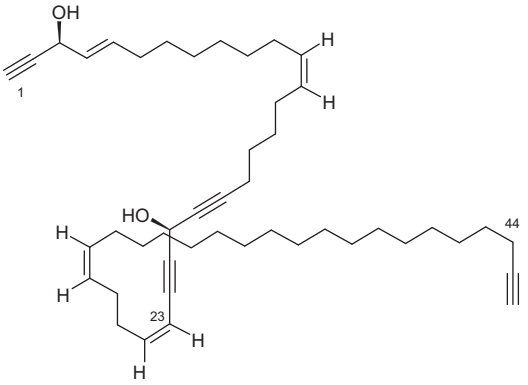
169 (+)-(3*S*,4*E*,16*E*,18*S*)-Icosa-4,16-diene-1,19-diyne-3,18-diol

Type: Acetylenic alcohols. $C_{20}H_{30}O_2$ White amorphous powder, $[\alpha]_D^{24}$ = +24.5° (*c* = 0.10, MeOH). Source: Sponge *Callyspongia* sp. (Iriomote I., Okinawa, Japan). Pharm: Cytotoxic (temperature sensitive rat lymphatic endothelial TR-Le cells, IC_{50} = 0.47 μmol/L, 1-yne-3-ol moiety as an essential pharmacophore). Ref: T. Shirouzu, et al, JNP, 2013, 76, 1337



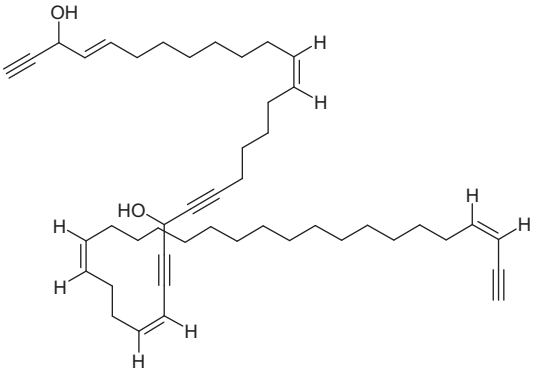
170 Isopetroformyne 3

Type: Acetylenic alcohols. $C_{46}H_{70}O_2$ Pale yellow oil, $[\alpha]_D^{21}$ = +20° (*c* = 0.06, $CHCl_3$). Source: Sponge *Petrosia ficiformis* (Mediterranean Sea). Pharm: Toxic (brine shrimp). Ref: Y. Guo, et al, JNP, 1995, 58, 712



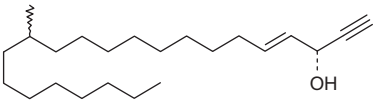
171 Isopetroformyne 4

Type: Acetylenic alcohols. $C_{46}H_{68}O_2$ Pale yellow oil, $[\alpha]_D^{21}$ = +25° (*c* = 0.10, $CHCl_3$). Source: Sponge *Petrosia ficiformis* (Mediterranean Sea). Pharm: Toxic (brine shrimp). Ref: Y. Guo, et al, JNP, 1995, 58, 712



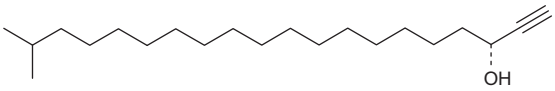
172 (3*R*,4*E*,14*ξ*)-14-Methyl-4-docosen-1-yn-3-ol

Type: Acetylenic alcohols. $C_{23}H_{42}O$ $[\alpha]_D$ = +1.8° (*c* = 2.5, MeOH). Source: Sponge *Cribrochalina vasculum* (Bahamas). Pharm: Toxic (brine shrimp). Ref: A. Aiello, et al, JNP, 1992, 55, 1275



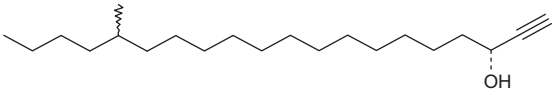
173 (*R*)-19-Methyl-1-eicosyn-3-ol

Type: Acetylenic alcohols. $C_{23}H_{42}O$ $[\alpha]_D$ = +1.9° (*c* = 2, MeOH). Source: Sponge *Cribrochalina vasculum* (Bahamas). Pharm: Toxic (brine shrimp). Ref: A. Aiello, et al, JNP, 1992, 55, 1275



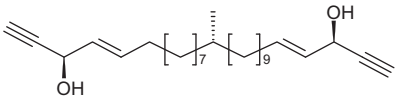
174 (3*R*,16*ξ*)-16-Methyl-1-eicosyn-3-ol

Type: Acetylenic alcohols. $C_{23}H_{42}O$ $[\alpha]_D$ = +2.1° (*c* = 1.7, MeOH). Source: Sponge *Cribrochalina vasculum* (Bahamas). Pharm: Toxic (brine shrimp). Ref: A. Aiello, et al, JNP, 1992, 55, 1275



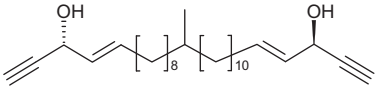
175 Miyakosyne A

Type: Acetylenic alcohols. $C_{29}H_{48}O_2$ Colorless solid, $[\alpha]_D^{24}$ = −28° (*c* = 0.42, MeOH). Source: Sponge *Petrosia* sp. Pharm: Cytotoxic (HeLa, IC_{50} = 0.10 μg/mL). Ref: Y. Hitora, et al, Tetrahedron, 2011, 67, 4530 | Y. Hitora, et al, Tetrahedron, 2013, 69, 11070



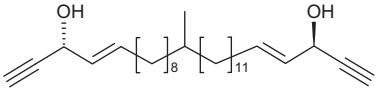
176 Miyakosyne B

Type: Acetylenic alcohols. $C_{30}H_{50}O_2$ Colorless solid, $[\alpha]_D^{26}$ = −27° (*c* = 0.60, MeOH). Source: Sponge *Petrosia* sp. Pharm: Cytotoxic (HeLa, IC_{50} = 0.13 μg/mL). Ref: Y. Hitora, et al, Tetrahedron, 2011, 67, 4530



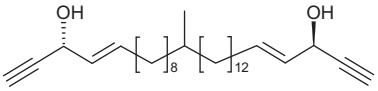
177 Miyakosyne C

Type: Acetylenic alcohols. $C_{31}H_{52}O_2$ Colorless solid, $[\alpha]_D^{24}$ = −28° (*c* = 0.72, MeOH). Source: Sponge *Petrosia* sp. Pharm: Cytotoxic (HeLa, IC_{50} = 0.04 μg/mL). Ref: Y. Hitora, et al, Tetrahedron, 2011, 67, 4530



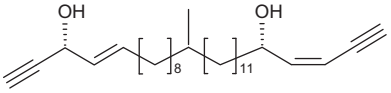
178 Miyakosyne D

Type: Acetylenic alcohols. $C_{32}H_{54}O_2$ Colorless solid, $[\alpha]_D^{26} = -25°$ (c = 0.35, MeOH). Source: Sponge *Petrosia* sp. Pharm: Cytotoxic (HeLa, IC_{50} = 0.15 μg/mL). Ref: Y. Hitora, et al, Tetrahedron, 2011, 67, 4530



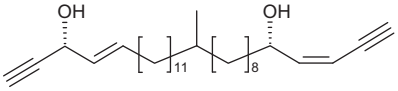
179 Miyakosyne E

Type: Acetylenic alcohols. $C_{31}H_{52}O_2$ Colorless solid, $[\alpha]_D^{25} = -34°$ (c = 0.32, MeOH). Source: Sponge *Petrosia* sp. Pharm: Cytotoxic (mixture with Miyakosyne F, HeLa, IC_{50} = 0.30 μg/mL). Ref: Y. Hitora, et al, Tetrahedron, 2011, 67, 4530



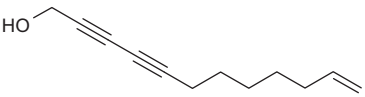
180 Miyakosyne F

Type: Acetylenic alcohols. $C_{31}H_{52}O_2$ Colorless solid, $[\alpha]_D^{25} = -34°$ (c = 0.32, MeOH). Source: Sponge *Petrosia* sp. Pharm: Cytotoxic (mixture with Miyakosyne E, HeLa, IC_{50} = 0.30 μg/mL). Ref: Y. Hitora, et al, Tetrahedron, 2011, 67, 4530



181 Montiporyne G

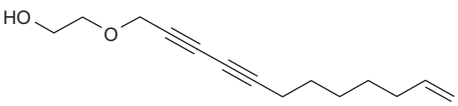
Type: Acetylenic alcohols. $C_{12}H_{16}O$ Light yellow oil. Source: Stony coral *Montipora* sp. Pharm: Cytotoxic (A549, ED_{50} = 13.78 μg/mL; SK-OV-3, ED_{50} = 9.79 μg/mL; SK-MEL-2, ED_{50} = 9.56 μg/mL; XF498, ED_{50} = 10.78 μg/mL; HCT15, ED_{50} = 12.93 μg/mL; control Cisplatin: A549, ED_{50} = 0.75 μg/mL; SK-OV-3, ED_{50} = 1.09 μg/mL; SK-MEL-2, ED_{50} = 2.18 μg/mL; XF498, ED_{50} = 1.18 μg/mL; HCT15, ED_{50} = 0.85 μg/mL). Ref: N. Alam, et al, JNP, 2001, 64, 1059



182 Montiporyne H

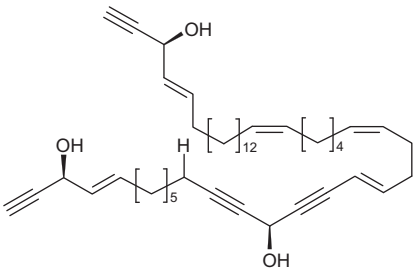
2-(11-Dodecene-2,4-diynyloxy)ethanol Type: Acetylenic alcohols. $C_{14}H_{20}O_2$ Yellow oil. Source: Stony coral *Montipora* sp. Pharm: Cytotoxic (A549, ED_{50} = 22.73 μg/mL; SK-OV-3, ED_{50} = 17.94 μg/mL; SK-MEL-2, ED_{50} = 25.08 μg/mL; XF498, ED_{50} = 16.88 μg/mL;

HCT15, ED_{50} = 24.05 μg/mL; control Cisplatin: A549, ED_{50} = 0.75 μg/mL; SK-OV-3, ED_{50} = 1.09 μg/mL; SK-MEL-2, ED_{50} = 2.18 μg/mL; XF498, ED_{50} = 1.18 μg/mL; HCT15, ED_{50} = 0.85 μg/mL). Ref: N. Alam, et al, JNP, 2001, 64, 1059



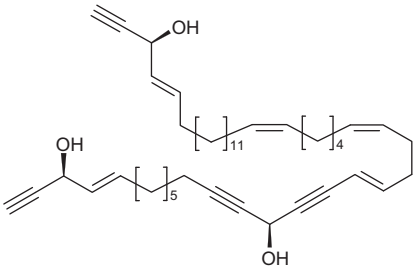
183 Neopetroformyne A

4,17,21,27,42-Hexatetracontapentaene-1,12,15,45-tetrayne-3,14,44-triol Type: Acetylenic alcohols. $C_{46}H_{68}O_3$ Yellowish oil, $[\alpha]_D^{20}$ = +19° (*c* = 0.45, MeOH). Source: Sponge *Petrosia* sp. (depth of 150 m, Kurose Hole, Hachijo I., South Korea). Pharm: Cytotoxic (P_{388}, IC_{50} = 0.089 μg/mL). Ref: R. Ueoka, et al, Tetrahedron, 2009, 65, 5204



184 Neopetroformyne B

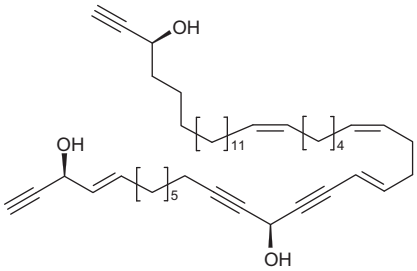
Type: Acetylenic alcohols. $C_{45}H_{66}O_3$ Yellowish oil, $[\alpha]_D^{20}$ = +21° (*c* = 0.06, MeOH). Source: Sponge *Petrosia* sp. (depth of 150 m, Kurose Hole, Hachijo I., South Korea). Pharm: Cytotoxic (P_{388}, IC_{50} = 0.2 μg/mL). Ref: R. Ueoka, et al, Tetrahedron, 2009, 65, 5204



185 Neopetroformyne C

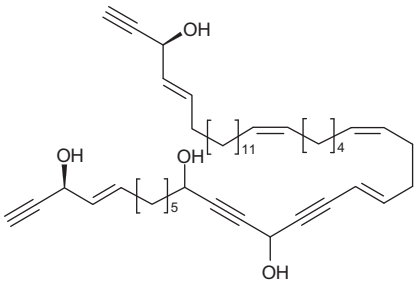
Type: Acetylenic alcohols. $C_{45}H_{68}O_3$ Oil, $[\alpha]_D^{22}$ = −15° (*c* = 0.01, MeOH). Source: Sponge *Petrosia* sp. (depth of 150 m, Kurose Hole, Hachijo I., South Korea).

Pharm: Cytotoxic (P_{388}, IC_{50} = 0.45 μg/mL). Ref: R. Ueoka, et al, Tetrahedron, 2009, 65, 5204



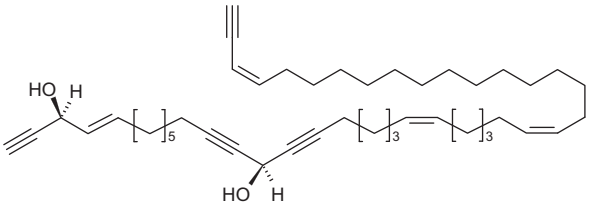
186 Neopetroformyne D

Type: Acetylenic alcohols. $C_{45}H_{66}O_4$ Oil, $[\alpha]_D^{21}$ = +20° (*c* = 0.01, MeOH). Source: Sponge *Petrosia* sp. (depth of 150 m, Kurose Hole, Hachijo I., South Korea). Pharm: Cytotoxic (P_{388}, IC_{50} = 0.45 μg/mL). Ref: R. Ueoka, et al, Tetrahedron, 2009, 65, 5204



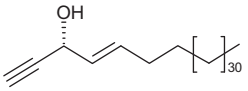
187 Nor-(3*S*,14*S*)-petrocortyne A

Type: Acetylenic alcohols. $C_{46}H_{68}O_2$ Yellow oil, $[\alpha]_D^{23}$ = +10° (*c* = 1, MeOH). Source: Sponge *Petrosia* sp. (Korea waters). Pharm: DNA replication inhibitor (simian virus SV40, 125 μmol/L, InRt = 12%, 250 μmol/L, InRt = 47%, 500 μmol/L, InRt = 70%); cytotoxic (A549, ED_{50} = 7.3 μg/mL; SK-OV-3, ED_{50} = 4.4 μg/mL; SK-MEL-2, ED_{50} = 3.8 μg/mL; XF498, ED_{50} = 6.1 μg/mL; HCT15, ED_{50} = 3.5 μg/mL; control Cisplatin, A549, ED_{50} = 0.4 μg/mL; SK-OV-3, ED_{50} = 0.6 μg/mL; SK-MEL-2, ED_{50} = 0.9 μg/mL; XF498, ED_{50} = 0.2 μg/mL; HCT15, ED_{50} = 1.8 μg/mL). Ref: J. S. Kim, et al, JNP, 1999, 62, 554 | Y. J. Lim, et al, JNP, 1999, 62, 1215 | Y. J. Lim, et al, JNP, 2001, 64, 46



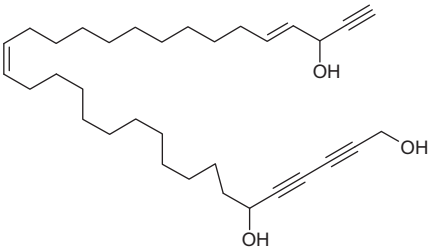
188 (3*R*,4*E*)-4-Octatriaconten-1-yn-3-ol

Type: Acetylenic alcohols. $C_{38}H_{72}O$ $[\alpha]_D$ = −21.2° (*c* = 1.2, MeOH). Source: Sponge *Reniochalina* sp. (Chuuk State, Federated States of Micronesia). Pharm: Cytotoxic (ACHN, GI_{50} = 0.156 μg/mL, control Adriamycin, GI_{50} = 0.198 μg/mL; NCI-H23, GI_{50} = 0.117 μg/mL, Adriamycin, GI_{50} = 0.248 μg/mL; MDA-MB-231, GI_{50} = 0.386 μg/mL, Adriamycin, GI_{50} = 0.278 μg/mL; HCT15, GI_{50} = 0.345 μg/mL, Adriamycin, GI_{50} = 0.708 μg/mL; NUGC-3, GI_{50} = 1.493 μg/mL, Adriamycin, GI_{50} = 0.198 μg/mL; PC3, GI_{50} = 0.732 μg/mL, Adriamycin, GI_{50} = 0.488 μg/mL). Ref: H. -S. Lee, et al, Lipids, 2009, 44, 71



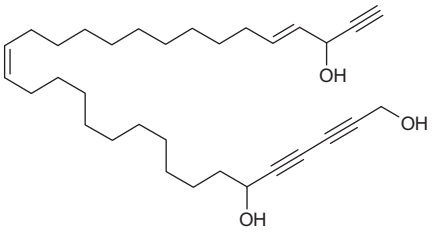
189 Pellynol A

Type: Acetylenic alcohols. $C_{33}H_{52}O_3$ $[\alpha]_D$ = −8.5° (*c* = 1.0, $CHCl_3$). Source: Sponges *Pellina triangulate* (Chuuk Atoll, Federated States of Micronesia) and *Pellina* sp. (South Africa). Pharm: Cytotoxic (LOX, IC_{50} = 0.39 μg/mL; OVCAR-3, C_{50} = 2.23 μg/mL). Ref: X. Fu, et al, Tetrahedron, 1997, 53, 799 | M. A. Rashid, et al, Nat. Prod. Lett., 2000, 14, 387



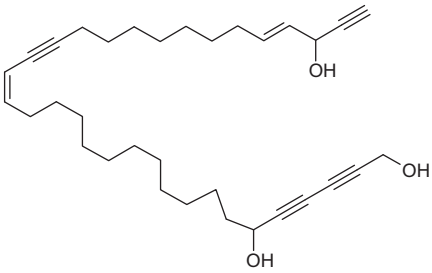
190 Pellynol B

Type: Acetylenic alcohols. $C_{32}H_{50}O_3$ $[\alpha]_D$ = −7.6° (*c* = 0.28, $CHCl_3$). Source: Sponges *Pellina triangulate* (Chuuk Atoll, Federated States of Micronesia) and *Pellina* sp. (South Africa). Pharm: Cytotoxic (LOX, IC_{50} = 0.15 μg/mL; OVCAR-3, C_{50} = 1.54 μg/mL). Ref: X. Fu, et al, Tetrahedron, 1997, 53, 799 | M. A. Rashid, et al, Nat. Prod. Lett., 2000, 14, 387



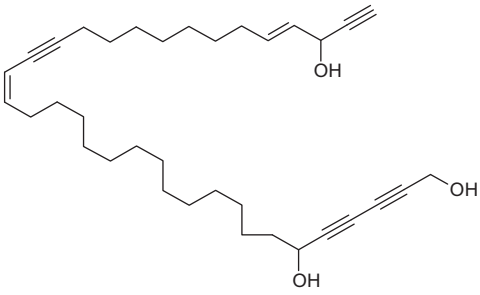
191 Pellynol C

Type: Acetylenic alcohols. $C_{33}H_{48}O_3$ $[\alpha]_D$ = −11.2° (*c* = 2.38, $CHCl_3$). Source: Sponges *Pellina triangulate* (Chuuk Atoll, Federated States of Micronesia) and *Pellina* sp. (South Africa). Pharm: Cytotoxic (LOX, IC_{50} = 0.14 μg/mL; OVCAR-3, C_{50} = 1.0 μg/mL). Ref: X. Fu, et al, Tetrahedron, 1997, 53, 799 | M. A. Rashid, et al, Nat. Prod. Lett., 2000, 14, 387



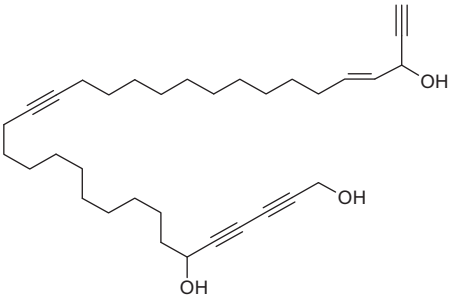
192 Pellynol D

Type: Acetylenic alcohols. $C_{35}H_{52}O_3$ $[\alpha]_D$ = −9.8° (*c* = 0.64, MeOH). Source: Sponges *Pellina triangulate* (Chuuk Atoll, Federated States of Micronesia) and *Pellina* sp.(South Africa). Pharm: Cytotoxic (LOX, IC_{50} = 0.12 μg/mL; OVCAR-3, C_{50} = 1.75 μg/mL). Ref: X. Fu, et al, Tetrahedron, 1997, 53, 799 | M. A. Rashid, et al, Nat. Prod. Lett., 2000, 14, 387



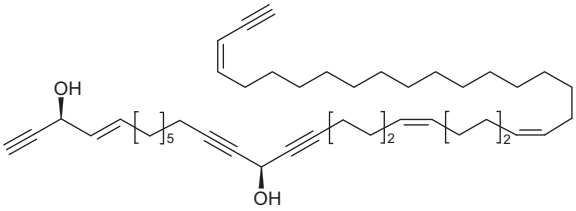
193 Pellynol F

Type: Acetylenic alcohols. $C_{33}H_{50}O_3$ Source: Sponge *Pellina* sp. (South Africa), Lithistid sponge *Theonella* sp. (Chuuk Atoll, Federated States of Micronesia). Pharm: Cytotoxic (LOX, IC_{50} = 0.08 μg/mL; OVCAR-3, C_{50} = 1.7 μg/mL). Ref: X. Fu, et al, JNP, 1999, 62, 1336 | M. A. Rashid, et al, Nat. Prod. Lett., 2000, 14, 387



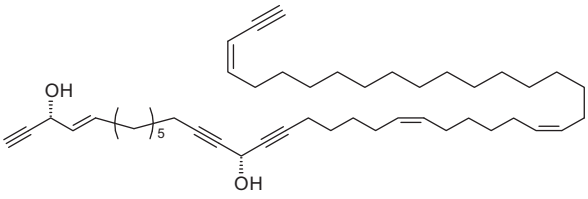
194 (3*S*,14*S*)-Petrocortyne A

Type: Acetylenic alcohols. $C_{46}H_{70}O_2$ Yellow oil, $[\alpha]_D^{23}$ = +10.8° (*c* = 1.9, MeOH). Source: Sponge *Petrosia* sp. (Korea waters). Pharm: Cytotoxic (A549, ED_{50} = 1.1 μg/mL, SK-OV-3, ED_{50} = 0.6 μg/mL, SK-MEL-2, ED_{50} = 1.1 μg/mL, XF498, ED_{50} = 1.7 μg/mL, HCT15, ED_{50} = 1.0 μg/mL). Ref: J. S. Kim, et al, JNP, 1999, 62, 554 | Y. J. Lim, et al, JNP, 1999, 62, 1215



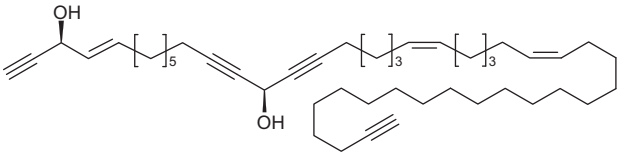
195 Petrocortyne A

Type: Acetylenic alcohols. $C_{46}H_{70}O_2$ $[\alpha]_D^{25}$ = +6.4° (*c* = 0.25, MeOH). Source: Sponge *Petrosia* sp. (Korea waters). Pharm: RNA-cleaving activity; PLA_2 inhibitor; Na/K-ATPase inhibitor; toxin (brine shrimp, significant lethality). Ref: Y. Seo, et al, Tetrahedron, 1998, 54, 447 | J. Shin, et al, JNP, 1998, 61, 1268



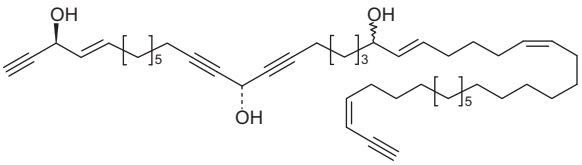
196 (3*S*,14*S*)-Petrocortyne B

Type: Acetylenic alcohols. $C_{46}H_{72}O_2$ Yellow oil, $[\alpha]_D^{23}$ = +2° (*c* = 0.26, MeOH). Source: Sponge *Petrosia* sp. (Korea waters). Pharm: DNA replication inhibitor (simian virus SV40, 125 µmol/L, InRt = 40%, 250 µmol/L, InRt = 70%, 500 µmol/L, InRt = 100%); cytotoxic (A549, ED_{50} > 10 µg/mL; SK-OV-3, ED_{50} = 1.5 µg/mL; SK-MEL-2, ED_{50} = 1.5 µg/mL; XF498, ED_{50} = 5.8 µg/mL; HCT15, ED_{50} = 2.5 µg/mL; control Cisplatin, A549, ED_{50} = 0.8 µg/mL; SK-OV-3, ED_{50} = 1.2 µg/mL; SK-MEL-2, ED_{50} = 1.5 µg/mL; XF498, ED_{50} = 0.7 µg/mL; HCT15, ED_{50} = 1.5 µg/mL). Ref: Y. J. Lim, et al, JNP, 2001, 64, 46



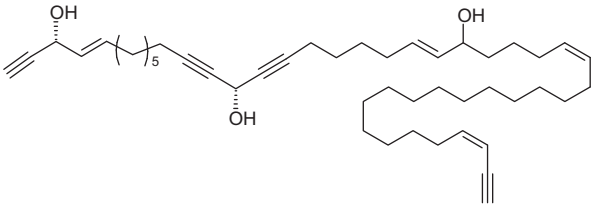
197 (3*S*,14*R*)-Petrocortyne E

(3S,4E,14*R*,21ξ,22E,27Z,43Z)-4,22,27,43-Hexatetracontatetraene-1,12,15,45-tetray-ne-3,14,21-triol Type: Acetylenic alcohols. $C_{46}H_{70}O_3$ Gum, $[\alpha]_D^{25}$ = +3° (*c* = 0.15, MeOH). Source: Sponge *Petrosia* sp. (Korea waters). Pharm: DNA replication inhibitor (simian virus SV40, 125 µmol/L, InRt = 79%, 250 µmol/L, InRt = 94%, 500 µmol/L, InRt = 100%); cytotoxic (A549, ED_{50} = 26.3 µg/mL; SK-OV-3, ED_{50} = 1.9 µg/mL; SK-MEL-2, ED_{50} = 2.3 µg/mL; XF498, ED_{50} = 8.0 µg/mL; HCT15, ED_{50} = 5.0 µg/mL; control Cisplatin, A549, ED_{50} = 0.9 µg/mL; SK-OV-3, ED_{50} = 1.6 µg/mL; SK-MEL-2, ED_{50} = 1.0 µg/mL; XF498, ED_{50} = 0.9 µg/mL; HCT15, ED_{50} = 1.9 µg/mL). Ref: Y. J. Lim, et al, JNP, 2001, 64, 46 | B. Sui, et al, JOC, 2010, 75, 2942



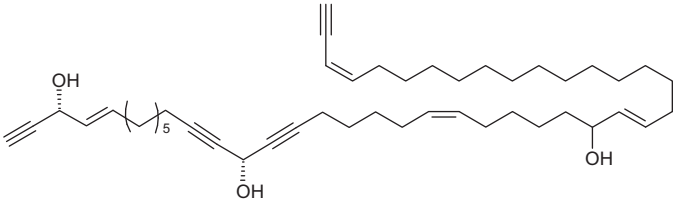
198 Petrocortyne F

Type: Acetylenic alcohols. $C_{46}H_{70}O_3$ Gum, $[\alpha]_D^{25}$ = +8.5° (*c* = 0.03, MeOH). Source: Sponge *Petrosia* sp. (Korea waters). Pharm: Cytotoxic (A549, ED_{50} = 10.0 µg/mL; SK-OV-3, ED_{50} = 1.8 µg/mL; SK-MEL-2, ED_{50} = 1.3 µg/mL; XF498, ED_{50} = 4.7 µg/mL; HCT15, ED_{50} = 4.0 µg/mL; control Cisplatin: A549, ED_{50} = 0.7 µg/mL; SK-OV-3, ED_{50} = 1.3 µg/mL; SK-MEL-2, ED_{50} = 1.0 µg/mL; XF498, ED_{50} = 0.7 µg/mL; HCT15, ED_{50} = 1.1 µg/mL); DNA replication inhibitor (SV40 DNA replication, 20 µmol/L, InRt = 9%; 40 µmol/L, InRt = 36%). Ref: Y. J. Lim, et al, JNP, 2001, 64, 1565



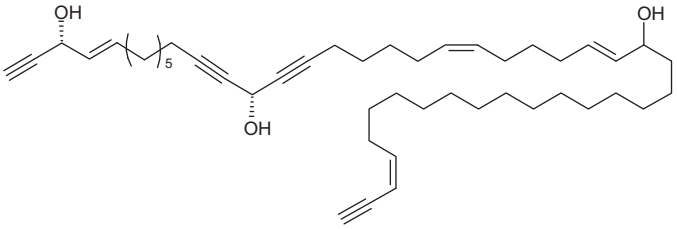
199 Petrocortyne G

Type: Acetylenic alcohols. $C_{46}H_{70}O_3$ Gum, $[\alpha]_D^{25}$ = +8.3° (*c* = 0.04, MeOH). Source: Sponge *Petrosia* sp. (Korea waters). Pharm: Cytotoxic (A549, ED_{50} = 4.0 μg/mL; SK-OV-3, ED_{50} = 1.2 μg/mL; SK-MEL-2, ED_{50} = 0.5 μg/mL; XF498, ED_{50} = 3.5 μg/mL; HCT15, ED_{50} = 1.4 μg/mL; control Cisplatin: A549, ED_{50} = 0.7 μg/mL; SK-OV-3, ED_{50} = 1.3 μg/mL; SK-MEL-2, ED_{50} = 1.0 μg/mL; XF498, ED_{50} = 0.7 μg/mL; HCT15, ED_{50} = 1.1 μg/mL); DNA replication inhibitor (SV40 DNA replication, 20 μmol/L, InRt = 8%; 40 μmol/L, InRt = 55%). Ref: Y. J. Lim, et al, JNP, 2001, 64, 1565



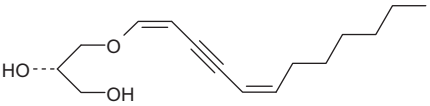
200 Petrocortyne H

Type: Acetylenic alcohols. $C_{46}H_{70}O_3$ Gum, $[\alpha]_D^{25}$ = +4.4° (*c* = 0.07, MeOH). Source: Sponge *Petrosia* sp. (Korea waters). Pharm: Cytotoxic (A549, ED_{50} = 4.0 μg/mL; SK-OV-3, ED_{50} = 1.2 μg/mL; SK-MEL-2, ED_{50} = 0.5 μg/mL; XF498, ED_{50} = 3.5 μg/mL; HCT15, ED_{50} = 1.4 μg/mL; control Cisplatin: A549, ED_{50} = 0.7 μg/mL; SK-OV-3, ED_{50} = 1.3 μg/mL; SK-MEL-2, ED_{50} = 1.0 μg/mL; XF498, ED_{50} = 0.7 μg/mL; HCT15, ED_{50} = 1.1 μg/mL); DNA replication inhibitor (SV40 DNA replication, 20 μmol/L, InRt = 8%; 40 μmol/L, InRt = 55%). Ref: Y. J. Lim, et al, JNP, 2001, 64, 1565



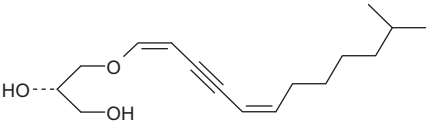
201 Petroraspailyne A_1

Type: Acetylenic alcohols. $C_{15}H_{24}O_3$ $[\alpha]_D^{25}$ = −3.2° (*c* = 0.08, MeOH). Source: Sponge *Petrosia* sp. (Korea waters). Pharm: Cytotoxic (K562, LC_{50} = 9.2 μg/mL). Ref: Y. Seo, et al, JNP, 1999, 62, 122



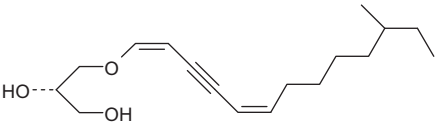
202 Petroraspailyne A_2

Type: Acetylenic alcohols. $C_{16}H_{26}O_3$ $[\alpha]_D^{25}$ = −3.2° (*c* = 0.40, MeOH). Source: Sponge *Petrosia* sp. (Korea waters). Pharm: Cytotoxic (K562, LC_{50} = 57 μg/mL). Ref: Y. Seo, et al, JNP, 1999, 62, 122



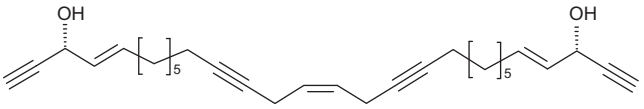
203 Petroraspailyne A_3

Type: Acetylenic alcohols. $C_{17}H_{28}O_3$ $[\alpha]_D^{25}$ = +2.6° (*c* = 0.05, MeOH). Source: Sponge *Petrosia* sp. (Korea waters). Pharm: Cytotoxic (K562, LC_{50} = 29 μg/mL). Ref: Y. Seo, et al, JNP, 1999, 62, 122



204 Petrosiacetylene A

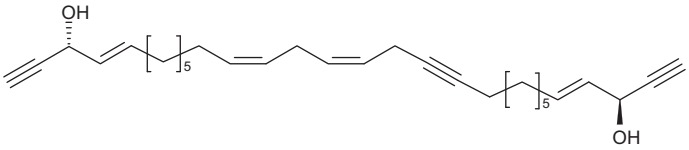
Dideoxypetrosynol A Type: Acetylenic alcohols. $C_{30}H_{40}O_2$ $[\alpha]_D^{25}$ = 0° (*c* = 0.63, MeOH). Source: Sponge *Petrosia* sp. (Korea waters). Pharm: RNA-cleaving activity; PLA_2 inhibitor; Na/K-ATPase inhibitor; cytotoxic (hmn: A549, SK-OV-3, SK-MEL-2, XF498, HCT15); toxin (brine shrimp, significant lethality). Ref: Y. Seo, et al, Tetrahedron, 1998, 54, 447 | J. S. Kim, et al, Tetrahedron, 1999, 55, 2113



205 Petrosiacetylene B

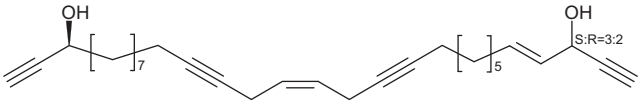
Dideoxypetrosynol C Type: Acetylenic alcohols. $C_{30}H_{42}O_2$ $[\alpha]_D^{25}$ = 0.3° (*c* = 0.49, MeOH). Source: Sponge *Petrosia* sp. (Korea waters). Pharm: RNA-cleaving activity;

PLA_2 inhibitor; Na/K-ATPase inhibitor; cytotoxic (hmn: A549, SK-OV-3, SK-MEL-2, XF498, HCT15); toxin (brine shrimp, significant lethality). Ref: Y. Seo, et al, Tetrahedron, 1998, 54, 447 | J.S. Kim, et al, Tetrahedron, 1999, 55, 2113



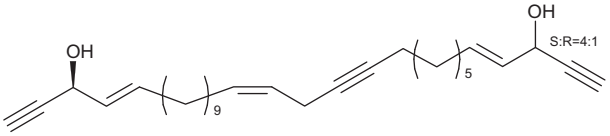
206 Petrosiacetylene C

Dideoxypetrosynol B Type: Acetylenic alcohols. $C_{30}H_{42}O_2$ $[\alpha]_D^{25}$ = 0.2° (*c* = 0.15, MeOH). Source: Sponge *Petrosia* sp. (Korea waters). Pharm: RNA-cleaving activity; PLA_2 inhibitor; Na/K-ATPase inhibitor; cytotoxic (hmn: A549, SK-OV-3, SK-MEL-2, XF498, HCT15); toxin (brine shrimp, significant lethality). Ref: Y. Seo, et al, Tetrahedron, 1998, 54, 447 | J.S. Kim, et al, Tetrahedron, 1999, 55, 2113



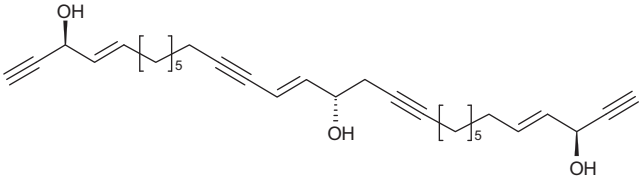
207 Petrosiacetylene D

Type: Acetylenic alcohols. $C_{30}H_{44}O_2$ $[\alpha]_D^{25}$ = +5.2° (*c* = 0.27, MeOH). Source: Sponge *Petrosia* sp. (Korea waters). Pharm: RNA-cleaving activity; PLA_2 inhibitor; Na/K-ATPase inhibitor; toxic (lethality to brine shrimp). Ref: Y. Seo, et al, Tetrahedron, 1998, 54, 447



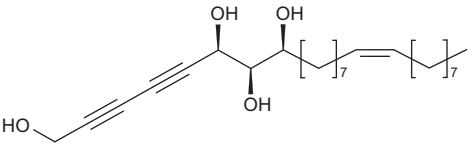
208 Petrosiacetylene E

Type: Acetylenic alcohols. $C_{30}H_{40}O_3$ Source: Sponge *Petrosia* sp. (Dokdo I., South Korea). Pharm: Cytotoxic (multiple HTCLs, low µmol/L inhibitor). Ref: Y. -J. Lee, et al, Lipids, 2013, 48, 87



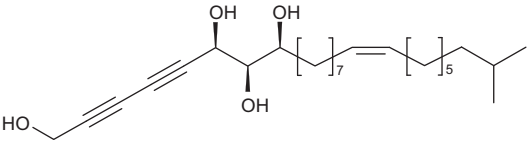
209 Petrosiol A

Type: Acetylenic alcohols. $C_{25}H_{42}O_4$ Source: Sponge *Petrosia strongylata* (Ishigaki I., Okinawa). Pharm: Inducer of nerve growth factor-like (neuronal differentiation in PC12 cells); inhibits proliferation and migration of platelet derived growth factor-induced vascular smooth muscle cells and hence could be used as a lead for vascular disorders. Ref: K. Horikawa, et al, Tetrahedron, 2013, 69, 101 | B. -K. Choi, et al, Bioorg. Med. Chem., 2013, 21, 1804



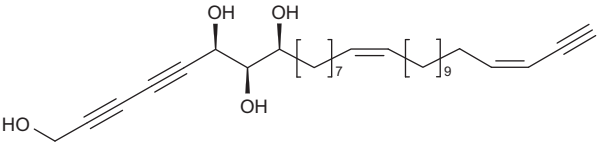
210 Petrosiol B

Type: Acetylenic alcohols. $C_{26}H_{44}O_4$ Source: Sponge *Petrosia strongylata* (Ishigaki I., Okinawa). Pharm: Inducer of nerve growth factor-like (neuronal differentiation in PC12 cells). Ref: K. Horikawa, et al, Tetrahedron, 2013, 69, 101



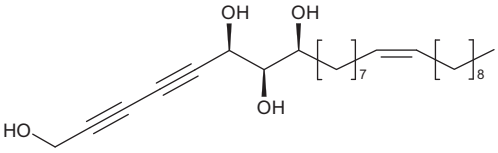
211 Petrosiol C

Type: Acetylenic alcohols. $C_{31}H_{48}O_4$ Source: Sponge *Petrosia strongylata* (Ishigaki I., Okinawa). Pharm: Inducer of nerve growth factor-like (neuronal differentiation in PC12 cells). Ref: K. Horikawa, et al, Tetrahedron, 2013, 69, 101



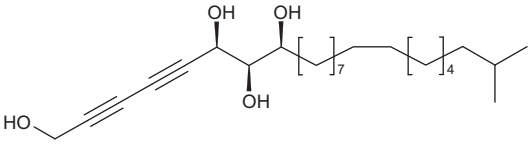
212 Petrosiol D

Type: Acetylenic alcohols. $C_{26}H_{44}O_4$ Source: Sponge *Petrosia strongylata* (Ishigaki I., Okinawa). Pharm: Inducer of nerve growth factor-like (neuronal differentiation in PC12 cells). Ref: K. Horikawa, et al, Tetrahedron, 2013, 69, 101 | A. S. Reddy, et al, Tet. Lett., 2013, 54, 6370



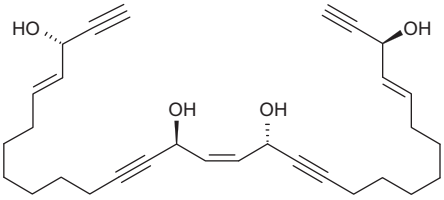
213 Petrosiol E

Type: Acetylenic alcohols. $C_{25}H_{44}O_4$ Source: Sponge *Petrosia strongylata* (Ishigaki I., Okinawa). Pharm: Inducer of nerve growth factor-like (neuronal differentiation in PC12 cells). Ref: K. Horikawa, et al, Tetrahedron, 2013, 69, 101



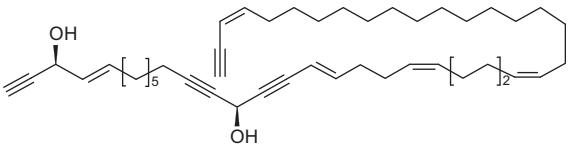
214 Petrosynol

4,15,26-Triacontatriene-1,12,18,29-tetrayne-3,14,17,28-tetrol Type: Acetylenic alcohols. $C_{30}H_{40}O_4$ Oil, $[\alpha]_D^{23}$ = +107° (*c* = 0.37, $CHCl_3$), $[\alpha]_D^{22}$ = +111° (*c* = 1.3, $CHCl_3$). Source: Sponges *Petrosia* sp. (Okinawa; Red Sea) and *Adocia* sp. Pharm: HIV reverse transcriptase inhibitor; antifungal; cell division inhibitor (fertilized eggs of sea urchin *Pseudocentrotus depressus*, 1 μg/mL). Ref: N. Fusetani, et al, Tet. Lett., 1983, 24, 2771; 1987, 28, 4313 | S. Isaacs, et al, Tetrahedron, 1993, 49, 10435



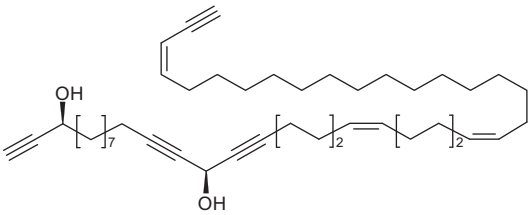
215 Petrotetrayndiol A

Type: Acetylenic alcohols. $C_{46}H_{68}O_2$ Yellow oil, $[\alpha]_D^{23}$ = +7.3° (*c* = 0.12, MeOH). Source: Sponge *Petrosia* sp. (Korea waters). Pharm: Cytotoxic (A549, ED_{50} = 1.6 μg/mL, SK-OV-3, ED_{50} = 0.5 μg/mL, SK-MEL-2, ED_{50} = 0.9 μg/mL, XF498, ED_{50} = 1.7 μg/mL, HCT15, ED_{50} = 1.0 μg/mL). Ref: J. S. Kim, et al, JNP, 1999, 62, 554 | Y. J. Lim, et al, JNP, 1999, 62, 1215



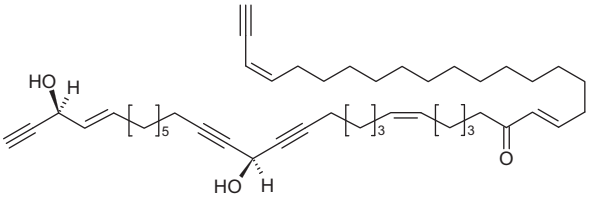
216 Petrotetrayndiol B

Type: Acetylenic alcohols. $C_{46}H_{72}O_2$ Oil, $[\alpha]_D^{23}$ = +3.8° (*c* = 0.17, MeOH). Source: Sponge *Petrosia* sp. (Korea waters). Pharm: Cytotoxic (A549, ED_{50} = 1.7 μg/mL, SK-OV-3, ED_{50} = 2.2 μg/mL, SK-MEL-2, ED_{50} = 1.9 μg/mL, XF498, ED_{50} > 3.0 μg/mL, HCT15, ED_{50} = 3.7 μg/mL). Ref: J. S. Kim, et al, JNP, 1999, 62, 554 | Y. J. Lim, et al, JNP, 1999, 62, 1215



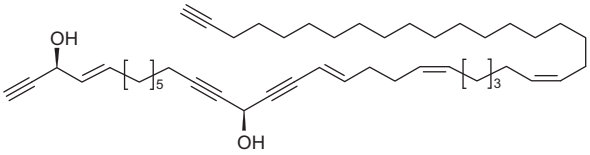
217 Petrotetrayndiol C

Type: Acetylenic alcohols. $C_{46}H_{68}O_3$ Oil. Source: Sponge *Petrosia* sp. (Korea waters). Pharm: DNA replication inhibitor (simian virus SV40, 125 μmol/L, InRt = 45%, 250 μmol/L, InRt = 46%, 500 μmol/L, InRt = 81%); cytotoxic (A549, ED_{50} > 10 μg/mL; SK-OV-3, ED_{50} = 4.2 μg/mL; SK-MEL-2, ED_{50} = 4.1 μg/mL; XF498, ED_{50} = 12.7 μg/mL; HCT15, ED_{50} = 5.7 μg/mL; control Cisplatin, A549, ED_{50} = 0.4 μg/mL; SK-OV-3, ED_{50} = 0.6 μg/mL; SK-MEL-2, ED_{50} = 0.9 μg/mL; XF498, ED_{50} = 0.2 μg/mL; HCT15, ED_{50} = 1.8 μg/mL). Ref: J. S. Kim, et al, JNP, 1999, 62, 554 | Y. J. Lim, et al, JNP, 1999, 62, 1215 | Y. J. Lim, et al, JNP, 2001, 64, 46



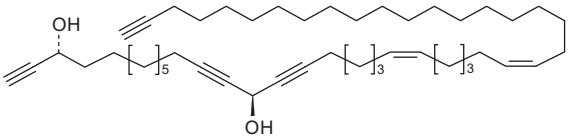
218 Petrotetrayndiol E

(3S,4E,14S,17E,21Z,27Z)-4,17,21,27-Hexatetracontatetraene-1,12,15,45-tetrayne-3,14-diol
Type: Acetylenic alcohols. $C_{46}H_{70}O_2$ Oil. Source: Sponge *Petrosia* sp. (Korea waters). Pharm: DNA replication inhibitor (simian virus SV40, 125 μmol/L, InRt = 62%, 250 μmol/L, InRt = 83%, 500 μmol/L, InRt = 100%); cytotoxic (A549, ED_{50} = 24.5 μg/mL; SK-OV-3, ED_{50} = 1.7 μg/mL; SK-MEL-2, ED_{50} = 1.1 μg/mL; XF498, ED_{50} = 3.4 μg/mL; HCT15, ED_{50} = 1.8 μg/mL; control Cisplatin, A549, ED_{50} = 0.6 μg/mL; SK-OV-3, ED_{50} = 0.9 μg/mL; SK-MEL-2, ED_{50} = 0.7 μg/mL; XF498, ED_{50} = 0.6 μg/mL; HCT15, ED_{50} = 0.6 μg/mL). Ref: Y. J. Lim, et al, JNP, 2001, 64, 46



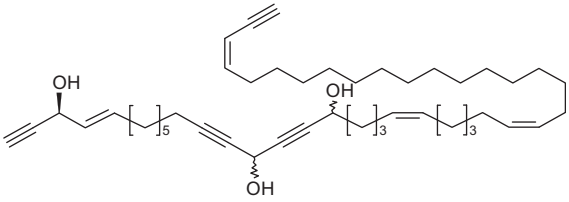
219 Petrotetrayndiol F

Type: Acetylenic alcohols. $C_{47}H_{76}O_2$ Yellow oil. Source: Sponge *Petrosia* sp. (Korea waters). Pharm: Cytotoxic (A549, ED_{50} = 3.7 μg/mL; SK-OV-3, ED_{50} = 3.8 μg/mL; SK-MEL-2, ED_{50} = 1.1 μg/mL; XF498, ED_{50} = 4.3 μg/mL; HCT15, ED_{50} = 3.4 μg/mL; control Cisplatin: A549, ED_{50} = 0.7 μg/mL; SK-OV-3, ED_{50} = 1.3 μg/mL; SK-MEL-2, ED_{50} = 1.0 μg/mL; XF498, ED_{50} = 0.7 μg/mL; HCT15, ED_{50} = 1.1 μg/mL); DNA replication inhibitor (SV40 DNA replication, 20 μmol/L, InRt = 16%; 40 μmol/L, InRt = 48%). Ref: Y. J. Lim, et al, JNP, 2001, 64, 1565



220 Petrotetrayntriol A

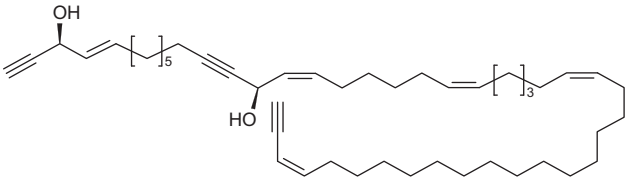
(3S,4E,14ξ,17ξ,21Z,27Z,43Z)-4,21,27,43-Hexatetracontatetraene-1,12,15,45-tetrayne-3,14,17-triol Type: Acetylenic alcohols. $C_{46}H_{70}O_3$ Yellow oil, $[\alpha]_D^{23}$ = +7.3° (*c* = 0.12, MeOH). Source: Sponge *Petrosia* sp. (Korea waters). Pharm: DNA replication inhibitor (simian virus SV40, 125 μmol/L, InRt = 63%, 250 μmol/L, InRt = 77%, 500 μmol/L, InRt = 100%); cytotoxic (A549, ED_{50} > 30 μg/mL; SK-OV-3, ED_{50} = 4.2 μg/mL; SK-MEL-2, ED_{50} = 3.9 μg/mL; XF498, ED_{50} = 18.5 μg/mL; HCT15, ED_{50} = 12.9 μg/mL; control Cisplatin, A549, ED_{50} = 0.9 μg/mL; SK-OV-3, ED_{50} = 1.6 μg/mL; SK-MEL-2, ED_{50} = 1.0 μg/mL; XF498, ED_{50} = 0.9 μg/mL; HCT15, ED_{50} = 1.9 μg/mL). Ref: Y. J. Lim, et al, JNP, 2001, 64, 46



221 Petrotriyndiol A

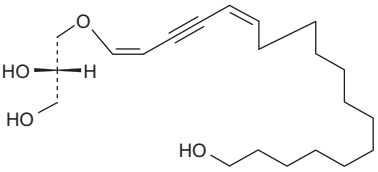
(3S,4E,14R,15Z,21Z,27Z,43Z)-form 4,15,21,27,43-Hexatetracontapentaene-1,12,45-triyne-3,14-diol Type: Acetylenic alcohols. $C_{46}H_{72}O_2$ Yellow oil, $[\alpha]_D^{23}$ = +7° (*c* = 0.05, MeOH). Source: Sponge *Petrosia* sp. (Korea waters). Pharm: DNA replication inhibitor

(simian virus SV40, 125 μmol/L, InRt = 62%, 250 μmol/L, InRt = 90%, 500 μmol/L, InRt = 100%); cytotoxic (A549, ED_{50} = 1.8 μg/mL; SK-OV-3, ED_{50} = 0.8 μg/mL; SK-MEL-2, ED_{50} = 0.6 μg/mL; XF498, ED_{50} = 1.3 μg/mL; HCT15, ED_{50} = 0.8 μg/mL; control Cisplatin, A549, ED_{50} = 0.6 μg/mL; SK-OV-3, ED_{50} = 0.9 μg/mL; SK-MEL-2, ED_{50} = 0.7 μg/mL; XF498, ED_{50} = 0.6 μg/mL; HCT15, ED_{50} = 0.6 μg/mL). Ref: Y. J. Lim, et al, JNP, 2001, 64, 46



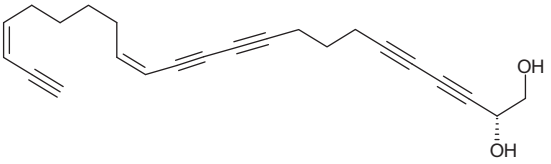
222 Raspailyne A

3-(18-Hydroxy-1,5-octadecadien-3-ynyl)oxy-1,2-propanediol Type: Acetylenic alcohols. $C_{21}H_{36}O_4$ Amorph. solid (MeOH), mp 54–55 °C, $[\alpha]_D^{25}$ = +5.6° (*c* = 0.9, MeOH). Source: Sponges *Raspailia pumila* and *Raspailia ramosa*. Pharm: Herbicide. Ref: G. Guella, et al, Chem. Comm., 1986, 77 | Guella, G. et al, Helv. Chim. Acta, 1987, 70, 1050



223 Siphonodiol

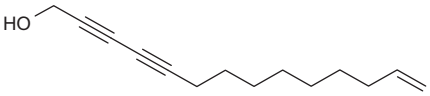
(2*R*,14*Z*,20*Z*)-14,20-Tricosadiene-3,5,10,12,22-pentayne-1,2-diol Type: Acetylenic alcohols. $C_{23}H_{24}O_2$ Cryst., mp 31–32 °C Source: Sponges *Siphonochalina truncata*. and *Callyspongia* sp. Pharm: Antibacterial; HK-ATPase inhibitor. Ref: N. Fusetani, et al, Tet. Lett., 1987, 28, 4311 | S. Umeyana, et al, JNP, 1997, 60, 131



224 13-Tetradecene-2,4-diyn-1-ol

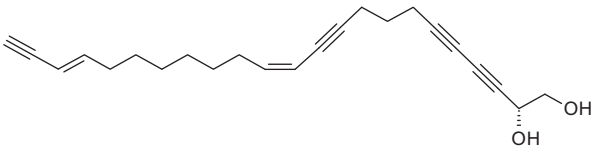
Type: Acetylenic alcohols. $C_{14}H_{20}O$ Source: Stony corals *Montipora* spp. and *Pectinia lactuca*. Pharm: Cytotoxic (A549, ED_{50} = 3.90 μg/mL; SK-OV-3, ED_{50} = 3.23 μg/mL; SK-MEL-2, ED_{50} = 3.94 μg/mL; XF498, ED_{50} = 5.26 μg/mL; HCT15, ED_{50} = 3.32 μg/mL;

control Cisplatin: A549, ED_{50} = 0.75 μg/mL; SK-OV-3, ED_{50} = 1.09 μg/mL; SK-MEL-2, ED_{50} = 2.18 μg/mL; XF498, ED_{50} = 1.18 μg/mL; HCT15, ED_{50} = 0.85 μg/mL); ichthyotoxicity; antibacterial (some bacteria); antifungal (some fungi). Ref: T. Higa, et al, Chem. Lett., 1990, 145 | N. Alam, et al, JNP, 2001, 64, 1059



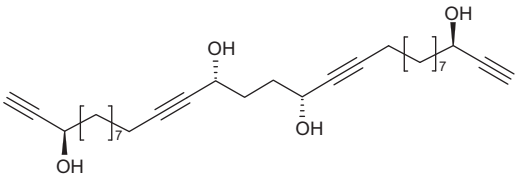
225 12,13,14,15-Tetrahydrosiphonodiol

Type: Acetylenic alcohols. $C_{23}H_{28}O_2$ Source: Sponge *Siphonochalina truncata*. Pharm: HK-ATPase inhibitor. Ref: N. Fusetani, et al, Tet. Lett., 1987, 28, 4311



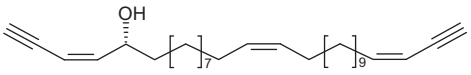
226 (all-*R*)-1,12,18,29-Triacontatetrayne-3,14,17,28-tetrol

Type: Acetylenic alcohols. $C_{30}H_{46}O_4$ Amorph. Solid, $[\alpha]_D^{22}$ = +10° (*c* = 0.1, $CHCl_3$). Source: Sponge *Petrosia* sp. (Japan waters). Pharm: Cell division inhibitor (fertilized ascidian eggs); toxic (brine shrimp). Ref: M. Ochi, et al, Chem. Lett., 1994, 89



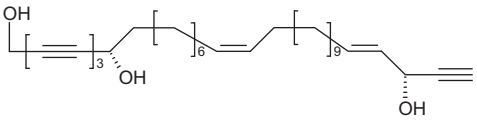
227 3*Z*,15*Z*,27*Z*-Triacontatriene-1,29-diyn-5*S*-ol

Type: Acetylenic alcohols. $C_{30}H_{48}O$ Pale yellow oil, $[\alpha]_D^{20}$ = −14° (*c* = 0.3, $CHCl_3$). Source: Sponge *Petrosia* sp. (Japan waters). Pharm: Cell division inhibitor (fertilized ascidian eggs); toxic (brine shrimp). Ref: M. Ochi, et al, Chem. Lett., 1994, 89



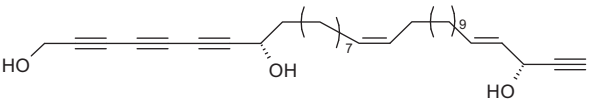
228 Triangulyne A

Type: Acetylenic alcohols. $C_{32}H_{46}O_3$ Powder, $[\alpha]_D$ = −15° (*c* = 1.6, $CHCl_3$). Source: Sponge *Pellina truangulata* (Truk, Federated States of Micronesia). Pharm: Cytotoxic (NCI hmn tumor cell line panel, leukemia, colon, and melanoma tumor lines showed greater sensitivity; mean panel GI_{50} = 0.5 μmol/L, TGI = 2.0 μmol/L, and LC_{50} = 12 μmol/L; for detail data, see Dai, 1996). Ref: J. -R. Dai, et al, JNP, 1996, 59, 860



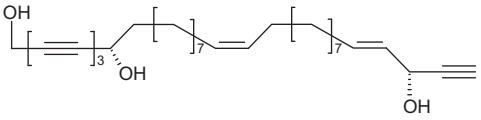
229 Triangulyne B

Type: Acetylenic alcohols. $C_{33}H_{48}O_3$ Powder, $[\alpha]_D$ = −14° (*c* = 0.8, $CHCl_3$). Source: Sponge *Pellina truangulata* (Truk, Federated States of Micronesia). Pharm: Cytotoxic (NCI hmn tumor cell line panel, leukemia, colon, and melanoma tumor lines showed greater sensitivity). Ref: J. -R. Dai, et al, JNP, 1996, 59, 860



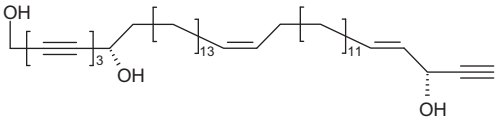
230 Triangulyne C

Type: Acetylenic alcohols. $C_{31}H_{44}O_3$ Powder, $[\alpha]_D$ = −19° (*c* = 0.7, $CHCl_3$). Source: Sponge *Pellina truangulata* (Truk, Federated States of Micronesia). Pharm: Cytotoxic (NCI hmn tumor cell line panel, leukemia, colon, and melanoma tumor lines showed greater sensitivity). Ref: J. -R. Dai, et al, JNP, 1996, 59, 860



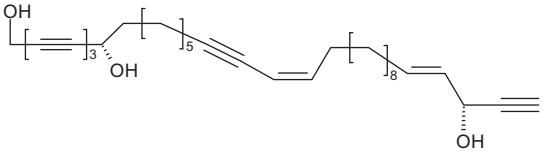
231 Triangulyne D

Type: Acetylenic alcohols. $C_{41}H_{64}O_3$ Oil, $[\alpha]_D$ = −10.7° (*c* = 0.01, $CHCl_3$). Source: Sponge *Pellina truangulata* (Truk, Federated States of Micronesia). Pharm: Cytotoxic (NCI hmn tumor cell line panel, leukemia, colon, and melanoma tumor lines showed greater sensitivity). Ref: J. -R. Dai, et al, JNP, 1996, 59, 860



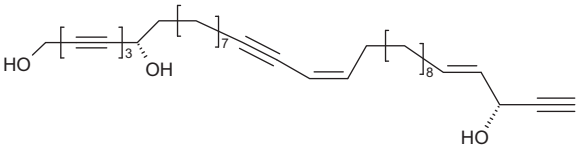
232 Triangulyne E

Type: Acetylenic alcohols. $C_{32}H_{42}O_3$ Powder, $[\alpha]_D = -11.4°$ (c = 0.4, $CHCl_3$). Source: Sponge *Pellina truangulata* (Truk, Federated States of Micronesia). Pharm: Cytotoxic (NCI hmn tumor cell line panel, leukemia, colon, and melanoma tumor lines showed greater sensitivity). Ref: J. -R. Dai, et al, JNP, 1996, 59, 860



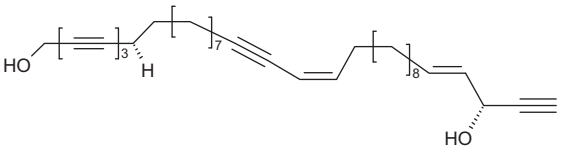
233 Triangulyne F

Type: Acetylenic alcohols. $C_{34}H_{46}O_3$ Powder, $[\alpha]_D = -10.6°$ (c = 1.1, $CHCl_3$). Source: Sponge *Pellina truangulata* (Truk, Federated States of Micronesia). Pharm: Cytotoxic (NCI hmn tumor cell line panel, leukemia, colon, and melanoma tumor lines showed greater sensitivity). Ref: J. -R. Dai, et al, JNP, 1996, 59, 860



234 Triangulyne G

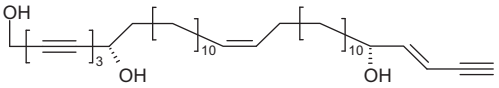
Type: Acetylenic alcohols. $C_{34}H_{46}O_2$ Powder, $[\alpha]_D = -10.5°$ (c = 0.4, $CHCl_3$). Source: Sponge *Pellina truangulata* (Truk, Federated States of Micronesia). Pharm: Cytotoxic (NCI hmn tumor cell line panel, leukemia, colon, and melanoma tumor lines showed greater sensitivity). Ref: J. -R. Dai, et al, JNP, 1996, 59, 860



235 Triangulyne H

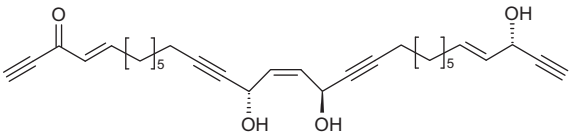
Type: Acetylenic alcohols. $C_{37}H_{56}O_3$ Oil, $[\alpha]_D = -23.7°$ (c = 0.3, $CHCl_3$). Source: Sponge *Pellina truangulata* (Truk, Federated States of Micronesia). Pharm:

Cytotoxic (NCI hmn tumor cell line panel, leukemia, colon, and melanoma tumor lines showed greater sensitivity). Ref: J. -R. Dai, et al, JNP, 1996, 59, 860



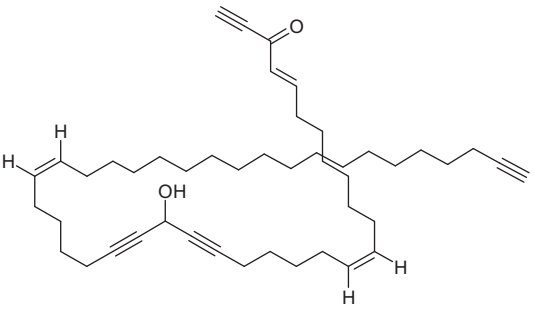
236 Adociacetylene A

14,17,28-Trihydroxy-4,15,26-triacontatriene-1,12,18,29-tetrayn-3-one Type: Acetylenic ketones. $C_{30}H_{38}O_4$ $[\alpha]_D^{22}$ = +110° (*c* = 0.33, $CHCl_3$). Source: Sponge *Asocia* sp. (Okinawa). Pharm: Cytotoxic (endothelial cell-neutrophil leukocyte adhesin assay, tumor necrosis factor-α (5 JRU/mL)-stimulated endothelial cells, 1 μg/mL); cytotoxic (KB, IC_{50} = 0.8 μg/mL); antibacterial (50 μg/disk (IZD = 8 mm), *Escherichia coli*, IZD = 10 mm; *Bacillus subtilis*, IZD = 11 mm). Ref: M. Kobayashi, et al, CPB, 1996, 44, 720



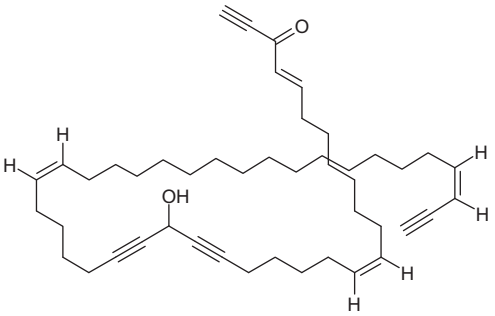
237 23,24-Dihydropetroformyne 6

Type: Acetylenic ketones. $C_{46}H_{70}O_2$ Pale yellow oil, $[\alpha]_D^{21}$ = −3.8° (*c* = 0.42, $CHCl_3$). Source: Sponge *Petrosia ficiformis* (Mediterranean Sea). Pharm: Toxic (brine shrimp). Ref: Y. Guo, et al, JNP, 1995, 58, 712



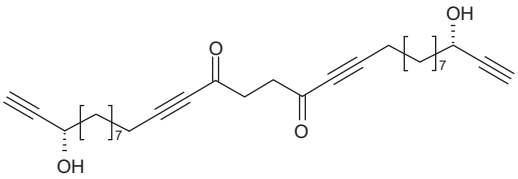
238 23,24-Dihydropetroformyne 7

Type: Acetylenic ketones. $C_{46}H_{68}O_2$ Pale yellow oil, $[\alpha]_D^{21}$ = −16.4° (*c* = 0.24, $CHCl_3$). Source: Sponge *Petrosia ficiformis* (Mediterranean Sea). Pharm: Toxic (brine shrimp). Ref: Y. Guo, et al, JNP, 1995, 58, 712



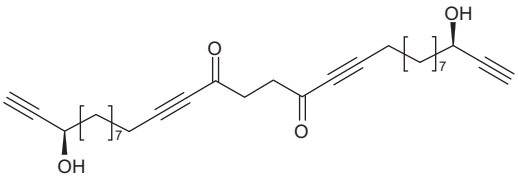
239 3*α*,28*α*-Dihydroxy-1,12,18,29-Triacontatetrayne-14,17-dione

Type: Acetylenic ketones. $C_{30}H_{42}O_4$ Source: Sponge *Petrosia* sp. (Japan waters). Pharm: Cell division inhibitor (fertilized ascidian eggs); toxic (brine shrimp). Ref: M. Ochi, et al, Chem. Lett., 1994, 89



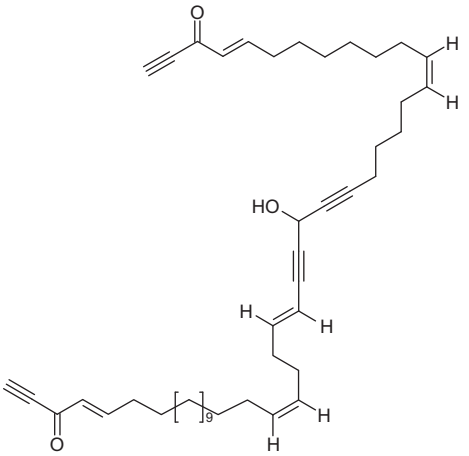
240 3*β*,28*β*-Dihydroxy-1,12,18,29-Triacontatetrayne-14,17-dione

Type: Acetylenic ketones. $C_{30}H_{42}O_4$ Source: Sponge *Petrosia* sp. (Japan waters). Pharm: Cell division inhibitor (fertilized ascidian eggs); toxic (brine shrimp). Ref: M. Ochi, et al, Chem. Lett., 1994, 89



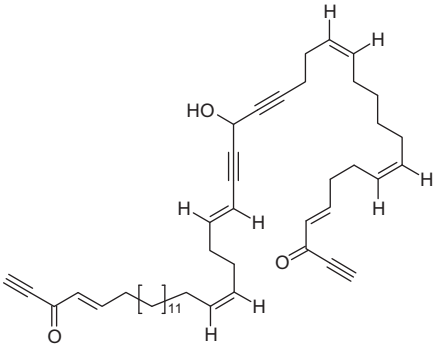
241 3,44-Dioxopetroformyne 1

Type: Acetylenic ketones. $C_{46}H_{64}O_3$ Pale yellow oil, $[\alpha]_D^{21} = -2.5°$ (c = 0.86, $CHCl_3$). Source: Sponge *Petrosia ficiformis* (Mediterranean Sea). Pharm: Toxic (brine shrimp). Ref: Y. Guo, et al, JNP, 1995, 58, 712



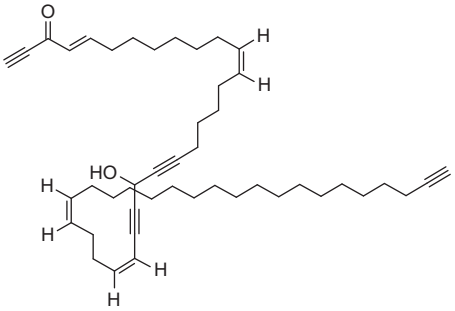
242 3,44-Dioxopetroformyne 2

Type: Acetylenic ketones. $C_{46}H_{62}O_3$ Oil, $[\alpha]_D^{21}$ = +2.3° (*c* = 0.57, $CHCl_3$). Source: Sponge *Petrosia ficiformis* (Mediterranean Sea). Pharm: Toxic (brine shrimp). Ref: Y. Guo, et al, JNP, 1995, 58, 712



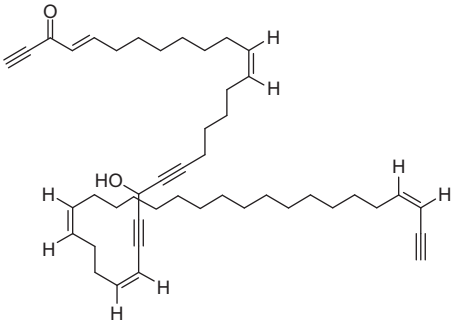
243 Isopetroformyne 6

Type: Acetylenic ketones. $C_{46}H_{68}O_2$ $[\alpha]_D^{21}$ = +2.6° (*c* = 0.27, $CHCl_3$). Source: Sponge *Petrosia ficiformis* (Mediterranean Sea). Pharm: Toxic (brine shrimp). Ref: Y. Guo, et al, JNP, 1995, 58, 712



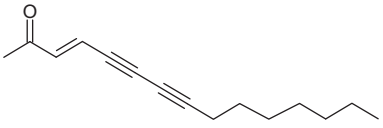
244 Isopetroformyne 7

Type: Acetylenic ketones. $C_{46}H_{66}O_2$ $[\alpha]_D^{21}$ = +2.5° (*c* = 0.13, $CHCl_3$). Source: Sponge *Petrosia ficiformis* (Mediterranean Sea). Pharm: Toxic (brine shrimp). Ref: Y. Guo, et al, JNP, 1995, 58, 712



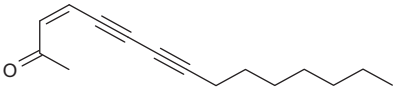
245 Montiporyne A

3*E*-Pentadecaene-5,7-diyn-2-one Type: Acetylenic ketones. $C_{15}H_{20}O$ Yellow gum. Source: Stony coral *Montipora* sp. (along shore of Mundo, Cheju, Korea, depth of 8m, on Nov. 4, 1996). Pharm: Cytotoxic (hmn solid carcinoma cells *in vitro*: A549 ED_{50} > 50 μg/mL, SK-OV-3 ED_{50} = 3.2 μg/mL, SK-MEL-2 ED_{50} = 1.4 μg/mL, XF498 ED_{50} = 1.9 μg/mL, HCT15 ED_{50} = 3.7 μg/mL; control Cisplatin, ED_{50} = 0.8 μg/mL, 1.2 μg/mL, 1.5 μg/mL, 0.7 μg/mL, and 1.5 μg/mL respectively); cell cycle inhibitor (flow cytometry, HCT116 cells were treated with 100 μg/mL *E*-Pentadecaene-5,7-diyn-2-one for 24 h, apoptotic fraction was increased by 19%). Ref: N. Alam, et al, JNP, 2000, 63, 1511; 2001, 64, 1059



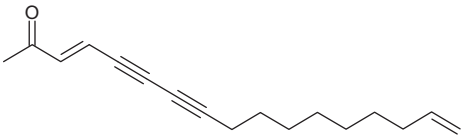
246 Montiporyne B

Type: Acetylenic ketones. $C_{15}H_{20}O$ Yellow gum. Source: Stony coral *Montipora* sp. (along shore of Mundo, Cheju, Korea, depth of 8 m, on Nov. 4, 1996). Pharm: Cytotoxic (hmn solid carcinoma cells *in vitro*: A549 ED_{50} > 50 μg/mL, SK-OV-3 ED_{50} = 25.9 μg/mL, SK-MEL-2 ED_{50} = 42.6 μg/mL, XF498 ED_{50} > 50 μg/mL, HCT15 ED_{50} > 50 μg/mL; control Cisplatin, ED_{50} = 0.6 μg/mL, 0.9 μg/mL, 0.7 μg/mL, 0.6 μg/mL, and 0.6 μg/mL respectively). Ref: B. H. Bae, et al, JNP, 2000, 63, 1511



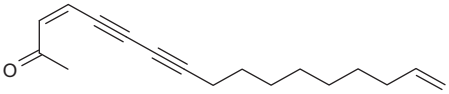
247 Montiporyne C

Type: Acetylenic ketones. $C_{17}H_{22}O$ Yellow oil. Source: Stony coral *Montipora* sp. (along shore of Mundo, Cheju, Korea, depth of 8 m, on Nov. 4, 1996). Pharm: Cytotoxic (hmn solid carcinoma cells *in vitro*: A549 ED_{50} > 50 μg/mL, SK-OV-3 ED_{50} = 2.5 μg/mL, SK-MEL-2 ED_{50} = 1.5 μg/mL, XF498 ED_{50} = 3.2 μg/mL, HCT15 ED_{50} = 5.2 μg/mL; control Cisplatin, ED_{50} = 0.8 μg/mL, 1.2 μg/mL, 1.5 μg/mL, 0.7 μg/mL, and 1.5 μg/mL respectively). Ref: B. H. Bae, et al, JNP, 2000, 63, 1511



248 Montiporyne D

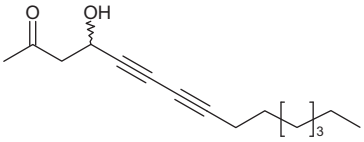
Type: Acetylenic ketones. $C_{17}H_{22}O$ Pale yellow oil. Source: Stony coral *Montipora* sp. (along shore of Mundo, Cheju, Korea, depth of 8 m, on Nov. 4, 1996). Pharm: Cytotoxic (hmn solid carcinoma cells *in vitro*: A549 ED_{50} > 50 μg/mL, SK-OV-3 ED_{50} = 45.1 μg/mL, SK-MEL-2 ED_{50} = 43.1 μg/mL, XF498 ED_{50} > 50 μg/mL, HCT15 ED_{50} > 50 μg/mL; control Cisplatin, ED_{50} = 0.6 μg/mL, 0.9 μg/mL, 0.7 μg/mL, 0.6 μg/mL, and 0.6 μg/mL respectively). Ref: B. H. Bae, et al, JNP, 2000, 63, 1511



249 Montiporyne I

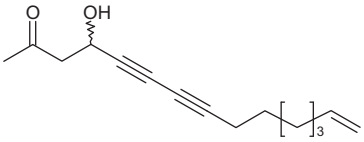
4-Hydroxy-5,7-pentadecadiyn-2-one Type: Acetylenic ketones. $C_{15}H_{22}O_2$ Light yellow oil. Source: Stony coral *Montipora* sp. Pharm: Cytotoxic (A549, ED_{50} = 4.17 μg/mL; SK-OV-3, ED_{50} = 1.81 μg/mL; SK-MEL-2, ED_{50} = 1.40 μg/mL; XF498, ED_{50} = 3.70 μg/mL; HCT15, ED_{50} = 3.73 μg/mL; control Cisplatin: A549, ED_{50} = 0.75 μg/mL; SK-OV-3,

ED_{50} = 1.09 μg/mL; SK-MEL-2, ED_{50} = 2.18 μg/mL; XF498, ED_{50} = 1.18 μg/mL; HCT15, ED_{50} = 0.85 μg/mL). Ref: N. Alam, et al, JNP, 2001, 64, 1059



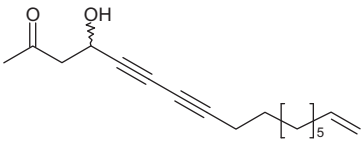
250 Montiporyne J

4-Hydroxy-14-pentadecene-5,7-diyn-2-one Type: Acetylenic ketones. $C_{15}H_{20}O_2$ Light yellow oil Source: Stony coral *Montipora* sp. Pharm: Cytotoxic (A549, ED_{50} = 4.97 μg/mL; SK-OV-3, ED_{50} = 3.85 μg/mL; SK-MEL-2, ED_{50} = 3.74 μg/mL; XF498, ED_{50} = 3.87 μg/mL; HCT15, ED_{50} = 3.42 μg/mL; control Cisplatin: A549, ED_{50} = 0.75 μg/mL; SK-OV-3, ED_{50} = 1.09 μg/mL; SK-MEL-2, ED_{50} = 2.18 μg/mL; XF498, ED_{50} = 1.18 μg/mL; HCT15, ED_{50} = 0.85 μg/mL). Ref: N. Alam, et al, JNP, 2001, 64, 1059



251 Montiporyne K

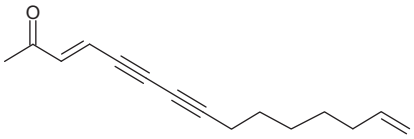
4-Hydroxy-16-heptadecene-5,7-diyn-2-one Type: Acetylenic ketones. $C_{17}H_{24}O_2$ Light yellow oil. Source: Stony coral *Montipora* sp. Pharm: Cytotoxic (A549, ED_{50} = 4.91 μg/mL; SK-OV-3, ED_{50} = 3.34 μg/mL; SK-MEL-2, ED_{50} = 3.52 μg/mL; XF498, ED_{50} = 4.45 μg/mL; HCT15, ED_{50} = 4.18 μg/mL; control Cisplatin: A549, ED_{50} = 0.75 μg/mL; SK-OV-3, ED_{50} = 1.09 μg/mL; SK-MEL-2, ED_{50} = 2.18 μg/mL; XF498, ED_{50} = 1.18 μg/mL; HCT15, ED_{50} = 0.85 μg/mL). Ref: N. Alam, et al, JNP, 2001, 64, 1059



252 Montiporyne L

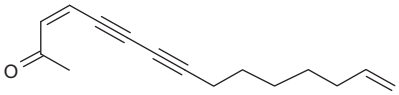
3*E*,14-Pentadecadiene-5,7-diyn-2-one Type: Acetylenic ketones. $C_{15}H_{18}O$ Light yellow oil. Source: Stony coral *Montipora* sp. Pharm: Cytotoxic (A549, ED_{50} = 6.39 μg/mL; SK-OV-3, ED_{50} = 3.52 μg/mL; SK-MEL-2, ED_{50} = 4.21 μg/mL; XF498, ED_{50} = 5.50 μg/mL; HCT15, ED_{50} = 4.56 μg/mL; control Cisplatin: A549, ED_{50} = 0.75 μg/mL; SK-OV-3,

ED_{50} = 1.09 μg/mL; SK-MEL-2, ED_{50} = 2.18 μg/mL; XF498, ED_{50} = 1.18 μg/mL; HCT15, ED_{50} = 0.85 μg/mL). Ref: N. Alam, et al, JNP, 2001, 64, 1059



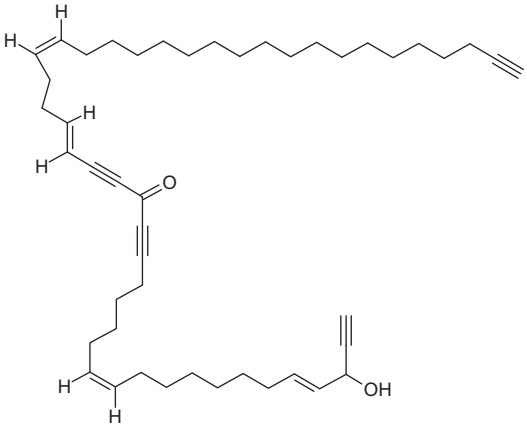
253 Montiporyne M

3*Z*,14-Pentadecadiene-5,7-diyn-2-one Type: Acetylenic ketones. $C_{15}H_{18}O$ Light yellow oil. Source: Stony coral *Montipora* sp. Pharm: Cytotoxic (A549, ED_{50} > 30 μg/mL; SK-OV-3, ED_{50} = 5.23 μg/mL; SK-MEL-2, ED_{50} = 4.61 μg/mL; XF498, ED_{50} = 29.16 μg/mL; HCT15, ED_{50} = 11.30 μg/mL; control Cisplatin: A549, ED_{50} = 0.75 μg/mL; SK-OV-3, ED_{50} = 1.09 μg/mL; SK-MEL-2, ED_{50} = 2.18 μg/mL; XF498, ED_{50} = 1.18 μg/mL; HCT15, ED_{50} = 0.85 μg/mL). Ref: N. Alam, et al, JNP, 2001, 64, 1059



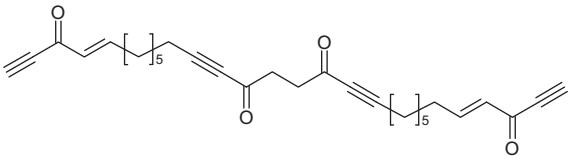
254 20-Oxopetroformyne 3

Type: Acetylenic ketones. $C_{46}H_{68}O_2$ Pale yellow oil, $[\alpha]_D^{20}$ = –1.0° (*c* = 0.3, $CHCl_3$). Source: Sponge *Petrosia ficiformis* (Mediterranean Sea). Pharm: Toxic (brine shrimp). Ref: Y. Guo, et al, JNP, 1995, 58, 712



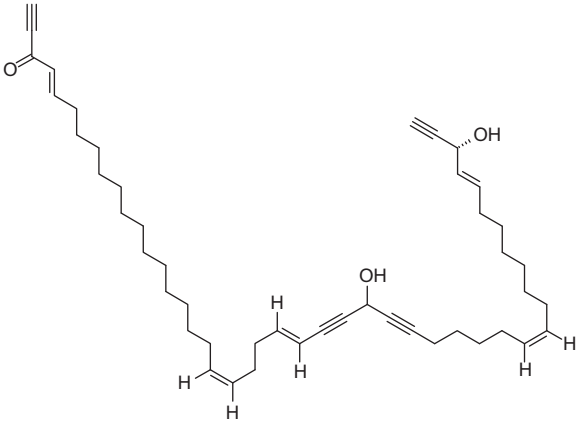
255 Petroacetylene

Type: Acetylenic ketones. $C_{30}H_{34}O_4$ Source: Sponge *Petrosia solida* (Amami-Oshima, Japan). Pharm: Inhibits starfish embryo blastulation. Ref: S. Ohta, et al, Nat. Prod. Res., 2013, 27, 1842



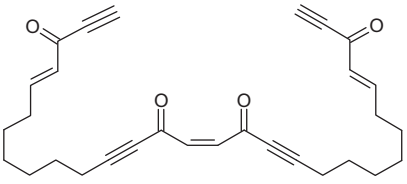
256 Petroformyne 10

Type: Acetylenic ketones. $C_{46}H_{66}O_3$ Pale yellow oil, $[\alpha]_D^{21}$ = −3.5° (*c* = 1.0, $CHCl_3$). Source: Sponge *Petrosia ficiformis* (Mediterranean Sea). Pharm: Toxic (brine shrimp). Ref: Y. Guo, et al, JNP, 1995, 58, 712



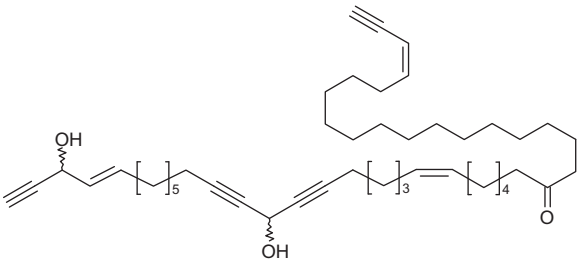
257 Petrosynone

4,15,26-Triacontatriene-1,12,18,29-tetrayne-3,14,17,28-tetrone Type: Acetylenic ketones. $C_{30}H_{32}O_4$ Yellow oil. Source: Sponge *Petrosia* sp. Pharm: Antibacterial (*Bacillus subtilis*). Ref: M. Ochi, et al, Chem. Lett., 1994, 89



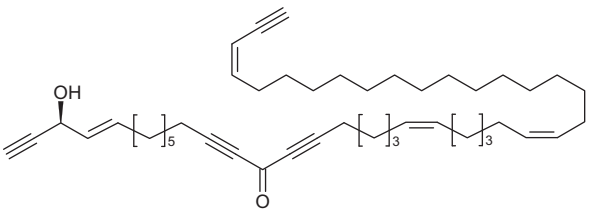
258 Petrotetrayndiol D

Type: Acetylenic ketones. $C_{46}H_{70}O_3$ Yellow oil. Source: Sponge *Petrosia* sp. (Korea waters). Pharm: DNA replication inhibitor (simian virus SV40, 125 μmol/L, InRt = 66%, 250 μmol/L, InRt = 80%, 500 μmol/L, InRt = 100%); cytotoxic (A549, ED_{50} > 10 μg/mL; SK-OV-3, ED_{50} > 10 μg/mL; SK-MEL-2, ED_{50} > 10 μg/mL; XF498, ED_{50} > 10 μg/mL; HCT15, ED_{50} > 10 μg/mL; control Cisplatin, A549, ED_{50} = 0.8 μg/mL; SK-OV-3, ED_{50} = 1.2 μg/mL; SK-MEL-2, ED_{50} = 1.5 μg/mL; XF498, ED_{50} = 0.7 μg/mL; HCT15, ED_{50} = 1.5 μg/mL). Ref: Y. J. Lim, et al, JNP, 2001, 64, 46



259 Petrotetraynol A

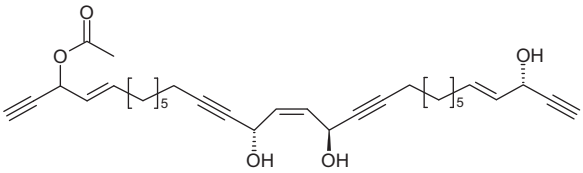
Type: Acetylenic ketones. $C_{46}H_{68}O_2$ Yellow oil. Source: Sponge *Petrosia* sp. (Korea waters). Pharm: DNA replication inhibitor (simian virus SV40, 125 μmol/L, InRt = 76%, 250 μmol/L, InRt = 100%, 500 μmol/L, InRt = 100%); cytotoxic (A549, ED_{50} > 30 μg/mL; SK-OV-3, ED_{50} = 4.6 μg/mL; SK-MEL-2, ED_{50} = 5.2 μg/mL; XF498, ED_{50} > 30 μg/mL; HCT15, ED_{50} > 30 μg/mL; control Cisplatin, A549, ED_{50} = 0.6 μg/mL; SK-OV-3, ED_{50} = 0.9 μg/mL; SK-MEL-2, ED_{50} = 0.7 μg/mL; XF498, ED_{50} = 0.6 μg/mL; HCT15, ED_{50} = 0.6 μg/mL). Ref: Y. J. Lim, et al, JNP, 2001, 64, 46



260 Adociacetylene C

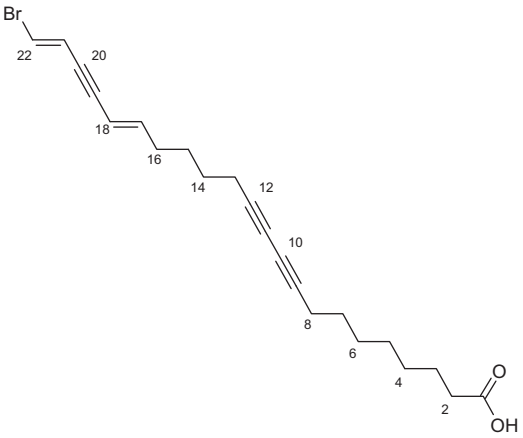
Type: Acetylenic acids and esters. $C_{32}H_{42}O_5$ $[\alpha]_D^{20}$ = +90° (*c* = 0.5, $CHCl_3$). Source: Sponge *Asocia* sp. (Okinawa). Pharm: Cytotoxic (endothelial cell-neutrophil

leukocyte adhesin assay, tumor necrosis factor-α (5 JRU/mL)-stimulated endothelial cells, 1 μg/mL). Ref: M. Kobayashi, et al, CPB, 1996, 44, 720



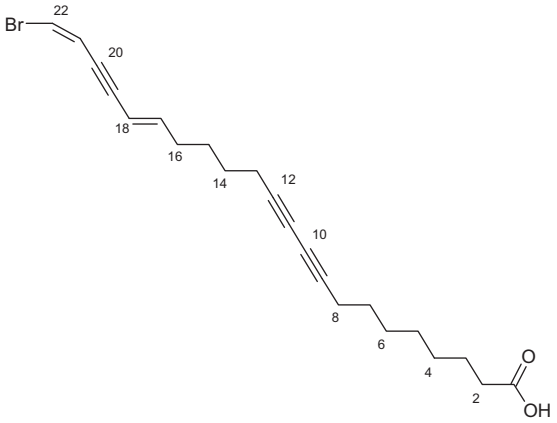
261 22-Bromo-17*E*,21*E*-docosadiene-9,11,19-triynoic acid

Type: Acetylenic acids and esters. $C_{22}H_{27}BrO_2$ Amorphous powder. Source: Sponge *Xestospongia testudinaria*. Pharm: Stimulator of adipogenesis (preadipocyte differentiation-inducing activity (30 μmol/L, 3+, 130 μmol/L, 3+)). Ref: T. Akiyama, et al, Tetrahedron, 2013, 69, 6560



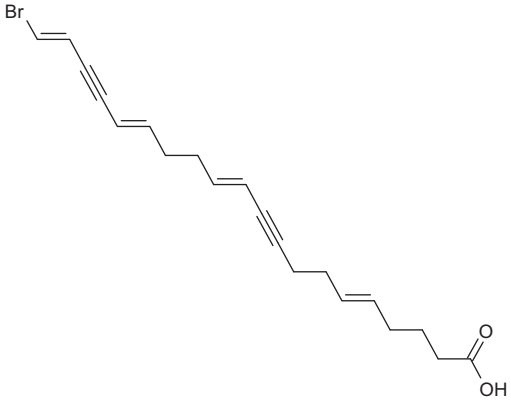
262 22-Bromo-17*E*,21*Z*-docosadiene-9,11,19-triynoic acid

Type: Acetylenic acids and esters. $C_{22}H_{27}BrO_2$ Amorphous powder. Source: Sponge *Xestospongia testudinaria*. Pharm: Stimulator of adipogenesis (preadipocyte differentiation-inducing activity (130 μmol/L, 3+)). Ref: T. Akiyama, et al, Tetrahedron, 2013, 69, 6560



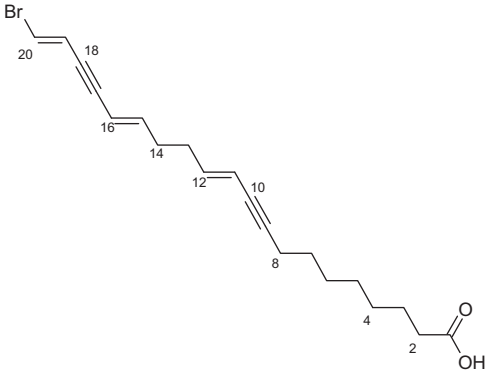
263 (all-*E*)-20-Bromo-5,11,15,19-eicosatetraene-9,17-diynoic acid

Type: Acetylenic acids and esters. $C_{20}H_{23}BrO_2$ Amorph. powder. Source: Sponges *Xestospongia* sp. (an association of sponge cells and bacteria) and *Xestospongia testudinaria*. Pharm: Stimulator of adipogenesis (preadipocyte differentiation-inducing activity (8 μmol/L, 3+, 30 μmol/L, 3+, 130 μmol/L, 3+); responsible for production of trichloroleucine metabolites in sponge *Dysidea herbacea*). Ref: S. E. Brantley, et al, Tetrahedron, 1995, 51, 7667 | T. Akiyama, et al, Tetrahedron, 2013, 69, 6560



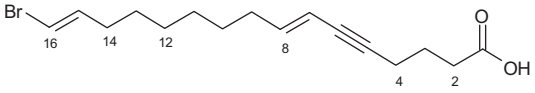
264 (all-*E*)-20-Bromo-11,15,19-eicosatriene-9,17-diynoic acid

Type: Acetylenic acids and esters. $C_{20}H_{25}BrO_2$ Amorphous powder. Source: Sponge *Xestospongia testudinaria*. Pharm: Stimulator of adipogenesis (preadipocyte differentiation-inducing activity (2 μmol/L, 2+, 8 μmol/L, 3+, 30 μmol/L, 3+, 130 μmol/L, 3+)). Ref: T. Akiyama, et al, Tetrahedron, 2013, 69, 6560



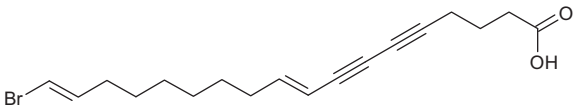
265 16-Bromo-7,15-hexadecadiene-5-ynoic acid

Type: Acetylenic acids and esters. $C_{16}H_{23}BrO_2$ Colorless oil. Source: Sponge *Xestospongia testudinaria*. Pharm: Stimulator of adipogenesis (preadipocyte differentiation-inducing activity (30 μmol/L, 2+, 130 μmol/L, 3+)). Ref: T. Akiyama, et al, Tetrahedron, 2013, 69, 6560



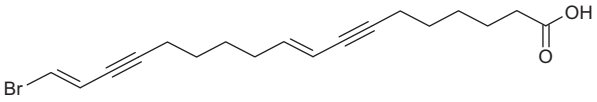
266 18-Bromo-9*E*,17*E*-octadecadiene-5,7-diynoic acid

Type: Acetylenic acids and esters. $C_{18}H_{23}BrO_2$ Needles. Source: Sponge *Xestospongia muta* (Bahamas). Pharm: HIV-1 protease inhibitor (inhibits HIV-1 protease-catalyzed proteolysis of lactate dehydrogenase, IC_{50} = 12 μmol/L). Ref: A. D. Patil, et al, JNP, 1992, 55, 1170



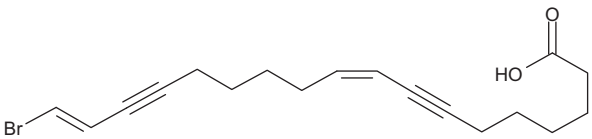
267 18-Bromo-9*E*,17*E*-octadecadiene-7,15-diynoic acid

Type: Acetylenic acids and esters. $C_{18}H_{23}BrO_2$ Cryst. (MeOH aq), mp 66–67 °C, Sol. MeOH, $CHCl_3$; poorly sol. H_2O. Source: Sponges *Xestospongia testudinaria* (Australia) and *Xestospongia testudinaria*. Pharm: Stimulator of adipogenesis (preadipocyte differentiation-inducing activity (8 μmol/L, +, 30 μmol/L, 3+, 130 μmol/L, 3+)). Ref: R. J. Quinn, et al, Tet. Lett., 1985, 26, 1671 | T. Akiyama, et al, Tetrahedron, 2013, 69, 6560



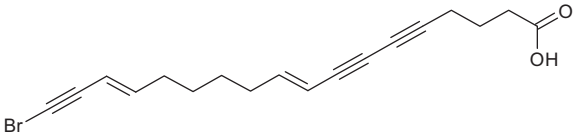
268 18-Bromo-9*Z*,17*E*-octadecadiene-7,15-diynoic acid

Type: Acetylenic acids and esters. $C_{18}H_{23}BrO_2$ Source: Sponge *Xestospongia testudinaria*. Pharm: Stimulator of adipogenesis (preadipocyte differentiation-inducing activity (30 μmol/L, 3+, 130 μmol/L, 3+)). Ref: R. J. Quinn,et al, JNP, 1991, 54, 290 | T. Akiyama, et al, Tetrahedron, 2013, 69, 6560



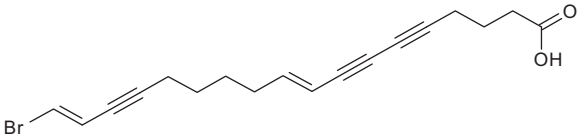
269 18-Bromo-9*E*,15*E*-octadecadiene-5,7,17-triynoic acid

Type: Acetylenic acids and esters. $C_{18}H_{19}BrO_2$ Brown powder. Source: Sponge *Xestospongia muta* (Bahamas). Pharm: HIV-1 protease inhibitor (inhibits HIV-1 protease-catalyzed proteolysis of lactate dehydrogenase, IC_{50} = 7 μmol/L). Ref: A. D. Patil, et al, JNP, 1992, 55,
1170



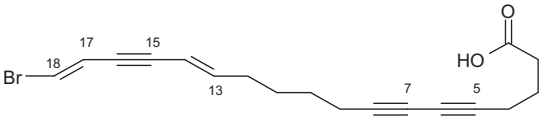
270 18-Bromo-9*E*,17*E*-octadecadiene-5,7,15-triynoic acid

Type: Acetylenic acids and esters. $C_{18}H_{19}BrO_2$ Powder. Source: Sponge *Xestospongia muta* (Bahamas). Pharm: HIV-1 protease inhibitor (inhibits HIV-1 protease-catalyzed proteolysis of lactate dehydrogenase, IC_{50} = 8 μmol/L). Ref: A. D. Patil, et al, JNP, 1992, 55, 1170



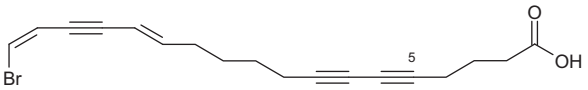
271 18-Bromo-13*E*,17*E*-octadecadiene-5,7,15-triynoic acid

Type: Acetylenic acids and esters. $C_{18}H_{19}BrO_2$ Oil. Source: Sponge *Petrosia volcano* (Japan waters). Pharm: Antifungal. Ref: N. Fusetani, et al, Tetrahedron, 1993, 49, 1203



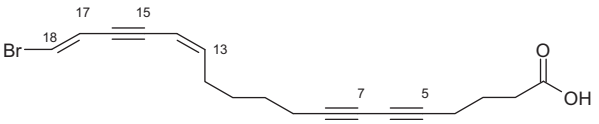
272 18-Bromo-13*E*,17*Z*-octadecadiene-5,7,15-triynoic acid

Type: Acetylenic acids and esters. $C_{18}H_{19}BrO_2$ Oil. Source: Sponge *Petrosia volcano* (Japan waters). Pharm: Antifungal. Ref: N. Fusetani, et al, Tetrahedron, 1993, 49, 1203



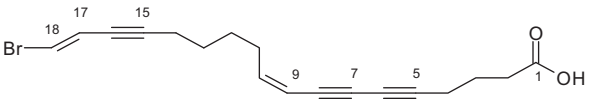
273 18-Bromo-13*Z*,17*E*-octadecadiene-5,7,15-triynoic acid

Type: Acetylenic acids and esters. $C_{18}H_{19}BrO_2$ Oil. Source: Sponge *Petrosia volcano* (Japan waters). Pharm: Antifungal. Ref: N. Fusetani, et al, Tetrahedron, 1993, 49, 1203



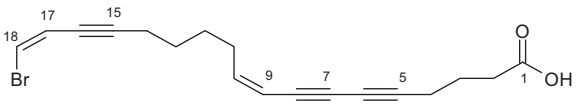
274 18-Bromo-9,17*E*-octadecadiene-5,7,15-triynoic acid

Type: Acetylenic acids and esters. $C_{18}H_{19}BrO_2$ Oil. Source: Sponge *Petrosia volcano* (Japan waters). Pharm: Antifungal. Ref: N. Fusetani, et al, Tetrahedron, 1993, 49, 1203



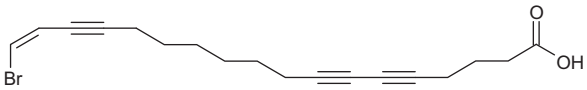
275 18-Bromo-9,17*Z*-octadecadiene-5,7,15-triynoic acid

Type: Acetylenic acids and esters. $C_{18}H_{19}BrO_2$ Oil. Source: Sponge *Petrosia volcano* (Japan waters). Pharm: Antifungal. Ref: N. Fusetani, et al, Tetrahedron, 1993, 49, 1203



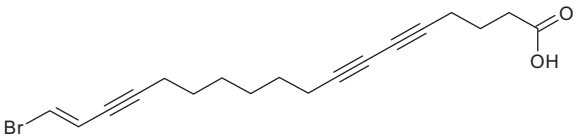
276 18-Bromo-17*Z*-octadecadiene-5,7,15-triynoic acid

Type: Acetylenic acids and esters. $C_{18}H_{21}BrO_2$ Oil. Source: Sponge *Petrosia volcano* (Japan waters). Pharm: Antifungal. Ref: N. Fusetani, et al, Tetrahedron, 1993, 49, 1203



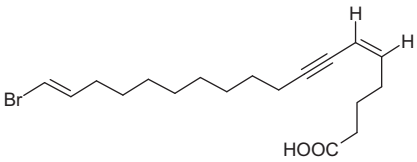
277 18-Bromo-17E-octadecadiene-5,7,15-triynoic acid

Xestospongic acid Type: Acetylenic acids and esters. $C_{18}H_{21}BrO_2$ Source: Sponge *Xestospongia testudinaria* (Mayotte) and *Xestospongia testudinaria*. Pharm: Antibacterial (*Staphylococcus aureus*, 100 µg/disk, IZD = 12 mm, weak); stimulator of adipogenesis (preadipocyte differentiation-inducing activity (130 µmol/L, 3+)). Ref: M. L. Bourguet-Kondracki, et al, Tet. Lett., 1992, 33, 225 | T. Akiyama, et al, Tetrahedron, 2013, 69, 6560



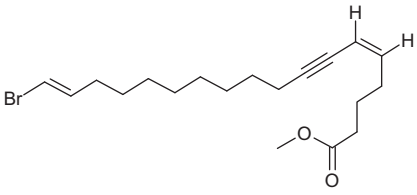
278 18-Bromo-5*Z*,17*E*-octadecadien-7-ynoic acid

Type: Acetylenic acids and esters. $C_{18}H_{27}BrO_2$ Source: Sponge *Xestospongia* sp. (Okinawa). Pharm: Cytotoxic (L_{1210} and KB). Ref: Y. Li, et al, J. Chem. Res. (S), 1995, 126; J. Chem. Res. (M), 1995, 0901



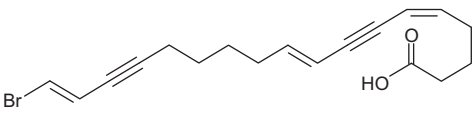
279 18-Bromo-5*Z*,17*E*-octadecadien-7-ynoic acid methyl ester

Type: Acetylenic acids and esters. $C_{19}H_{29}BrO_2$ Source: Sponge *Xestospongia* sp. (Okinawa). Pharm: Cytotoxic (L_{1210} and KB). Ref: Y. Li, et al, J. Chem. Res. (S), 1995, 126; J. Chem. Res. (M), 1995, 0901



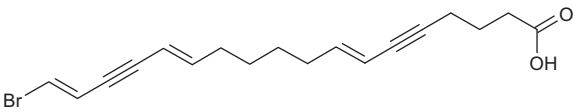
280 18-Bromo-5*Z*,9*E*,17*E*-octadecatriene-7,15-diynoic acid

Type: Acetylenic acids and esters. $C_{18}H_{21}BrO_2$ Source: Sponge *Xestospongia testudinaria*. Pharm: Stimulator of adipogenesis (preadipocyte differentiation-inducing activity (8 μmol/L, +, 30 μmol/L, 3+, 130 μmol/L, 3+)). Ref: M. Taniguchi,et al, CPB, 2008, 56, 378 | T. Akiyama, et al, Tetrahedron, 2013, 69, 6560



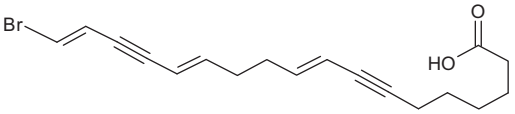
281 18-Bromo-7*E*,13*E*,17*E*-octadecatriene-5,15-diynoic acid

Type: Acetylenic acids and esters. $C_{18}H_{21}BrO_2$ Powder. Source: Sponge *Xestospongia muta* (Bahamas). Pharm: HIV-1 protease inhibitor (inhibits HIV-1 protease-catalyzed proteolysis of lactate dehydrogenase, IC_{50} = 10 μmol/L). Ref: A. D. Patil, et al, JNP, 1992, 55, 1170



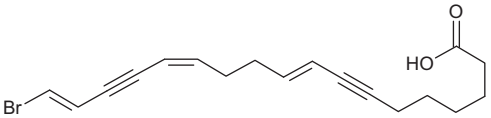
282 18-Bromo-9*E*,13*E*,17*E*-octadecatriene-7,15-diynoic acid

Type: Acetylenic acids and esters. $C_{18}H_{21}BrO_2$ Source: Sponge *Xestospongia testudinaria*. Pharm: Stimulator of adipogenesis (preadipocyte differentiation-inducing activity (8 μmol/L, 3+, 30 μmol/L, 3+, 130 μmol/L, 3+)). Ref: M. Taniguchi, et al, CPB, 2008, 56, 378 | T. Akiyama, et al, Tetrahedron, 2013, 69, 6560



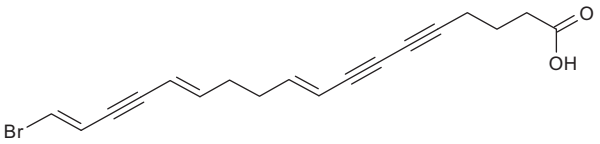
283 18-Bromo-9*E*,13*Z*,17*E*-octadecatriene-7,15-diynoic acid

Type: Acetylenic acids and esters. $C_{18}H_{21}BrO_2$ Source: Sponge *Xestospongia testudinaria*. Pharm: Stimulator of adipogenesis (preadipocyte differentiation-inducing activity (30 μmol/L, +, 130 μmol/L, 3+)). Ref: M. Taniguchi,et al, CPB, 2008, 56, 378 | T. Akiyama, et al, Tetrahedron, 2013, 69, 6560



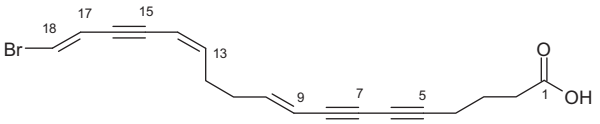
284 18-Bromo-9*E*,13*E*,17*E*-octadecatriene-5,7,15-triynoic acid

Type: Acetylenic acids and esters. $C_{18}H_{17}BrO_2$ Amorph. powder. Source: Sponge *Xestospongia muta* (Bahamas). Pharm: HIV-1 protease inhibitor (inhibits HIV-1 protease-catalyzed proteolysis of lactate dehydrogenase, IC_{50} = 6 μmol/L). Ref: A. D. Patil, et al, JNP, 1992, 55, 1170



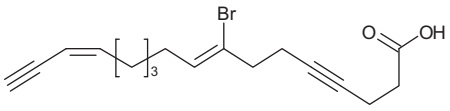
285 18-Bromo-9,13,17-octadecatriene-5,7,15-triynoic acid

Type: Acetylenic acids and esters. $C_{18}H_{17}BrO_2$ Oil. Source: Sponge *Petrosia volcano* (Japan waters). Pharm: Antifungal. Ref: N. Fusetani, et al, Tetrahedron, 1993, 49, 1203



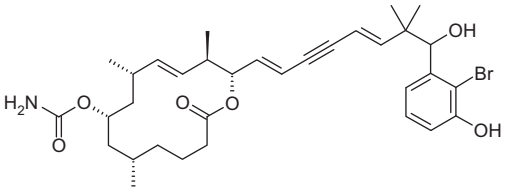
286 Bromotheoynic acid

Type: Acetylenic acids and esters. $C_{17}H_{21}BrO_2$ Source: Lithistid sponge *Theonella swinhoei* (Tanegashima, Kagoshima, Japan). Pharm: Inhibitor of starfish egg maturation. Ref: N. Aoki, et al, Nat. Prod. Res., 2013, 27, 117



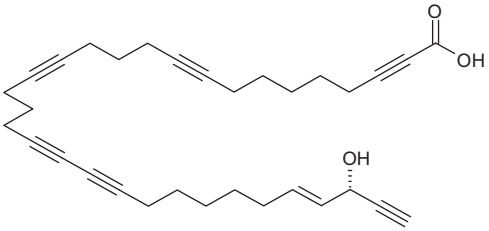
287 Callyspongiolide

Type: Acetylenic acids and esters. $C_{33}H_{44}BrNO_6$ Source: Sponge *Callyspongia* sp. (Ambon, Indonesia). Pharm: Cytotoxic (three HTCLs, IC_{50} = 60–320 nmol/L, potent, notably, the viability of cell lines treated with callyspongiolide was not affected by QVD-OPh, a known caspase-inhibitor, suggesting the test compound induces cellular toxicity in a caspase-independent manner). Ref: C. -D. Pham, et al, Org. Lett., 2014, 16, 266



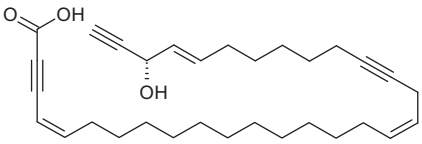
288 Callyspongynic acid

(*S*,*E*)-30-Hydroxy-28-dotriacontene-2,9,14,19,21,31-hexaynoic acid Type: Acetylenic acids and esters. $C_{32}H_{38}O_3$ Oil, $[\alpha]_D$ = +5.4° (*c* = 0.5, EtOH). Source: Sponge *Callyspongia truncata*. Pharm: *α*-Glucosidase inhibitor. Ref: Y. Nakao, et al, JNP, 2002, 65, 922



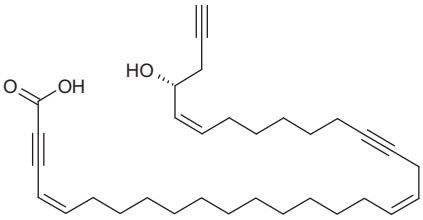
289 Corticatic acid A

(4*Z*,17*Z*,27*E*,29*R*)-29-Hydroxy-4,17,27-hentriacontatriene-2,20,30-triynoic acid Type: Acetylenic acids and esters. $C_{31}H_{44}O_3$ Oil, $[\alpha]_D^{23}$ = +28° (*c* = 0.1, $CHCl_3$). Source: Sponge *Pertosia corticata* (Japan waters). Pharm: Antifungal (*Mortieralla ramanniana*). Ref: H. -Y. Li, et al, JNP, 1994, 57, 1464



290 Corticatic acid B

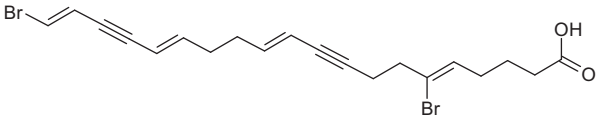
Type: Acetylenic acids and esters. $C_{31}H_{44}O_3$ Oil, $[\alpha]_D^{23}$ = +9° (*c* = 0.04, $CHCl_3$). Source: Sponge *Pertosia corticata* (Japan waters). Pharm: Antifungal (*Mortieralla ramanniana*). Ref: H. -Y. Li, et al, JNP, 1994, 57, 1464



291 (5*Z*,11*E*,15*E*,19*E*)-6,20-Dibromoeicosa-5,11,15,19-tetraen-9,17-diynoicacid

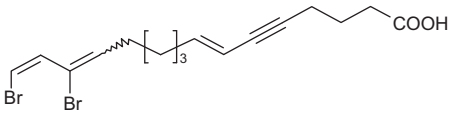
Type: Acetylenic acids and esters. $C_{20}H_{22}Br_2O_2$ Amorph. powder. Source: Eubacteria *Eubacteria* sp. (India western Ocean) from sponge *Xestospongia* sp. (tissues), sponge *Xestospongia testudinaria*. Pharm: Stimulator of adipogenesis (preadipocyte differentiation-inducing activity (8 μmol/L, +, 30 μmol/L, 3+, 130 μmol/L, 3+);

responsible for production of trichloroleucine metabolites in sponge *Dysidea herbacea*). Ref: S. E. Brantley, et al, Tetrahedron, 1995, 51, 7667 | T. Akiyama, et al, Tetrahedron, 2013, 69, 6560



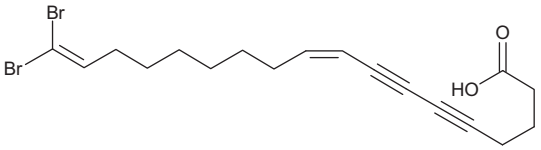
292 (7*E*,15*Z*)-14,16-Dibromo-7,13,15-hexadecatrien-5-ynoic acid

Type: Acetylenic acids and esters. $C_{16}H_{20}Br_2O_2$ Oil. Source: Sponge *Xestospongia muta*. Pharm: Cytotoxic; CNS activity (*in vivo*). Ref: F. J. Schmitz, et al, Tet. Lett., 1978, 3637



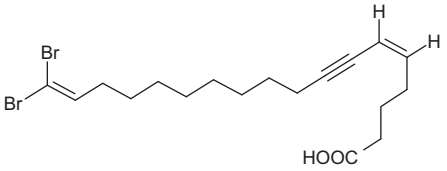
293 18,18-Dibromo-9*Z*,17*E*-octadecadiene-5,7-diynoic acid

Type: Acetylenic acids and esters. $C_{18}H_{22}Br_2O_2$ Source: Sponge *Xestospongia testudinaria*. Pharm: Stimulator of adipogenesis (preadipocyte differentiation-inducing activity (30 μmol/L, +, 130 μmol/L, 3+)). Ref: M. Taniguchi,et al, CPB, 2008, 56, 378 | T. Akiyama, et al, Tetrahedron, 2013, 69, 6560



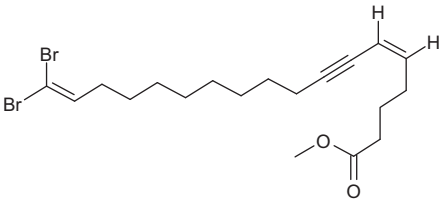
294 (*Z*)-18,18-Dibromo-5,17-octadecadien-7-ynoic acid

Type: Acetylenic acids and esters. $C_{18}H_{26}Br_2O_2$ Source: Sponge *Xestospongia* sp. (Okinawa). Pharm: Cytotoxic (L_{1210} and KB). Ref: Y. Li, et al, J. Chem. Res. (S), 1995, 126 | J. Chem. Res. (M), 1995, 0901



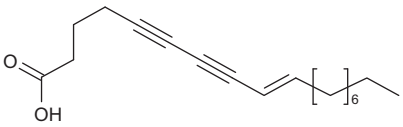
295 18,18-Dibromo-5*Z*,17-octadecadien-7-ynoic acid methyl ester

Type: Acetylenic acids and esters. $C_{19}H_{28}Br_2O_2$ Source: Sponge *Xestospongia* sp. (Okinawa). Pharm: Cytotoxic (L_{1210} and KB). Ref: Y. Li, et al, J. Chem. Res. (S), 1995, 126; J. Chem. Res. (M), 1995, 0901



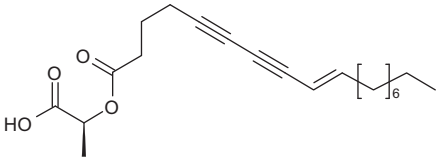
296 Heterofibrin A_1

Type: Acetylenic acids and esters. $C_{18}H_{26}O_2$ Pale yellow oil. Source: Sponge *Spongia* sp. (Great Australian Bight). Pharm: Lipid droplet (cytoplasmic organelles containing neutral lipid found in eukaryotic cells) formation inhibitor (fibroblasts, 10 μmol/L, InRt = 52%, not cytotoxic at similar concentration); cytotoxic inactive (fibroblasts, HeLa and MDA-MB-231, 30 μmol/L, such inhibitor have potential application in management of obesity, diabetes and atherosclerosis); antibacterial (*Escherichia coli*, IC_{90} > 50 μmol/L, *Bacillus subtilis*, IC_{90} = 22 μmol/L, *Staphylococcus aureus*, IC_{90} = 45 μmol/L); antifungal (*Candida albicans* and *Pseudomonas aeruginosa*, IC_{90} > 50 μmol/L). Ref: A. A. Salim, et al, Org. Biomol. Chem., 2010, 8, 3188



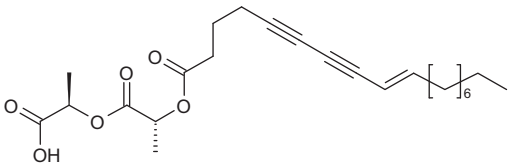
297 Heterofibrin A_2

Type: Acetylenic acids and esters. $C_{21}H_{30}O_4$ Pale yellow oil, $[\alpha]_D^{20}$ = −9.2° (*c* = 0.25, $CHCl_3$). Source: Sponge *Spongia* sp. (Great Australian Bight). Pharm: Lipid droplet formation inhibitor (fibroblasts, 10 μmol/L, InRt = 0%; cytotoxic inactive (fibroblasts, HeLa and MDA-MB-231, 30 μmol/L, such inhibitor have potential application in management of obesity, diabetes and atherosclerosis); antibacterial (*Escherichia coli*, IC_{90} > 50 μmol/L, *Bacillus subtilis*, IC_{90} = 26 μmol/L), *Staphylococcus aureus*, IC_{90} > 50 μmol/L); antifungal (*Candida albicans* and *Pseudomonas aeruginosa*, IC_{90} > 50 μmol/L). Ref: A. A. Salim, et al, Org. Biomol. Chem., 2010, 8, 3188



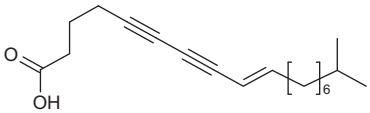
298 Heterofibrin A_3

Type: Acetylenic acids and esters. $C_{24}H_{34}O_6$ Pale yellow oil, $[\alpha]_D^{20}$ = +11° (*c* = 0.05, $CHCl_3$). Source: Sponge *Spongia* sp. (Great Australian Bight). Pharm: Lipid droplet formation inhibitor (fibroblasts, 10 μmol/L, InRt = 14%; cytotoxic inactive (fibroblasts, HeLa and MDA-MB-231, 30 μmol/L, such inhibitor have potential application in management of obesity, diabetes and atherosclerosis); antibacterial (*Escherichia coli*, IC_{90} > 50 μmol/L, *Bacillus subtilis*, IC_{90} = 29 μmol/L), *Staphylococcus aureus*, IC_{90} > 50 μmol/L); antifungal (*Candida albicans* and *Pseudomonas aeruginosa*, IC_{90} > 50 μmol/L). Ref: A. A. Salim, et al, Org. Biomol. Chem., 2010, 8, 3188



299 Heterofibrin B_1

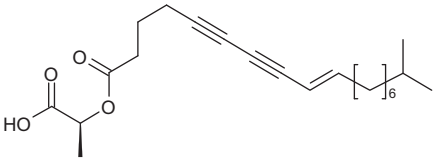
Type: Acetylenic acids and esters. $C_{19}H_{28}O_2$ Pale yellow oil. Source: Sponge *Spongia* sp. (Great Australian Bight). Pharm: Lipid droplet formation inhibitor (fibroblasts, 10 μmol/L, InRt = 60%, not cytotoxic at similar concentration); cytotoxic inactive (fibroblasts, HeLa and MDA-MB-231, 30 μmol/L, such inhibitor have potential application in management of obesity, diabetes and atherosclerosis); antibacterial (*Escherichia coli*, IC_{90} > 50 μmol/L, *Bacillus subtilis*, IC_{90} = 10 μmol/L, *Staphylococcus aureus*, IC_{90} = 21 μmol/L); antifungal (*Candida albicans* and *Pseudomonas aeruginosa*, IC_{90} > 50 μmol/L). Ref: A. A. Salim, et al, Org. Biomol. Chem., 2010, 8, 3188



300 Heterofibrin B_2

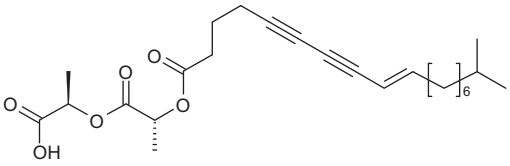
Type: Acetylenic acids and esters. $C_{22}H_{32}O_4$ Pale yellow oil, $[\alpha]_D^{20}$ = −10° (*c* = 0.13, $CHCl_3$). Source: Sponge *Spongia* sp. (Great Australian Bight). Pharm: Lipid droplet formation inhibitor (fibroblasts, 10 μmol/L, InRt = 24%; cytotoxic inactive (fibroblasts, HeLa and MDA-MB-231, 30 μmol/L, such inhibitor have potential application in management of obesity, diabetes and atherosclerosis); antibacterial (*Escherichia*

coli, IC_{90} > 50 μmol/L, *Bacillus subtilis*, IC_{90} = 17 μmol/L), *Staphylococcus aureus*, IC_{90} > 50 μmol/L); antifungal (*Candida albicans* and *Pseudomonas aeruginosa*, IC_{90} > 50 μmol/L). Ref: A. A. Salim, et al, Org. Biomol. Chem., 2010, 8, 3188



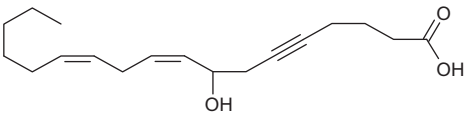
301 Heterofibrin B_3

Type: Acetylenic acids and esters. $C_{25}H_{36}O_6$ Pale yellow oil, $[\alpha]_D^{20}$ = +16° (*c* = 0.13, $CHCl_3$). Source: Sponge *Spongia* sp. (Great Australian Bight). Pharm: Lipid droplet formation inhibitor (fibroblasts, 10 μmol/L, InRt = 24%; cytotoxic inactive (fibroblasts, HeLa and MDA-MB-231, 30 μmol/L, such inhibitor have potential application in management of obesity, diabetes and atherosclerosis); antibacterial (*Escherichia coli*, IC_{90} > 50 μmol/L, *Bacillus subtilis*, IC_{90} = 27 μmol/L), *Staphylococcus aureus*, IC_{90} > 50 μmol/L); antifungal (*Candida albicans* and *Pseudomonas aeruginosa*, IC_{90} > 50 μmol/L). Ref: A. A. Salim, et al, Org. Biomol. Chem., 2010, 8, 3188



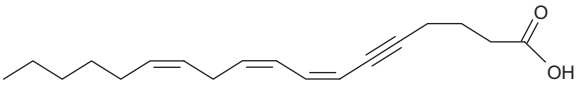
302 (9*Z*,12*Z*)-7-Hydroxyoctadeca-9,12-dien-5-ynoic acid

Type: Acetylenic acids and esters. $C_{18}H_{28}O_3$ $[\alpha]_D$ = +6.8° (*c* = 1.5, $CHCl_3$). Source: Red alga *Liagora farinosa*. Pharm: Ichthyotoxic. Ref: V. J. Paul, et al, Tet. Lett., 1980, 21, 3327



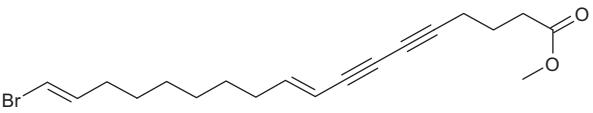
303 Liagoric acid

Type: Acetylenic acids and esters. $C_{18}H_{26}O_2$ Berdy sol: sol. $CHCl_3$, hexane; poorly sol. H_2O. Source: Red alga *Liagora farinosa*. Pharm: Ichthyotoxic; prostaglandin biosynthesis inhibitor. Ref: V. J. Paul, et al, Tet. Lett., 1980, 21, 3327



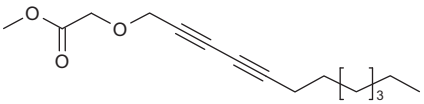
304 Methyl-18-Bromo-9*E*,17*E*-octadecadiene-5,7-diynoate

Type: Acetylenic acids and esters. $C_{19}H_{25}BrO_2$ Needles. Source: Sponge *Xestospongia muta* (Bahamas). Pharm: Inhibits HIV-1 protease-catalyzed proteolysis of lactate dehydrogenase (IC_{50} = 10 µmol/L). Ref: A. D. Patil, et al, JNP, 1992, 55, 1170



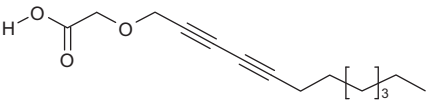
305 Methyl montiporate A

Type: Acetylenic acids and esters. $C_{15}H_{22}O_3$ Yellow oil. Source: Stony coral *Montipora* sp. Pharm: Cytotoxic (A549, ED_{50} > 30 µg/mL; SK-OV-3, ED_{50} = 20.52 µg/mL; SK-MEL-2, ED_{50} > 30 µg/mL; XF498, ED_{50} > 30 µg/mL; HCT15, ED_{50} = 25.61 µg/mL; control Cisplatin: A549, ED_{50} = 0.75 µg/mL; SK-OV-3, ED_{50} = 1.09 µg/mL; SK-MEL-2, ED_{50} = 2.18 µg/mL; XF498, ED_{50} = 1.18 µg/mL; HCT15, ED_{50} = 0.85 µg/mL). Ref: N. Alam, et al, JNP, 2001, 64, 1059



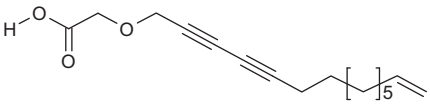
306 Montiporic acid A

Type: Acetylenic acids and esters. $C_{14}H_{20}O_3$ Oil. Source: Stony corals *Montipora digitata* (eggs), *Madrepora oculata* and *Montipora* sp. Pharm: Cytotoxic (A549, ED_{50} = 6.31 µg/mL; SK-OV-3, ED_{50} = 7.50 µg/mL; SK-MEL-2, ED_{50} = 7.97 µg/mL; XF498, ED_{50} = 7.72 µg/mL; HCT15, ED_{50} = 8.30 µg/mL; control Cisplatin: A549, ED_{50} = 0.75 µg/mL; SK-OV-3, ED_{50} = 1.09 µg/mL; SK-MEL-2, ED_{50} = 2.18 µg/mL; XF498, ED_{50} = 1.18 µg/mL; HCT15, ED_{50} = 0.85 µg/mL); cytotoxic (P_{388}, IC_{50} = 5.0 µg/mL); antibacterial (*Escherichia coli*); feeding attractant (prosobranch *Drupella cornus*). Ref: N. Fusetani, et al, JNP, 1996, 59, 796 | H. A. Stefani, et al, Tet. Lett., 1999, 40, 9215 | N. Alam, et al, JNP, 2001, 64, 1059 | M. Kita, et al, Tet. Lett., 2005, 46, 8583



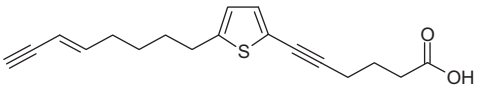
307 Montiporic acid B

Type: Acetylenic acids and esters. $C_{16}H_{22}O_3$ Oil (Na salt). Source: Stony corals *Montipora digitata* (eggs), and *Montipora* sp. Pharm: Cytotoxic (A549, ED_{50} = 6.26 µg/mL; SK-OV-3, ED_{50} = 4.88 µg/mL; SK-MEL-2, ED_{50} = 4.68 µg/mL; XF498, ED_{50} = 4.96 µg/mL; HCT15, ED_{50} = 4.47 µg/mL; control Cisplatin: A549, ED_{50} = 0.75 µg/mL; SK-OV-3, ED_{50} = 1.09 µg/mL; SK-MEL-2, ED_{50} = 2.18 µg/mL; XF498, ED_{50} = 1.18 µg/mL; HCT15, ED_{50} = 0.85 µg/mL); cytotoxic (P_{388}, IC_{50} = 12.0 µg/mL); antibacterial (*Escherichia coli*). Ref: N. Fusetani, et al, JNP, 1996, 59, 796 | H. A. Stefani, et al, Tet. Lett., 1999, 40, 9215 | N. Alam, et al, JNP, 2001, 64, 1059



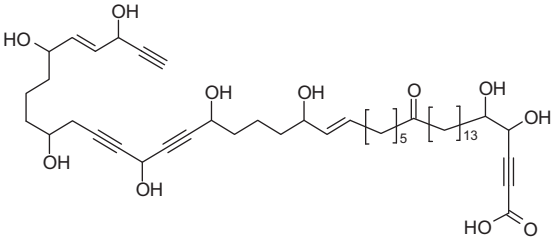
308 6-[5-(5-Octen-7-ynyl)-2-thienyl]-5-hexynoic acid

Type: Acetylenic acids and esters. $C_{18}H_{20}O_2S$ Oil. Source: Calcareous sponge *Grantia* cf. *waguensis* (Okinawa). Pharm: Cytotoxic (NBT-T2, IC_{50} > 20 µg/mL); antibacterial (*Staphylococcus aureus* IAM 12084, MIC = 64 µg/mL, control Rifampicin, MIC = 64 µg/mL; *Escherichia coli* ATCC 12600, MIC = 128 µg/mL, Rifampicin, MIC = 64 µg/mL). Ref: M. D. B. Tianero, et al, Chem. Biodiversity, 2009, 6, 1374



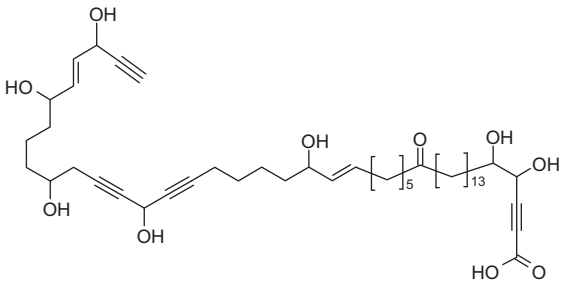
309 Osirisyne A

Type: Acetylenic acids and esters. $C_{47}H_{72}O_{11}$ Solid, mp 118–120 °C, $[\alpha]_D^{25}$ = +11.8° (*c* = 0.15, MeOH). Source: Sponge *Haliclona osiris* (Korea waters). Pharm: Cytotoxic (K562, LC_{50} = 25 µmol/L). Ref: J. Shin, et al, Tetrahedron, 1998, 54, 8711



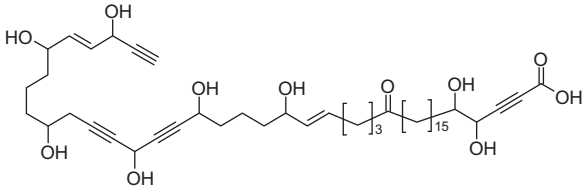
310 Osirisyne B

Type: Acetylenic acids and esters. $C_{47}H_{72}O_{10}$ Solid, mp 123–124 °C, $[\alpha]_D^{25}$ = +16.1° (*c* = 0.12, MeOH). Source: Sponge *Haliclona osiris* (Korea waters). Pharm: Cytotoxic (K562, LC_{50} = 48 µmol/L). Ref: J. Shin, et al, Tetrahedron, 1998, 54, 8711



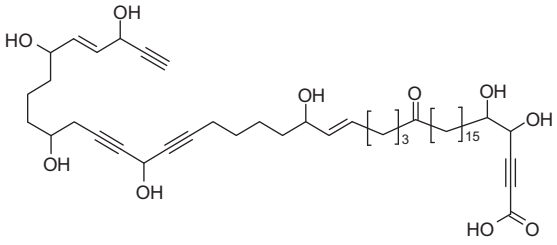
311 Osirisyne C

Type: Acetylenic acids and esters. $C_{47}H_{72}O_{11}$ Solid, mp 121–122 °C, $[\alpha]_D^{25}$ = +13.4° (*c* = 0.17, MeOH). Source: Sponge *Haliclona osiris* (Korea waters). Pharm: Cytotoxic (K562, LC_{50} = 52 µmol/L); Na/K-ATPase and reverse transcriptase (RT) inhibitor, 1 µg/10 µL. Ref: J. Shin, et al, Tetrahedron, 1998, 54, 8711



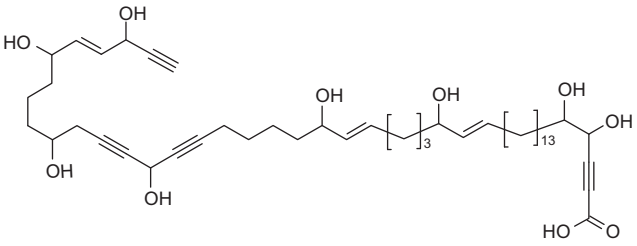
312 Osirisyne D

Type: Acetylenic acids and esters. $C_{47}H_{72}O_{10}$ Solid, mp 138–140 °C, $[\alpha]_D^{25}$ = +10.3° (*c* = 0.12, MeOH). Source: Sponge *Haliclona osiris* (Korea waters). Pharm: Cytotoxic (K562, LC_{50} = 25 µmol/L). Ref: J. Shin, et al, Tetrahedron, 1998, 54, 8711



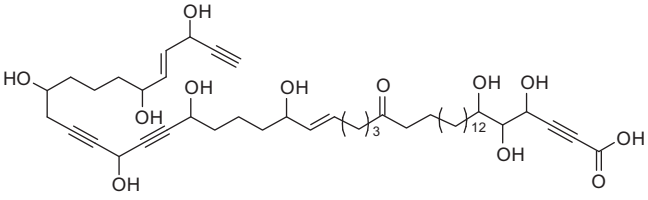
313 Osirisyne E

Type: Acetylenic acids and esters. $C_{47}H_{72}O_{10}$ Solid, mp 126–128 °C, $[\alpha]_D^{25}$ = +18.5° (*c* = 0.10, MeOH). Source: Sponge *Haliclona osiris* (Korea waters). Pharm: Cytotoxic (K562, LC_{50} = 20 μmol/L; Na/K-ATPase and reverse transcriptase (RT) inhibitor, 1 μg/10 μL). Ref: J. Shin, et al, Tetrahedron, 1998, 54, 8711



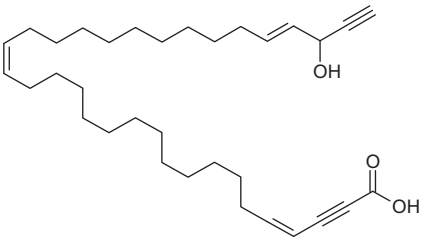
314 Osirisyne F

Type: Acetylenic acids and esters. $C_{47}H_{72}O_{12}$ Solid, mp 138–140 °C, $[\alpha]_D^{25}$ = +6.8° (*c* = 0.09, MeOH). Source: Sponge *Haliclona osiris* (Korea waters). Pharm: Cytotoxic (K562, LC_{50} = 20 μmol/L; Na/K-ATPase and reverse transcriptase (RT) inhibitor, 1 μg/10 μL). Ref: J. Shin, et al, Tetrahedron, 1998, 54, 8711



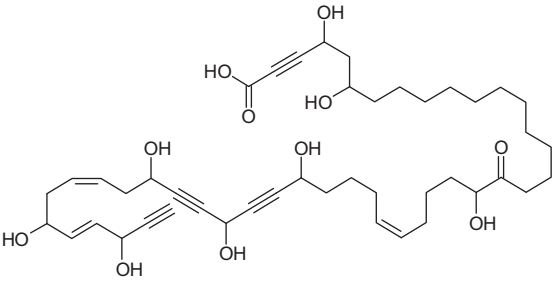
315 Pellynic acid

Type: Acetylenic acids and esters. $C_{33}H_{52}O_3$ Gum, $[\alpha]_D$ = −10.5° (*c* = 0.34, $CHCl_3$/MeOH, 1:1). Source: Sponge *Pellina triangulate* (Chuuk Atoll, Federated States of Micronesia). Pharm: IMPDH inhibitor (IC_{50} = 1.03 μmol/L). Ref: X. Fu, et al, Tetrahedron, 1997, 53, 799



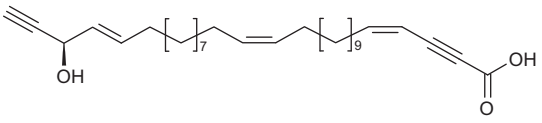
316 Petrosolic acid

Type: Acetylenic acids and esters. $C_{44}H_{64}O_{11}$ Amorph. powder, $[\alpha]_D^{22}$ = +7° (*c* = 2.9, MeOH). Source: Sponge *Petrosia* sp. (Red Sea). Pharm: HIV reverse transcriptase inhibitor. Ref: S. Isaacs, et al, Tetrahedron, 1993, 49, 10435



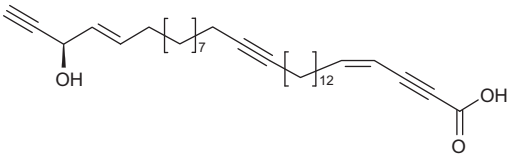
317 Petrosynic acid A

Type: Acetylenic acids and esters. $C_{31}H_{48}O_3$ Source: Sponge *Petrosia* sp. (Tutuila, American Samoa). Pharm: Cytotoxic (various HTCLs and non-proliferative hmn fibroblasts, hence no therapeutic window is available). Ref: E. J. Mejia, et al, JNP, 2013, 76, 425



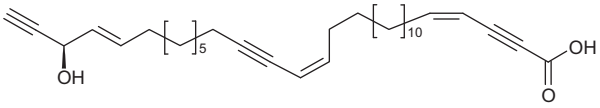
318 Petrosynic acid B

Type: Acetylenic acids and esters. $C_{33}H_{50}O_3$ Source: Sponge *Petrosia* sp. (Tutuila, American Samoa). Pharm: Cytotoxic (various HTCLs and non-proliferative hmn fibroblasts, hence no therapeutic window is available). Ref: E. J. Mejia, et al, JNP, 2013, 76, 425



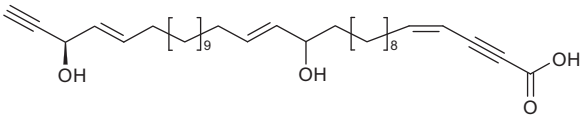
319 Petrosynic acid C

Type: Acetylenic acids and esters. $C_{33}H_{48}O_3$ Source: Sponge *Petrosia* sp. (Tutuila, American Samoa). Pharm: Cytotoxic (various HTCLs and non-proliferative hmn fibroblasts, hence no therapeutic window is available). Ref: E. J. Mejia, et al, JNP, 2013, 76, 425



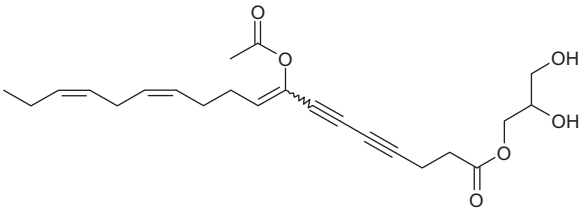
320 Petrosynic acid D

Type: Acetylenic acids and esters. $C_{33}H_{52}O_4$ Source: Sponge *Petrosia* sp. (Tutuila, American Samoa). Pharm: Cytotoxic (various HTCLs and non-proliferative hmn fibroblasts, hence no therapeutic window is available). Ref: E. J. Mejia, et al, JNP, 2013, 76, 425



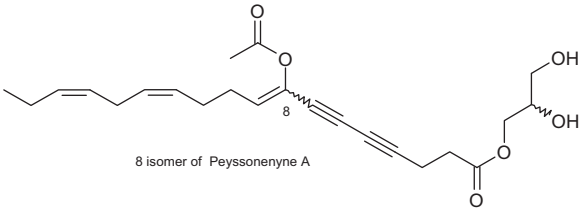
321 Peyssonenyne A

Type: Acetylenic acids and esters. $C_{23}H_{30}O_6$ Oil. Source: Red alga *Peyssonnelia calulifera*. Pharm: DNA methyltransferase inhibitor. Ref: K. L. McPhail, et al, JNP, 2004, 67, 1010



322 Peyssonenyne B

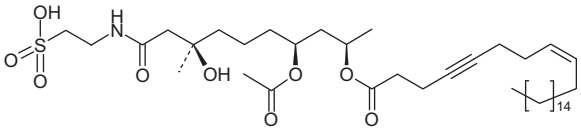
Type: Acetylenic acids and esters. $C_{23}H_{30}O_6$ Oil. Source: Red alga *Peyssonnelia calulifera*. Pharm: DNA methyltransferase inhibitor. Ref: K. L. McPhail, et al, JNP, 2004, 67, 1010



323 Taurospongin A

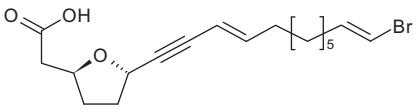
Type: Acetylenic acids and esters. $C_{40}H_{71}NO_9S$ Amorph. solid, $[\alpha]_D^{27}$ = +2.4° (*c* = 0.2, MeOH). Source: Sponge *Hippospongia* sp. (Okinawa). Pharm: DNA polymerase

β inhibitor (IC_{50} = 7.0 μmol/L); HIV reverse transcriptase inhibitor (IC_{50} = 6.5 μmol/L). Ref: H. Ishiyama, et al, JOC, 1997, 62, 3831



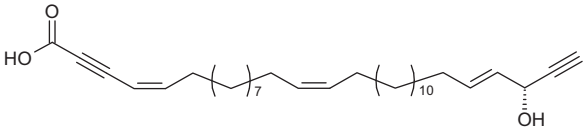
324 Testafuran A

Type: Acetylenic acids and esters. $C_{18}H_{25}BrO_3$ Source: Sponge *Xestospongia testudinaria* (Iwo I., Kagoshima, Japan). Pharm: Induces apidogenesis (stimulation of differentiation of preadipocytes to adipocytes, so may acts as leads for treatment of cardiovascular disorders). Ref: T. Akiyama, et al, Tetrahedron, 2013, 69, 6560



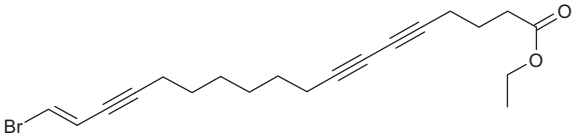
325 Triangulynic acid

Type: Acetylenic acids and esters. $C_{33}H_{52}O_3$ Oil, $[\alpha]_D$ = −12.9° (*c* = 1.2, $CHCl_3$). Source: Sponge *Pellina truangulata* (Truk, Federated States of Micronesia). Pharm: Cytotoxic (less potent than Triangulynes A–H and did not exhibit differential cytotoxicity). Ref: J. -R. Dai, et al, JNP, 1996, 59, 860



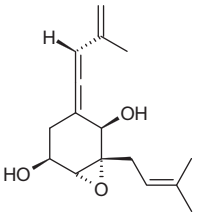
326 Xestospongic acid ethyl ester

Type: Acetylenic acids and esters. $C_{20}H_{25}BrO_2$ Pale yellow oil. Source: Sponge *Xestospongia testudinaria* (Mayotte). Pharm: Na/K-ATPase inhibitor (ID_{50} = 0.1–1.0 μmol/L); antibacterial (*Staphylococcus aureus*, IZD = 15 mm at 500 μg/disk, weak). Ref: M. L. Bourguet-Kondracki, et al, Tet. Lett., 1992, 33, 225



327 A82775C enantiomer

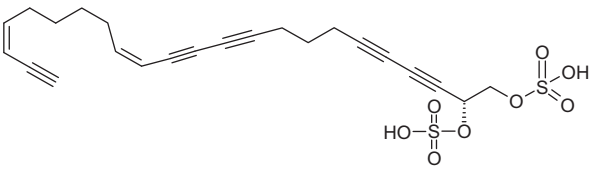
Type: Allenes. $C_{16}H_{22}O_3$ Source: Marine-derived fungus *Phaeosphaeria spartinae* from red alga *Ceramium* sp. (Germany). Pharm: HLE inhibitor. Ref: M. F. Elsebai, et al, Nat. Prod. Commun., 2010, 5, 1071



1.4 Miscellaneous acetylenes

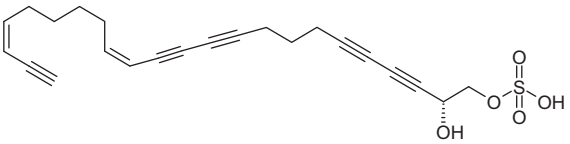
328 Callyspongin A

(2R,14Z,20Z)-14,20-Tricosadiene-3,5,10,12,22-pentayne-1,2-diol-di-*O*-sulfate Type: Miscellaneous acetylenes. $C_{23}H_{24}O_8S_2$ $[\alpha]_D^{25} = -40.3°$ (c = 1, H_2O). Source: Sponge *Callyspongia truncata*. Pharm: Inhibits fertilization of starfish *Asterias amurensis* gametes. Ref: M. Uno, et al, JNP, 1996, 59, 1146



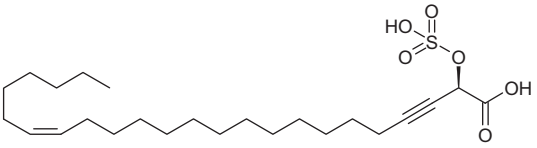
329 Callyspongin B

Type: Miscellaneous acetylenes. $C_{23}H_{24}O_5S$ $[\alpha]_D^{25} = +3.1°$ (c = 0.4, DMSO). Source: Sponge *Callyspongia truncata* (Japan waters). Pharm: Inhibits fertilization of starfish *Asterias amurensis* gametes. Ref: M. Uno, et al, JNP, 1996, 59, 1146



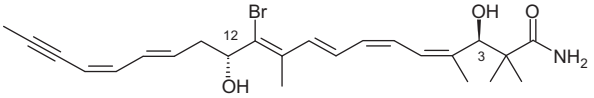
330 Callysponginol sulfate A

Type: Miscellaneous acetylenes. $C_{24}H_{42}O_6S$ Powder, $[\alpha]_D^{24} = -0.2°$ (c = 0.1, MeOH). Source: Sponge *Callyspongia truncata*. Pharm: Membrane type 1 matrix metalloproteinase inhibitor. Ref: M. Fujita, et al, JNP, 2003, 66, 569



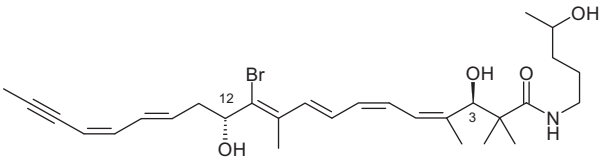
331 Clathrynamide A

11-Bromo-3,12-dihydroxy-2,2,4,10-tetramethyl-4,6,8,10,14,16-eicosahexaen-18-ynamide Type: Miscellaneous acetylenes. $C_{24}H_{32}BrNO_3$ Pale yellow oil, $[\alpha]_D^{23}$ = +149° (*c* = 0.022, MeOH). Source: Sponge *Clathria* sp. (Japan waters). Pharm: Cell division Inhibitor (fertilized starfish eggs). Ref: S. Ohta, et al, Tet. Lett., 1993, 34, 5935



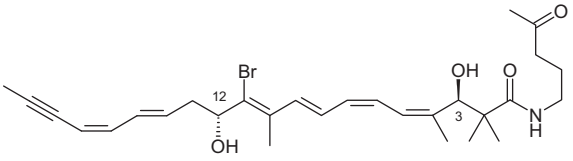
332 Clathrynamide B

Type: Miscellaneous acetylenes. $C_{30}H_{44}BrNO_4$ Gum, $[\alpha]_D^{25}$ = +76° (*c* = 0.0033, MeOH). Source: Sponge *Clathria* sp. (Japan waters). Pharm: Cell division Inhibitor (fertilized starfish eggs). Ref: S. Ohta, et al, Tet. Lett., 1993, 34, 5935



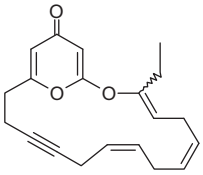
333 Clathrynamide C

Type: Miscellaneous acetylenes. $C_{30}H_{42}BrNO_4$ Gum. Source: Sponge *Clathria* sp. (Japan waters). Pharm: Cell division Inhibitor (fertilized starfish eggs). Ref: S. Ohta, et al, Tet. Lett., 1993, 34, 5935



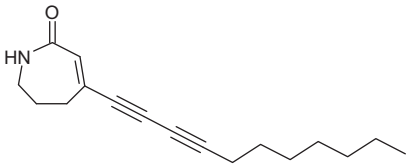
334 (12*Z*,15*Z*)-19-Ethyl-2,6-epoxy-1-oxacyclononadeca-2,5,12,15,18-pentaen-9-yn-4-one

Type: Miscellaneous acetylenes. $C_{20}H_{22}O_3$ Oil. Source: Red alga *Phaxcelocarpus labillardieri*. Pharm: Neuromuscular blocker. Ref: R. Kazlauskas, et al, Aust. J. Chem., 1982, 35, 113 | L. Murray, et al, Aust. J. Chem., 1995, 48, 1485



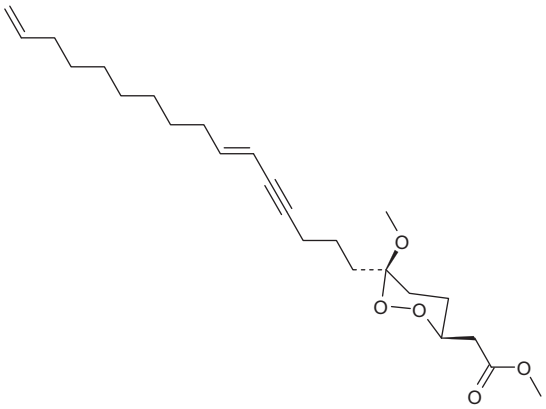
335 Montiporyne E

Type: Miscellaneous acetylenes. $C_{17}H_{23}NO$ Pale yellow gum. Source: Stony coral *Montipora* sp. (along shore of Mundo, Cheju, Korea, depth of 8 m, on Nov. 4, 1996). Pharm: Cytotoxic (hmn solid carcinoma cells *in vitro*: A549 ED_{50} > 50 μg/mL, SK-OV-3 ED_{50} > 50 μg/mL, SK-MEL-2 ED_{50} > 50 μg/mL, XF498 ED_{50} > 50 μg/mL, HCT15 ED_{50} > 50 μg/mL; control Cisplatin, ED_{50} = 0.8 μg/mL, 1.2 μg/mL, 1.5 μg/mL, 0.7 μg/mL, and 1.5 μg/mL respectively). Ref: B. H. Bae, et al, JNP, 2000, 63, 1511



336 Peroxyacarnoic acid A

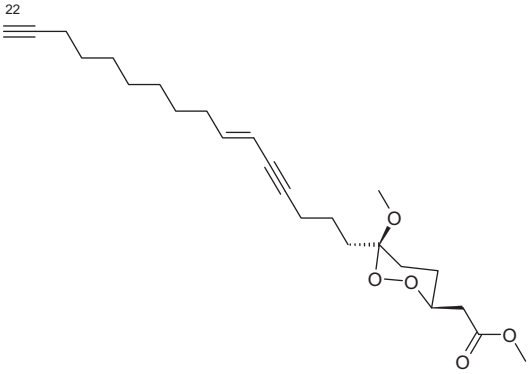
6-(6,15-Hexadecadien-4-ynyl)-6-methoxy-1,2-dioxane-3-acetic acid Type: Miscellaneous acetylenes. $C_{24}H_{38}O_5$ Oil (Me ester), $[\alpha]_D$ = −26° (*c* = 0.2, $CHCl_3$) (Me ester). Source: Sponge *Acarnus* cf. *bergquistae* (Eritrea). Pharm: Cytotoxic (P_{388}, A549, and HT29, IC_{50} = 0.1 μg/mL). Ref: T. Yosief, et al, JNP, 1998, 61, 491



337 Peroxyacarnoic acid B

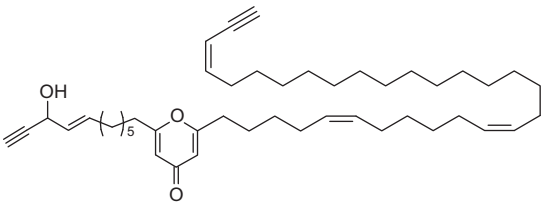
6-(6-Hexadecene-4,15-diynyl)-6-methoxy-1,2-dioxane-3-acetic acid Type: Miscellaneous acetylenes. $C_{24}H_{36}O_5$ Oil (Me ester), $[\alpha]_D$ = −26° (*c* = 0.2, $CHCl_3$) (Me ester). Source:

Sponge *Acarnus* cf. *bergquistae* (Eritrea). Pharm: Cytotoxic (P_{388}, A549, and HT29, IC_{50} = 0.1 μg/mL). Ref: T. Yosief, et al, JNP, 1998, 61, 491



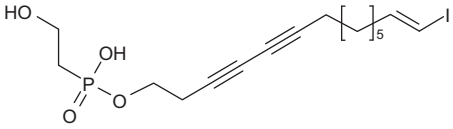
338 Petrocortyne C

Type: Miscellaneous acetylenes. $C_{46}H_{70}O_3$ $[\alpha]_D^{25}$ = +6.2° (*c* = 0.25, MeOH). Source: Sponge *Petrosia* sp. (Korea waters). Pharm: DNA replication inhibitor (simian virus SV40, 125 μmol/L, InRt = 89%, 250 μmol/L, InRt = 100%, 500 μmol/L, InRt = 100%) (Lim, 2001); cytotoxic (A549, ED_{50} > 10 μg/mL; SK-OV-3, ED_{50} = 0.7 μg/mL; SK-MEL-2, ED_{50} = 2.4 μg/mL; XF498, ED_{50} > 10 μg/mL; HCT15, ED_{50} = 7.5 μg/mL; control Cisplatin, A549, ED_{50} = 0.6 μg/mL; SK-OV-3, ED_{50} = 0.9 μg/mL; SK-MEL-2, ED_{50} = 0.7 μg/mL; XF498, ED_{50} = 0.6 μg/mL; HCT15, ED_{50} = 0.6 μg/mL) (Lim, 2001); RNA-cleaving activity; PLA_2 inhibitor; Na^+/K^+ ATPase inhibitor; toxic (lethality to brine shrimp). Ref: Y. Seo, et al, Tetrahedron, 1998, 54, 447 | J. Shin, et al, JNP, 1998, 61, 1268 | Y. J. Lim, et al, JNP, 2001, 64, 46



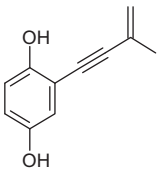
339 Phosphoiodyn A

Type: Miscellaneous acetylenes. $C_{16}H_{24}IO_4P$ Source: Sponge *Placospongia* sp. (Tong-Yeung City, South Korea). Pharm: hPPARd (hmn peroxisome proliferator-activated receptor δ) inhibitor (potent, with 200-fold selectivity over other PPARs, a potent regulator of lipid and glucose metabolism, and potentially a lead for treating type 2 diabetes or metabolic disorders). Ref: H. Kim, et al, Org. Lett., 2013, 15, 100 | H. Kim, et al, Org. Lett., 2013, 15, 5614



340 Siccayne

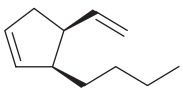
2-(3-Methyl-3-buten-1-ynyl)-1,4-benzenediol Type: Miscellaneous acetylenes. $C_{11}H_{10}O_2$ Cryst. (C_6H_6), mp 115–116 °C. Source: Marine-derived fungus (basidiomycete) *Halocyphina villosa*. Pharm: Antibacterial (gram-positive bacteria); antifungal. Ref: J. Kupka, et al, J. Antibiot., 1981, 34, 298



1.5 Monocarbocyclic Compounds

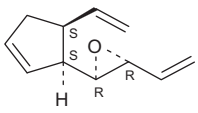
341 (+)-(3*S*,4*S*)-3-*n*-Butyl-4-vinylcyclopentene

Type: Monocarbocyclic alkanes. $C_{11}H_{18}$ $[\alpha]_D^{20}$ = –17° (*c* = 0.909, pentane). Source: Brown algae *Dictyopteris prolifera* (Japan waters) and *Chorda tomentosa*. Pharm: Sperm attractant (pheromone). Ref: I. Maier, et al, Naturwissenschaften, 1984, 71, 48 | T. Kajiwara, et al, Phytochemistry, 1997, 45, 529



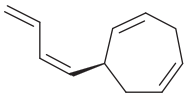
342 Caudoxirene

Type: Monocarbocyclic alkanes. $C_{11}H_{14}O$ Oil, $[\alpha]_D$ = +238.3° (CH_2Cl_2). Source: Brown alga *Perithalia caudata*. Pharm: Gamete releasing factor (threshold conc. = 30 pmol/L). Ref: D. G. Müller, et al, Biol. Chem. Hoppe-Seyler, 1988, 369, 655 | D. Wirth, et al, Helv. Chim. Acta, 1992, 75, 751



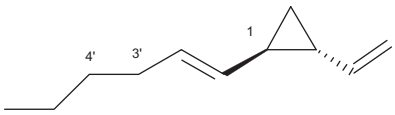
343 Desmarestene

6-(1,3-Butadienyl)-1,4-cycloheptadiene Type: Monocarbocyclic alkanes. $C_{11}H_{14}$ $[\alpha]_D^{22}$ = +168° (*c* = 1.4, CH_2Cl_2). Source: Brown algae *Desmarestia aculeata*, *Desmarestia firma* and *Desmarestia viridis*. Pharm: Attractant (gamete-releasing and gamete-attracting pheromone of *Desmarestia aculeata* and *Desmarestia Firma*). Ref: D. G. Müller, et al, Naturwissenschaften, 1982, 69, 290 | S. Pantke-Böcker, et al, Tetrahedron, 1995, 51, 7927



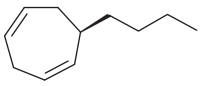
344 Dictyopterene A

Type: Monocarbocyclic alkanes. $C_{11}H_{18}$ Oil, $[\alpha]_D^{21}$ = +77° (*c* = 0.5, EtOH). Source: Brown algae *Dictyopteris* spp. and *Spermatochnus paradoxus*. Pharm: Gamete attractant. Ref: J. A. Pettus, et al, J. Chem. Soc., Chem. Commun., 1970, 1093 | R. E. Moore, et al, JOC, 1974, 39, 2201 | D. G. Miiller, et al, R. E. Moore, acc. Chem. Res., 1977, 10, 40 | J. Buckingham (executive editor), et al, Dictionary of Natural Products, Vol 8, first supplement, pp238, 1995, Champman & Hall.London | T. Itoh, et al, Bull. Chem. Soc. Jpn., 2000, 73, 409



345 (*R*)-Dictyopterene C'

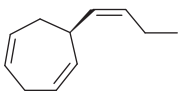
6-Butyl-1,4-cycloheptadiene; Dictyotene Type: Monocarbocyclic alkanes. $C_{11}H_{18}$ Oil, $[\alpha]_D^{25}$ = −13° (*c* = 7.32, $CHCl_3$). Source: Brown algae *Dictyota dichotoma* and *Dictyopteris* spp. Pharm: Sperm attractant. (spermatozoa of algae). Ref: J. A. Pettus, et al, JACS, 1971, 93, 3087 | R. E. Moore, et al, JOC, 1974, 39, 2201 | D. G. Müller, et al, Science, 1981, 212, 1040 | D. Wirth, et al, Helv. Chim. Acta, 1992, 75, 734 | H. Imogai, et al, Helv. Chim. Acta, 1998, 81, 1754



346 Ectocarpene

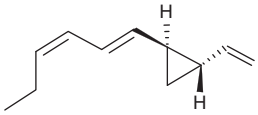
Type: Monocarbocyclic alkanes. $C_{11}H_{16}$ $[\alpha]_D^{25}$ = +75° (*c* = 0.15, CH_2Cl_2). Source: Brown algae *Ectocarpus siliculosus*, *Cutleria multifida*, *Desmarestia viridis* and *Chorda tomentosa*. Pharm: Gamete attractant (pheromone of *Ectocarpus siliculosus*).

Ref: D. G. Müller, et al, Science, 1971, 171, 815 | L. Jaenicke, et al, JACS, 1974, 96, 3324 | D. G. Müller, et al, Naturwissenschafien, 1982, 69, 290 | I. Maier, et al, Naturwissenschaften, 1984, 71, 48 | W. Bol, et al, Helr. Chim. Acta, 1984, 67, 616 | W. Boland, et al, Angew. Chem., Int. Ed. Eng., 1995, 34, 1602 | G. Pohnert, et al, Tetrahedron, 1997, 53, 13681



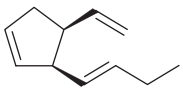
347 Hormosirene

Dictyopterene B Type: Monocarbocyclic alkanes. $C_{12}H_{18}$ Oil, $bp_{0.3mmHg}$ 62 °C, $[\alpha]_D^{24}$ = −43° (*c* = 10.1, $CHCl_3$). Source: Brown algae *Ectocarpus siliculosus* and *Hormosira banksii*. Pharm: Sperm attractant. Ref: D. G. Müller, et al, Naturwissenschaften, 1985, 72, 97 | G. Pohnert, et al, Tetrahedron, 1997, 53, 13681



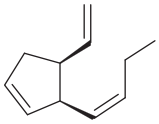
348 (+)-(*E*)-(3*S*,4*S*)-Multifidene

Type: Monocarbocyclic alkanes. $C_{11}H_{16}$ $[\alpha]_D^{20}$ = −246° (*c* = 1.76, $CHCl_3$). Source: Brown algae (various). Pharm: Pheromone (constituent of various brown algal pheromones). Ref: W. Wirth, et al, Helv. Chim. Acta, 1992, 75, 734



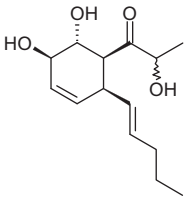
349 (+)-(*Z*)-(3*S*,4*S*)-Multifidene

Type: Monocarbocyclic alkanes. $C_{11}H_{16}$ $[\alpha]_D^{20}$ = +261° (*c* = 0.82, CCl_4); $[\alpha]_D^{23.5}$ = +28° (*c* = 0.0036, $CHCl_3$). Source: Brown algae *Cutleria multifida*, *Chorda tomentosa* and various brown algae. Pharm: Pheromone (constituent of various brown algal pheromones). Ref: L. Jaenicke, et al, JACS, 1974, 96, 3324 | L. Jaenicke, et al, Angew. Chem., Int. Ed. Eng., 1982, 21, 643 | I. Maier, et al, Naturwissenschaften, 1984, 71, 48 | J. E. Burks, Jr., et al, JOC, 1984, 49, 4663 | W. Bol, et al, Helr. Chim. Acta, 1984, 67, 616 | P. Kramp, et al, J. Chem. Soc., Chem. Commun., 1993, 551 | S. Hemamalini, et al, Helv. Chim. Acta, 1995, 78, 447



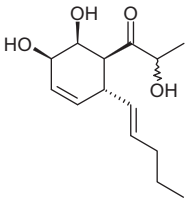
350 Nigrosporanene A

Type: Monocarbocyclic alkanes. $C_{14}H_{22}O_4$ Source: Marine-derived fungus *Nigrospora* sp. PSU-F11 from gorgonian sea fan *Annella* sp. (Thailand). Pharm: Cytotoxic (MCF7, IC_{50} = 9.37 μg/mL; Vero, IC_{50} = 5.42 μg/mL); antioxidant (DPPH scavenger, IC_{50} = 0.34 mg/mL, control 2,6-Di-tert-butyl-4-methylphenol, IC_{50} = 0.02 mg/mL). Ref: V. Rukachaisirikul, et al, Arch. Pharmacal Res., 2010, 33, 375



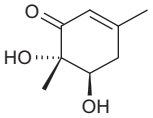
351 Nigrosporanene B

Type: Monocarbocyclic alkanes. $C_{14}H_{22}O_4$ Source: Marine-derived fungus *Nigrospora* sp. PSU-F11 from gorgonian sea fan *Annella* sp. (Thailand). Pharm: Antioxidant (DPPH scavenger, IC_{50} = 0.24 mg/mL, control 2,6-Di-tert-butyl-4-methylphenol, IC_{50} = 0.02 mg/mL). Ref: V. Rukachaisirikul, et al, Arch. Pharmacal Res., 2010, 33, 375



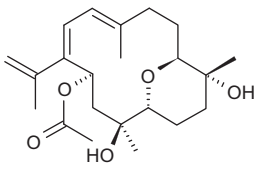
352 Leptosphaerone C

Type: Monocarbocyclic alcohols. $C_8H_{12}O_3$ Oil, $[\alpha]_D^{25}$ = −0.8° (*c* = 0.3, MeOH). Source: Mangrove-derived fungus *Penicillium* sp. JP-1 from mangrove *Aegiceras corniculatum* (China waters). Pharm: Cytotoxic (MTT assay, A549, IC_{50} = 1.45 μmol/L). Ref: Z. J. Lin, et al, Phytochemistry, 2008, 69, 1273



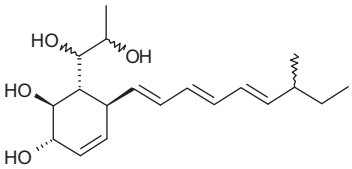
353 Lobophytone T

Type: Monocarbocyclic alcohols. $C_{22}H_{34}O_5$ Colorless oil, $[\alpha]_D^{25}$ = +36.5° (*c* = 0.27, $CHCl_3$). Source: Soft coral *Lobophytum pauciflorum* (Sanya Bay, Hainan, China). Pharm: LPS-induced NO production inhibitor (mouse peritoneal macrophages, IC_{50} > 10 μmol/L, weak); cytotoxic (mouse peritoneal macrophages, IC_{50} > 10 μmol/L, weak); antibacterial (*Staphylococcus aureus*, *Staphylococcus pneumoniae* and *Saccharomyces cerevisiae*, 20 μg/mL, InRt = 90%; *Pseudomonas aeruginosa* and *Escherichia coli*, weak); antifungal (*Candida albicans* and *Aspergillus fumigatus*, weak). Ref: P. Yan, et al, Mar. Drugs, 2010, 8, 2837



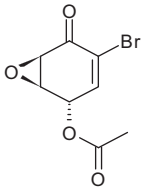
354 Spartinol C

6-(1,2-Dihydroxypropyl)-5-(7-methyl-1,3,5-nonatrienyl)-3-cyclohexene-1,2-diol Type: Monocarbocyclic alcohols. $C_{19}H_{30}O_4$ Yellow-brown powder, $[\alpha]_D^{24}$ = −55° (*c* = 0.28, Me_2CO). Source: Marine-derived fungus *Phaeosphaeria spartinae* 777 (endophyte) from red alga *Ceramium* sp. (North Sea, Büsum, Germany). Pharm: HLE inhibitor (IC_{50} = 17.7 μg/mL, weak). Ref: M. F. Elsebai, et al, Nat. Prod. Commun., 2009, 4, 1463



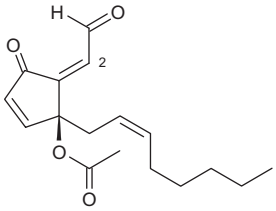
355 4-Acetoxy-2-bromo-5,6-epoxy-2-cyclohexen-1-one

Type: Monocarbocyclic aldehydes and ketones. $C_8H_7BrO_4$ Needles (EtOAc/hexane), mp 93–94 °C, $[\alpha]_D^{19}$ = +265°, (*c* = 0.12, $CHCl_3$). Source: Hemichordate acorn worm *Ptychodera* sp. Pharm: Antineoplastic. Ref: T. Higa, et al, Tetrahedron, 1987, 43, 1063 | J. M. Corgiat, et al, Comp. Biochem. Physiol., B: Comp. Biochem., 1993, 106, 83



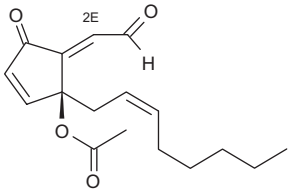
356 Clavirin I

Type: Monocarbocyclic aldehydes and ketones. $C_{17}H_{22}O_4$ Oil, $[\alpha]_D^{25}$ = −17.1° (*c* = 0.48, $CHCl_3$). Source: Soft coral *Clavularia viridis* (Okinawa). Pharm: Cell growth Inhibitor (HeLa-S3 cells). Ref: M. Iwashima, et al, Tet. Lett., 1999, 40, 6455



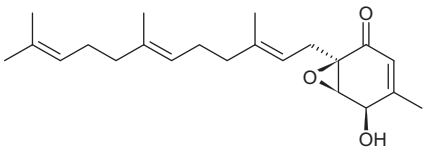
357 Clavirin II

Type: Monocarbocyclic aldehydes and ketones. $C_{17}H_{22}O_4$ Oil, $[\alpha]_D^{25}$ = −33.7° (*c* = 0.43, $CHCl_3$). Source: Soft coral *Clavularia viridis* (Okinawa). Pharm: Cell growth Inhibitor (HeLa-S3 cells). Ref: M. Iwashima, et al, Tet. Lett., 1999, 40, 6455



358 22-Deacetoxyanuthone A

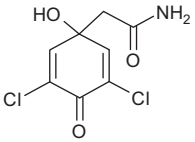
7-Deacetoxyanuthone A Type: Monocarbocyclic aldehydes and ketones. $C_{22}H_{32}O_3$ Yellow oil, $[\alpha]_D$ = +3.1° (*c* = 0.5, $CHCl_3$). Source: Marine-derived fungus *Penicillium* sp. Pharm: Cytotoxic (*in vitro*, a panel of 5 hmn tumor cell lines, moderate); antibacterial (*in vitro*, methicillin-resistant and multidrug-resistant *Staphylococcus aureus*, MIC = 50 μg/mL). Ref: X. Li, et al, JNP, 2003, 66, 1499 | M. Saleem, et al, NPR, 2007, 24, 1142 (rev)



359 Dichloroverongiaquinol

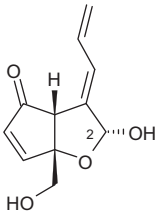
Type: Monocarbocyclic aldehydes and ketones. $C_8H_7Cl_2NO_3$ Cryst., mp 162–163 °C. Source: Sponges *Aplysina cavernicola* and *Aplysina fistularis* (Mediterranean Sea).

Pharm: Antibacterial (gram-positive and gram-negative bacteria). Ref: Y. M. Goo, et al, Arch. Pharmacal Res., 1985, 8, 21



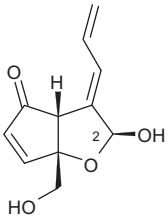
360 Didemnenone A

Type: Monocarbocyclic aldehydes and ketones. $C_{11}H_{12}O_4$ Source: Ascidians *Tridemnum cyanophorum* and *Didemnum voeltzkowi*. Pharm: Antifungal (pathogenic marine fungus *Lagenidium callinectes*); antibacterial (variety of microorganisms). Ref: N. Lindquist, et al, JACS, 1988, 110, 1308 | C. J. Forsyth, et al, JACS, 1988, 110, 5911



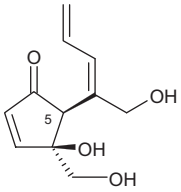
361 Didemnenone B

Type: Monocarbocyclic aldehydes and ketones. $C_{11}H_{12}O_4$ Source: Ascidian *Tridemnum cyanophorum*. Pharm: Antifungal (pathogenic marine fungus *Lagenidium callinectes*); antibacterial (variety of microorganisms). Ref: N. Lindquist, et al, JACS, 1988, 110, 1308 | C. J. Forsyth, et al, JACS, 1988, 110, 5911



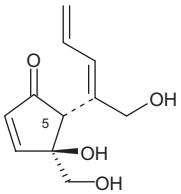
362 Didemnenone C

4-Hydroxy-4-(hydroxymethyl)-5-[1-(hydroxymethyl)-1,3-butadienyl]-2-cyclopenten-1-one Type: Monocarbocyclic aldehydes and ketones. $C_{11}H_{14}O_4$ $[\alpha]_D = -25.3°$ (c = 0.08, MeOH). Source: Ascidian *Didemnum voeltzkowi*. Pharm: Cytotoxic (L_{1210}, IC_{50} = 5.6 μg/mL). Ref: N. Lindquist, et al, JACS, 1988, 110, 1308 | T. Sugahara, et al, CPB, 1995, 43, 147



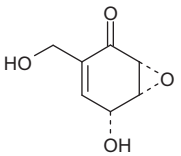
363 Didemnenone D

Type: Monocarbocyclic aldehydes and ketones. $C_{11}H_{14}O_4$ $[\alpha]_D$ = −12.6° (*c* = 0.15, MeOH). Source: Ascidian *Didemnum voeltzkowi*. Pharm: Cytotoxic (L_{1210}, IC_{50} = 5.6 µg/mL). Ref: N. Lindquist, et al, JACS, 1988, 110, 1308 | T. Sugahara, et al, CPB, 1995, 43, 147



364 (+)-Epoxydon

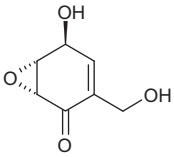
5-Hydroxy-3-(hydroxymethyl)-7-oxabicyclo[4.1.0]hept-3-en-2-one Type: Monocarbocyclic aldehydes and ketones. $C_7H_8O_4$ Cryst. (Me_2CO/Et_2O), mp 40–45 °C, $[\alpha]_D^{22}$ = +93° (*c* = 0.29, MeOH). Source: Marine-derived fungi *Nigrospora* sp. PSU-F5 from gorgonian sea fan *Annella* sp. (Thailand) and *Aspergillus parasiticus*, terrestrial fungi *Phoma* spp. Pharm: Antibacterial (*Staphylococcus aureus* ATCC 25923, MIC = 128 µg/mL, MRSA, MIC = 128 µg/mL); antioxidant (free radicals scavenger: DPPH radical, IC_{50} = 57.0 µg/mL, $ONOO^-$ radical, IC_{50} = 52.6 µg/mL, $O_2^{\bullet-}$ radical, $NO^\bullet$ radical); antibacterial. Ref: A. Closse, et al, Helv. Chim. Acta, 1966, 49, 204 | B. W. Son, et al, JNP, 2002, 65, 794 | G. Mehta, et al, Tet. Lett., 2005, 46, 3373 | M. Saleem, et al, NPR, 2007, 24, 1142 (rev) | K. Trisuwan, et al, JNP, 2008, 71, 1323



365 (+)-*epi*-Epoxydon

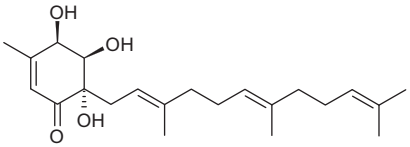
Type: Monocarbocyclic aldehydes and ketones. $C_7H_8O_4$ Cryst., $[\alpha]_D^{24}$ = +194° (*c* = 1.57, EtOH), $[\alpha]_D^{25}$ = +261° (*c* = 1, MeOH), Source: Marine-derived fungus *Penicillium* sp. OUPS-79 from green alga *Enteromorpha intestinalis*. Pharm: Cytotoxic (P_{388},

ED_{50} = 0.2 μg/mL). Ref: T. Nagata, et al, Biosci., Biotechnol., Biochem., 1992, 56, 810 | C. Iwamoto, et al, Tetrahedron, 1999, 55, 14353



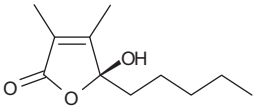
366 2,3-Hydro-7-deacetoxyyanuthone A

Type: Monocarbocyclic aldehydes and ketones. $C_{22}H_{34}O_4$ Oil, $[\alpha]_D$ = −2.1° (*c* = 0.3, $CHCl_3$). Source: Marine-derived fungus *Penicillium* sp. Pharm: Cytotoxic (*in vitro,* a panel of 5 hmn tumor cell lines, moderate). Ref: X. Li, et al, JNP, 2003, 66, 1499 | M. Saleem, et al, NPR, 2007, 24, 1142 (rev)



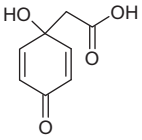
367 5*β*-Hydroxy-3,4-dimethyl-5-pentyl-2(5*H*)-furanon

Type: Monocarbocyclic aldehydes and ketones. $C_{11}H_{18}O_3$ Source: Soft coral *Sinularia* sp. (Hainan, China). Pharm: Antifoulant (*in vitro, Balanus amphitrite* larvae, EC_{50} = 3.84 μg/mL, LC_{50} > 50 μg/mL, LC_{50}/EC_{50} > 13.02). Ref: H. Shi, et al, Mar. Drugs, 2012, 10, 1331



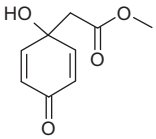
368 1-Hydroxy-4-oxo-2,5-cyclohexadiene-1-acetic acid

Type: Monocarbocyclic aldehydes and ketones. $C_8H_8O_4$ Cryst. (EtOAc), mp 103–104 °C. Source: Red alga *Delesseria sanguinea*. Pharm: Larvicide; antileishmanial. Ref: G. M. Sharma, et al, J. Antibiot., Ser. A, 1967, 20, 200



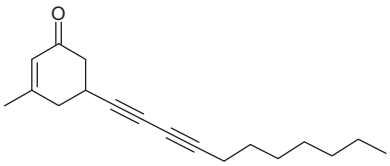
369 Jacaranone

Type: Monocarbocyclic aldehydes and ketones. $C_9H_{10}O_4$ Cryst. ($CHCl_3$/hexane), mp 80–81 °C, mp 76–77 °C. Source: Red alga *Delesseria sanguinea*. Pharm: Cytotoxic; metamorphosis inducer (scallop *Pecten* sp. larva). Ref: J. C. Yvin, et al, JNP, 1985, 48, 814



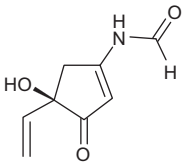
370 Montiporyne F

Type: Monocarbocyclic aldehydes and ketones. $C_{18}H_{24}O$ Pale yellow gum. Source: Stony coral *Montipora* sp. (along shore of Mundo, Cheju, Korea, depth of 8 m, on Nov. 4, 1996). Pharm: Cytotoxic (hmn solid carcinoma cells *in vitro*: A549 ED_{50} > 50 μg/mL, SK-OV-3 ED_{50} = 29.2 μg/mL, SK-MEL-2 ED_{50} = 36.7 μg/mL, XF498 ED_{50} = +31.3 μg/mL, HCT15 ED_{50} = 45.1 μg/mL; control Cisplatin, ED_{50} = 0.6 μg/mL, 0.9 μg/mL, 0.7 μg/mL, 0.6 μg/mL, and 0.6 μg/mL respectively). Ref: B. H. Bae, et al, JNP, 2000, 63, 1511



371 Myrothenone A

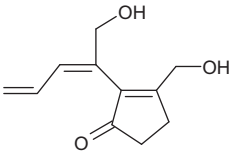
Type: Monocarbocyclic aldehydes and ketones. $C_8H_9NO_3$ Oil, $[\alpha]_D^{20}$ = +61° (*c* = 0.6, MeOH). Source: Marine-derived fungus *Myrothecium* sp. Pharm: Tyrosinase inhibitor (IC_{50} = 6.6 μmol/L, control kojic acid, IC_{50} = 7.7 μmol/L). Ref: M. Saleem, et al, NPR, 2007, 24, 1142 (rev)



372 Nakienone A

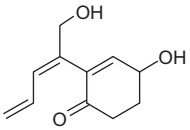
Type: Monocarbocyclic aldehydes and ketones. $C_{11}H_{14}O_3$ Source: Cyanobacterium *Synechocystis* sp. from stony coral *Acropora* sp. (Okinawa). Pharm: Cytotoxic (KB,

LD_{50} = 5 μg/mL, HCT116, LD_{50} = 20 μg/mL). Ref: D. G. Nagle,et al, Tet. Lett., 1995, 36, 849 | M. Pour,et al, Tet. Lett., 1997, 38, 525



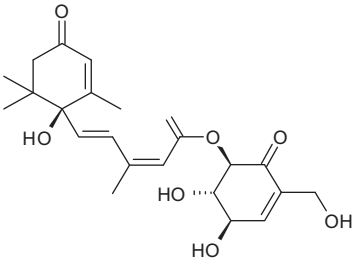
373 Nakienone B

Type: Monocarbocyclic aldehydes and ketones. $C_{11}H_{14}O_3$ $[\alpha]_D^{25}$ = +123° (*c* = 0.1, MeOH) (di-Ac). Source: Cyanobacterium *Synechocystis* sp. from stony coral *Acropora* sp. (Okinawa). Pharm: Cytotoxic (non-selectively to DNA repair defective cell lines: topoisomerase I sensitive Chinese hamster ovary line EM9, topoisomerase II sensitive Chinese hamster ovary line XRS-6, DNA cross-linking agent sensitive UV20, and DNA repair competent BR1 cell lines, LD_{50} ≈ 20 μg/mL). Ref: D. G. Nagle, et al, Tet. Lett., 1995, 36, 849 | M. Pour, et al, Tet. Lett., 1996, 37, 4679



374 Nigrospoxydon A

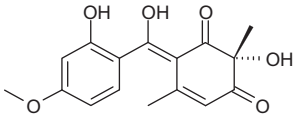
Type: Monocarbocyclic aldehydes and ketones. $C_{22}H_{28}O_2$ Amorph. solid, mp 173.6–173.8 °C, $[\alpha]_D^{29}$ = +10° (*c* = 0.06, EtOH). Source: Marine-derived fungus *Nigrospora* sp. PSU-F5 from gorgonian sea fan *Annella* sp. (Thailand). Pharm: Antibacterial (*Staphylococcus aureus* ATCC 25923, MIC = 64 μg/mL, MRSA, MIC > 128 μg/mL). Ref: K. Trisuwan, et al, JNP, 2008, 71, 1323



375 Penicillenone

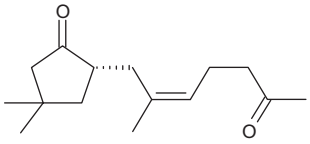
Type: Monocarbocyclic aldehydes and ketones. $C_{16}H_{16}O_6$ Amorph. red solid, $[\alpha]_D^{25}$ = +24° (*c* = 0.1, MeOH). Source: Mangrove-derived fungus *Penicillium* sp. JP-1

from mangrove *Aegiceras corniculatum* (China waters). Pharm: Cytotoxic (MTT assay, P_{388}, IC_{50} = 1.38 μmol/L). Ref: Z. J. Lin, et al, Phytochemistry, 2008, 69, 1273



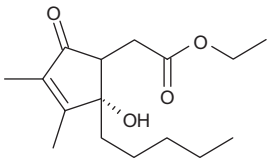
376 Sinularone A (2012)

Type: Monocarbocyclic aldehydes and ketones. $C_{15}H_{24}O_2$ Colorless oil, $[\alpha]_D^{23}$ = +7.26° (*c* = 0.27, MeOH). Source: Soft coral *Sinularia* sp. (Hainan, China). Pharm: Antifoulant (*in vitro, Balanus amphitrite* larvae, EC_{50} = 13.86 μg/mL, LC_{50} > 50 μg/mL, LC_{50}/EC_{50} > 3.61). Ref: H. Shi, et al, Mar. Drugs, 2012, 10, 1331



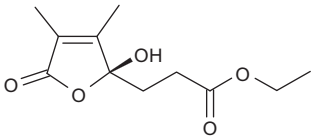
377 Sinularone B (2012)

Type: Monocarbocyclic aldehydes and ketones. $C_{16}H_{26}O_4$ Colorless oil, $[\alpha]_D^{23}$ = +0.60° (*c* = 0.43, MeOH), probably artifact. Source: Soft coral *Sinularia* sp. (Hainan, China). Pharm: Antifoulant (*in vitro, Balanus amphitrite* larvae, EC_{50} = 23.50 μg/mL, LC_{50} > 50 μg/mL, LC_{50}/EC_{50} > 2.13). Ref: H. Shi, et al, Mar. Drugs, 2012, 10, 1331



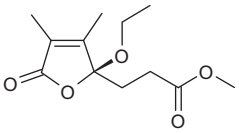
378 Sinularone G (2012)

Type: Monocarbocyclic aldehydes and ketones. $C_{11}H_{16}O_5$ Colorless oil, $[\alpha]_D^{23}$ = +4.03° (*c* = 0.10, MeOH), probably artifact. Source: Soft coral *Sinularia* sp. (Hainan, China). Pharm: Antifoulant (*in vitro, Balanus amphitrite* larvae, EC_{50} = 18.65 μg/mL, LC_{50} > 50 μg/mL, LC_{50}/EC_{50} > 2.69). Ref: H. Shi, et al, Mar. Drugs, 2012, 10, 1331



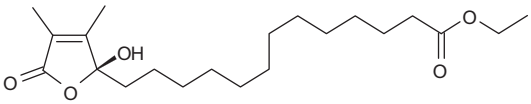
379 Sinularone H (2012)

Type: Monocarbocyclic aldehydes and ketones. $C_{12}H_{18}O_5$ Colorless oil, $[\alpha]_D^{23}$ = +3.70° (*c* = 0.12, MeOH), probably artifact. Source: Soft coral *Sinularia* sp. (Hainan, China). Pharm: Antifoulant (*in vitro, Balanus amphitrite* larvae, EC_{50} = 21.39 μg/mL, LC_{50} > 50 μg/mL, LC_{50}/EC_{50} > 2.34). Ref: H. Shi, et al, Mar. Drugs, 2012, 10, 1331



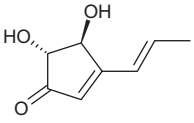
380 Sinularone I (2012)

Type: Monocarbocyclic aldehydes and ketones. $C_{21}H_{36}O_5$ Colorless oil, $[\alpha]_D^{23}$ = +5.44° (*c* = 0.18, MeOH), probably artifact. Source: Soft coral *Sinularia* sp. (Hainan, China). Pharm: Antifoulant (*in vitro, Balanus amphitrite* larvae, EC_{50} = 12.58 μg/mL, LC_{50} > 50 μg/mL, LC_{50}/EC_{50} > 3.97). Ref: H. Shi, et al, Mar. Drugs, 2012, 10, 1331



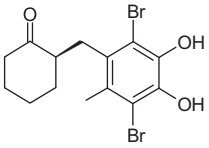
381 (+)-Terrein

4,5-Dihydroxy-3-(1-propenyl)-2-cyclopenten-1-one Type: Monocarbocyclic aldehydes and ketones. $C_8H_{10}O_3$ mp 123 °C, $[\alpha]_{Hg}^{20}$ = +185° (*c* = 1, H_2O). Source: Marine-derived fungus *Aspergillus terreus* PT06-2 (Grown in High Salt Medium 10% salinity), marine-derived fungus *Aspergillus terreus*, terrestrial fungus (*Aspergillus terreus*). Pharm: Antibacterial (*Enterobacter aerogenes, Staphylococcus aureus* and *Pseudomonas aeruginosa,* all MICs > 100 μmol/L); antifungal (*Candida albicans,* MIC > 100 μmol/L, control Ketoconazole, MIC = 5 μmol/L); phytotoxin. Ref: Y. Wang, et al, Mar. Drugs, 2011, 9, 1368



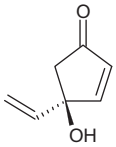
382 (2*R*)-2-(2,3,6-Tribromo-4,5-dihydroxybenzyl)cyclohexanone

Type: Monocarbocyclic aldehydes and ketones. $C_{13}H_{13}Br_3O_3$ White amorph. powder, $[\alpha]_D^{23}$ = +7.27° (*c* = 0.11, MeOH). Source: Red alga *Symphyocladia latiuscula* (Korea waters). Pharm: Cytotoxic (IC_{50} = 8.5 μg/mL); antioxidant (DPPH scavenger). Ref: J. S. Choi, et al, JNP, 2000, 63, 1705



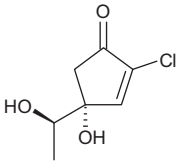
383 Trichodenone A

4-Hydroxy-4-vinyl-2-cyclopenten-1-one Type: Monocarbocyclic aldehydes and ketones. $C_7H_8O_2$ Oil, $[\alpha]_D^{28}$ = +56.3° (*c* = 0.7, CH_2Cl_2). Source: Marine-derived fungus *Trichoderma harzianum* OUPS-N115 from sponge *Halichondria okadai*. Pharm: Cytotoxic (P_{388}, ED_{50} = 0.21 μg/mL, modest). Ref: T. Amagata, et al, J. Antibiot., 1998, 51, 33 | Y. Usami, et al, Synlett, 1999, 723 | Y. Usami, et al, Tetrahedron: Asymmetry, 2000, 11, 3711



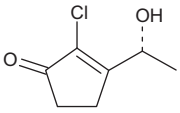
384 Trichodenone B

2-Chloro-4-hydroxy-4-(1-hydroxyethyl)-2-cyclopenten-1-one Type: Monocarbocyclic aldehydes and ketones. $C_7H_9ClO_3$ Oil, $[\alpha]_D^{28}$ = −30.4° (*c* = 0.34, $CHCl_3$). Source: Marine-derived fungus *Trichoderma harzianum* OUPS-N115 from sponge *Halichondria okadai*. Pharm: Cytotoxic (P_{388}, ED_{50} = 1.21 μg/mL, modest). Ref: T. Amagata, et al, J. Antibiot., 1998, 51, 33 | Y. Usami, et al, Synlett, 1999, 723 | Y. Usami, et al, Tetrahedron: Asymmetry, 2000, 11, 3711



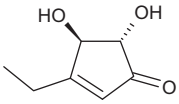
385 (*R*)-Trichodenone C

Type: Monocarbocyclic aldehydes and ketones. $C_7H_9ClO_2$ Oil, $[\alpha]_D^{28}$ = −10.8° (*c* = 1.12, $CHCl_3$). Source: Marine-derived fungus *Trichoderma harzianum* OUPS-N115 from sponge *Halichondria okadai*. Pharm: Cytotoxic (P_{388}, ED_{50} = 1.45 μg/mL, modest). Ref: T. Amagata, et al, J. Antibiot., 1998, 51, 33 | Y. Usami, et al, Synlett, 1999, 723 | Y. Usami, et al, Tetrahedron: Asymmetry, 2000, 11, 3711



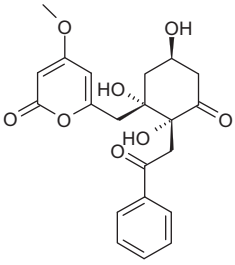
386 Trichoderone

(–)-(4*R**,5*S**)-3-Ethyl-4,5-dihydroxycyclopent-2-enone Type: Monocarbocyclic aldehydes and ketones. $C_7H_{10}O_3$ Aamorph. solid, $[\alpha]_D^{20} = -4.84°$ (*c* = 0.93, $CHCl_3$). Source: Deep-sea fungus *Trichoderma* sp. (deep-sea sediment of South China Sea). Pharm: Cytotoxic (A549, IC_{50} = 50.2 µmol/L, control Cisplatin, IC_{50} = 17.5 µmol/L; NCI-H460, IC_{50} = 164 µmol/L, Cisplatin, IC_{50} = 20.4 µmol/L; MCF7, IC_{50} = 63.5 µmol/L, Cisplatin, IC_{50} = 85.1 µmol/L; MDA-MB-435, IC_{50} = 617 µmol/L, Cisplatin, IC_{50} = 67 µmol/L; HeLa, IC_{50} = 85.6 µmol/L; DU145, IC_{50} = 43.2 µmol/L; HLF, IC_{50} > 7020 µmol/L, Cisplatin, IC_{50} = 15.4 µmol/L; probably inhibits growth of cancer cell lines by inducing apoptosis) (You, 2010); cytotoxic (A549 and NCI-H460, InRt > 80%, SI > 100); inhibitor of HIV protease; inhibitor of Taq DNA polymerase. Ref: H. Takami, et al, FEMS Microbiol. Lett., 1997, 152, 279 | J. L. You, et al, J. Ind. Microbiol. Biotechnol., 2010, 37, 245



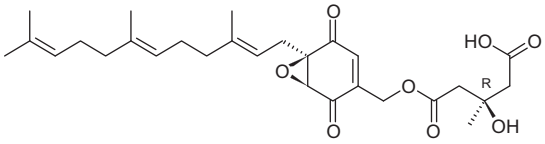
387 Wailupemycin A

Type: Monocarbocyclic aldehydes and ketones. $C_{21}H_{22}O_8$ $[\alpha]_D$ = +30.0° (*c* = 0.4, MeOH). Source: Marine-derived streptomycete *Streptomyces* sp. BD-26T (shallow water sediment, Hawaii). Pharm: Antibacterial (gram-negative bacterium *Escherichia coli*). Ref: N. Sitachitta, et al, Tetrahedron, 1996, 52, 8073



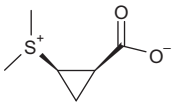
388 Yanuthone D

Type: Monocarbocyclic aldehydes and ketones. $C_{28}H_{38}O_8$ Source: Marine-derived fungus *Aspergillus niger* F97S11 from ascidian *Aplidium* sp. Pharm: Antibacterial (MRSA, most active compared to MSSA; VREF). Ref: T. S. Bugni, et al, JOC, 2000, 65, 7195 | T. S. Bugni, et al, NPR, 2004, 21, 143 (rev)



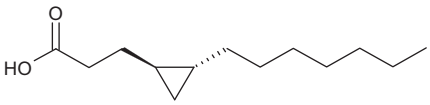
389 Gonyauline

2-(Dimethylsulfonio)cyclopropanecarboxylate Type: Monocarbocyclic carboxylic acids and lactones. $C_6H_{10}O_2S$ $[\alpha]_D$ = +214° (*c* = 0.83, MeOH). Source: Dinoflagellate *Gonyaulax polyedra*. Pharm: Shortens period of circadian clock for host organism. Ref: T. Roenneberg, et al, Experientia, 1990, 47, 103 | H. Nakamura, JCS Perkin I, 1990, 3219 | H. Nakamura, et al, Tet. Lett., 1992, 33, 2821



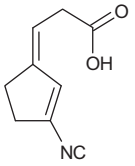
390 2-Heptyl-1-cyclopropanepropanoic acid

Lyngbyoic acid Type: Monocarbocyclic carboxylic acids and lactones. $C_{13}H_{24}O_2$ Source: Cyanobacteria *Lyngbya* cf. *majuscula* (major metabolite, India watersn River Lagoon, Florida, USA). Pharm: Antibacterial (quorum sensing, IC_{50} = 100 μmol/L, MMOA: inhibits homoserine lactone receptor LasR); disruptor of quorum sensing pathways mediated by acylhomoserine lactones (AHLs) in gram-negative bacteria. Ref: J. C. Kwan, et al, Mol. Biosyst. 2011, 7, 1205



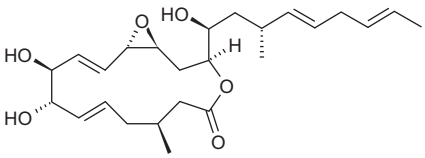
391 Homothallin

3-(3-Isocyanocyclopenten-1-ylidene)propanoic acid Type: Monocarbocyclic carboxylic acids and lactones. $C_9H_9NO_2$ Unstable prisms. Source: Marine-derived fungi *Trichoderma hamatum* and *Trichoderma harzianum*, gorgonian *Plexaura homomalla*. Pharm: Antibacterial; inhibits hmn organisms which digest cellulose. Ref: D. Brewer, et al, Can. J. Microbiol., 1982, 28, 1252 | R. J. Parry, et al, Tet. Lett., 1982, 23, 1435 | P. J. Scheuer, et al, Science (Washington, D.C.), 1990, 248, 173 | C. H. Lee, et al, J. Antibiot., 1997, 50, 469 | S. Yamamoto, et al, Biochem. Biophys. Res. Commun., 2005, 330, 622



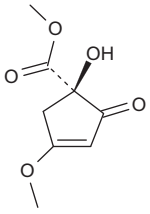
392 Iriomoteolide 3a

Type: Monocarbocyclic carboxylic acids and lactones. $C_{25}H_{38}O_6$ Amorph. solid, $[\alpha]_D^{22}$ = +24° (*c* = 0.18, $CHCl_3$). Source: Dinoflagellate *Amphidinium* sp. HYA024 Pharm: Cytotoxic (DG-75 cell, IC_{50} = 0.08 μg/mL; Raji cell, IC_{50} = 0.05 μg/mL). Ref: K. Oguchi, et al, JOC, 2008, 73, 1567



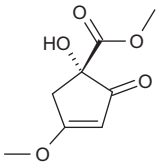
393 (*R*)-Kjellmanianone

Type: Monocarbocyclic carboxylic acids and lactones. $C_8H_{10}O_5$ Cryst., mp 157–158 °C, $[\alpha]_D$ = −133° (*c* = 1.15, $CHCl_3$). Source: Brown algae *Sargassum kjellmanianum* and *Sargassum tortile*. Pharm: Antibacterial (gram-positive bacteria *Escherichia coli* and *Bacillus subtilis*); cytotoxic (P_{388}, ED_{50} = 15.3 μg/mL, control Etoposide, ED_{50} = 0.24 μg/mL). Ref: M. Nakayama, et al, Chem. Lett., 1980, 1243 | Numata, et al, CPB, 1991, 39, 2129 | J. Zhu, et al, Tetrahedron, 1994, 50, 10597



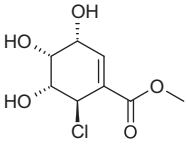
394 (+)-Kjellmanianone

Type: Monocarbocyclic carboxylic acids and lactones. $C_8H_{10}O_5$ Cryst., mp 139–139.5 °C, $[\alpha]_D$ = +1.6° (*c* = 1.8, $CHCl_3$). Source: Brown alga *Sargassum kjellmanianum*. Pharm: Antibacterial (gram-positive bacteria, *Escherichia coli* and *Bacillus subtilis*). Ref: M. Nakayama, et al, Chem. Lett., 1980, 1243 | B. -C. Chen, et al, Tetrahedron, 1991, 47, 173



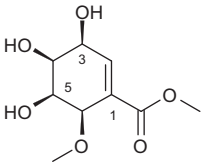
395 Pericosine A

Type: Monocarbocyclic carboxylic acids and lactones. $C_8H_{11}ClO_5$ Plates (MeOH), mp 95–97 °C, $[\alpha]_D$ = +57° (*c* = 3.2, EtOH), $[\alpha]_D^{22}$ = +104° (*c* = 0.04, EtOH), Source: Marine-derived fungus *Periconia byssoides* OUPS-N133 from sea hare *Aplysia kurodai* (gastrointestinal tract). Pharm: Cytotoxic (disease-oriented panel of 38 hmn cancer cell lines (Japanese HCC panel), MG-MID (mean value of log GI_{50}/M over all cell lines tested) = −4.82, Delta (difference in log GI_{50}/M value of the most sensitive cell and the MG-MID value) = 2.45, Range (difference in log GI_{50}/M value of the most sensitive cell and the least sensitive cell) = 2.66); cytotoxic (P_{388}, growth inhibition, ED_{50} = 0.1 μg/mL); cytotoxic (selective for HBC5, log GI_{50}/M = −5.22; SNB75, log GI_{50}//M = −7.27), antineoplastic (*in vivo* P_{388}); EGFR protein kinase inhibitor; topoisomerase II inhibitor. Ref: A. Numata, et al, Tet. Lett., 1997, 38, 8215 | Y. Usami, et al, JOC, 2007, 72, 6127 | T. Yamada, et al, Org. Biomol. Chem., 2007, 5, 3979



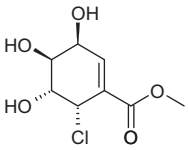
396 Pericosine B

Type: Monocarbocyclic carboxylic acids and lactones. $C_9H_{14}O_6$ Oil, $[\alpha]_D$ = +22.3° (*c* = 0.82, EtOH). Source: Marine-derived fungus *Periconia byssoides* OUPS-N133 from sea hare *Aplysia kurodai* (gastrointestinal tract). Pharm: Cytotoxic (P_{388}, cell growth inhibitor, ED_{50} = 4.0 μg/mL). Ref: A. Numata, et al, Tet. Lett., 1997, 38, 8215 | T. J. Donohoe, et al, Tet. Lett., 1998, 39, 8755 | T. Yamada, et al, Org. Biomol. Chem., 2007, 5, 3979



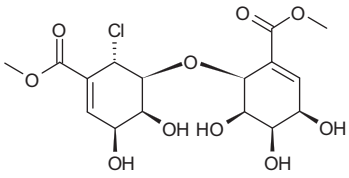
397 Pericosine D

Type: Monocarbocyclic carboxylic acids and lactones. $C_8H_{11}ClO_5$ Oil, $[\alpha]_D^{25}$ = −273.6° (*c* = 0.01, EtOH). Source: Marine-derived fungus *Periconia byssoides* OUPS-N133 from sea hare *Aplysia kurodai*. Pharm: Cytotoxic (P_{388}, cell growth inhibitor, ED_{50} = 3.0 μg/mL). Ref: T. Yamada, et al, Org. Biomol. Chem., 2007, 5, 3979



398 Pericosine E

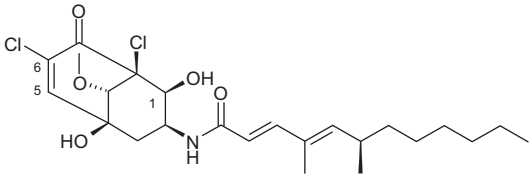
Type: Monocarbocyclic carboxylic acids and lactones. $C_{16}H_{21}ClO_{10}$ Plates (MeOH), mp 213–215 °C, $[\alpha]_D$ = −31.5° (*c* = 0.43, EtOH). Source: Marine-derived fungus *Periconia byssoides* OUPS-N133 from sea hare *Aplysia kurodai*. Pharm: Cytotoxic (disease-oriented panel of 38 hmn cancer cell lines (Japanese HCC panel), MG-MID (mean value of log GI_{50}/M over all cell lines tested.) = −4.01, Delta (difference in log GI_{50}/M value of the most sensitive cell and the MG-MID value) = 0.16, Range (difference in log GI_{50}/M value of the most sensitive cell and the least sensitive cell) = 0.17). Ref: T. Yamada, et al, Org. Biomol. Chem., 2007, 5, 3979



1.6 Polycyclic Aldehydes and Ketones

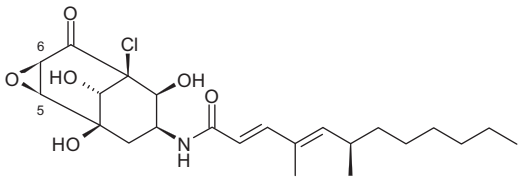
399 Gymnastatin F

Type: Polycyclic aldehydes and ketones. $C_{24}H_{35}Cl_2NO_5$ Powder, $[\alpha]_D^{26}$ = −77.7° (*c* = 0.16, $CHCl_3$). Source: Marine-derived fungus *Gymnascella dankaliensis* from sponge *Halichondria japonica* (off Osaka, Japan). Pharm: Cytotoxic (P_{388}, pronounced). Ref: T. Amagata, et al, JNP, 2006, 69, 1384



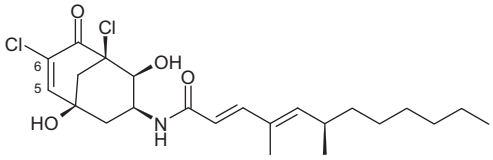
400 Gymnastatin G

Type: Polycyclic aldehydes and ketones. $C_{23}H_{34}ClNO_6$ Powder, $[\alpha]_D = -53.1°$ (c = 1.5, $CHCl_3$). Source: Marine-derived fungus *Gymnascella dankaliensis* from sponge *Halichondria japonica* (off Osaka, Japan). Pharm: Cytotoxic (P_{388}, pronounced). Ref: T. Amagata, et al, JNP, 2006, 69, 1384



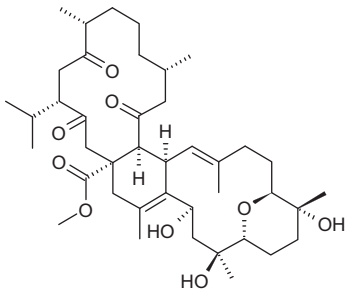
401 Gymnastatin R

Type: Polycyclic aldehydes and ketones. $C_{23}H_{33}Cl_2NO_4$ Powder, mp 79–82 °C, $[\alpha]_D^{23} = -104.5°$ (c = 0.48, EtOH). Source: Marine-derived fungus *Gymnascella dankaliensis* from sponge *Halichondria japonica* (off Osaka, Japan). Pharm: Cytotoxic (P_{388}, cell growth inhibitor). Ref: T. Amagata, et al, JNP, 2008, 71, 340



402 Lobophytone A

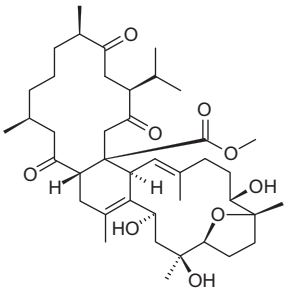
Type: Polycyclic aldehydes and ketones. $C_{41}H_{64}O_9$ Source: Soft coral *Lobophytum pauciflorum* (Sanya Bay, Hainan, China). Pharm: Anti-6-OHDA cytotoxic effect (SH-SY5Y neuroblastoma cells). Ref: P. Yan, et al, Org. Lett., 2010, 12, 2484



403 Lobophytone O

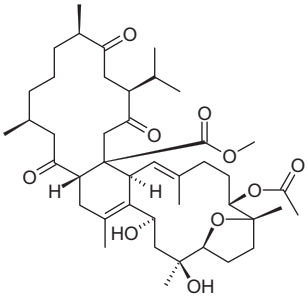
Type: Polycyclic aldehydes and ketones. $C_{41}H_{64}O_9$ Amorph. powder, $[\alpha]_D^{25}$ = +140.4° (c = 1.25, $CHCl_3$). Source: Soft coral *Lobophytum pauciflorum* (Sanya Bay, Hainan, China). Pharm: LPS-induced NO production inhibitor (mouse peritoneal

macrophages, IC_{50} > 10 μmol/L, weak); cytotoxic (mouse peritoneal macrophages, IC_{50} > 10 μmol/L, weak); antibacterial (*Pseudomonas aeruginosa* and *Escherichia coli*, weak); antifungal (*Candida albicans* and *Aspergillus fumigatus*, weak). Ref: P. Yan, et al, Mar. Drugs, 2010, 8, 2837



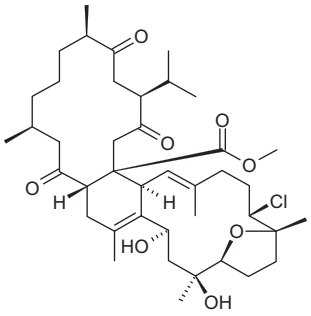
404 Lobophytone P

Type: Polycyclic aldehydes and ketones. $C_{43}H_{66}O_{10}$ Amorph. powder, $[\alpha]_D^{25}$ = +133.7° (*c* = 0.33, $CHCl_3$). Source: Soft coral *Lobophytum pauciflorum* (Sanya Bay, Hainan, China). Pharm: LPS-induced NO production inhibitor (mouse peritoneal macrophages, IC_{50} > 10 μmol/L, weak); cytotoxic (mouse peritoneal macrophages, IC_{50} > 10 μmol/L, weak); antibacterial (*Pseudomonas aeruginosa* and *Escherichia coli*, weak); antifungal (*Candida albicans* and *Aspergillus fumigatus*, weak). Ref: P. Yan, et al, Mar. Drugs, 2010, 8, 2837



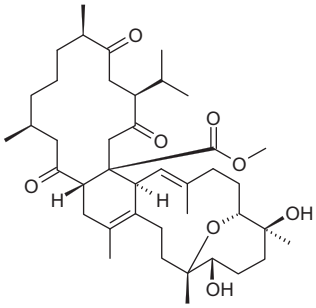
405 Lobophytone Q

Type: Polycyclic aldehydes and ketones. $C_{41}H_{63}ClO_8$ Amorph. powder, $[\alpha]_D^{25}$ = +121.2° (*c* = 1.30, $CHCl_3$). Source: Soft coral *Lobophytum pauciflorum* (Sanya Bay, Hainan, China). Pharm: LPS-induced NO production inhibitor (mouse peritoneal macrophages, IC_{50} = 2.8 μmol/L); cytotoxic (mouse peritoneal macrophages, IC_{50} > 10 μmol/L, weak); antibacterial (*Staphylococcus aureus, Staphylococcus pneumoniae* and *Saccharomyces cerevisiae,* 20 μg/mL, InRt = 90%; *Pseudomonas aeruginosa* and *Escherichia coli*, weak); antifungal (*Candida albicans* and *Aspergillus fumigatus*, weak). Ref: P. Yan, et al, Mar. Drugs, 2010, 8, 2837



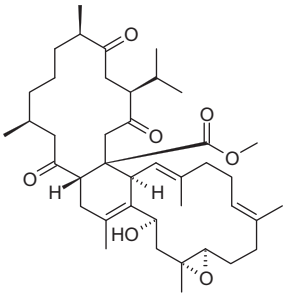
406 Lobophytone R

Type: Polycyclic aldehydes and ketones. $C_{41}H_{64}O_8$ Amorph. powder, $[\alpha]_D^{25}$ = +151.1° (*c* = 0.51, $CHCl_3$). Source: Soft coral *Lobophytum pauciflorum* (Sanya Bay, Hainan, China). Pharm: LPS-induced NO production inhibitor (mouse peritoneal macrophages, IC_{50} > 10 μmol/L, weak); cytotoxic (mouse peritoneal macrophages, IC_{50} > 10 μmol/L, weak); antibacterial (*Pseudomonas aeruginosa* and *Escherichia coli*, weak); antifungal (*Candida albicans* and *Aspergillus fumigatus*, weak). Ref: P. Yan, et al, Mar. Drugs, 2010, 8, 2837



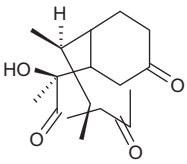
407 Lobophytone S

Type: Polycyclic aldehydes and ketones. $C_{41}H_{62}O_7$ Amorph. powder, $[\alpha]_D^{25}$ = +101.1° (*c* = 0.60, $CHCl_3$). Source: Soft coral *Lobophytum pauciflorum* (Sanya Bay, Hainan, China). Pharm: LPS-induced NO production inhibitor (mouse peritoneal macrophages, IC_{50} > 10 μmol/L, weak); cytotoxic (mouse peritoneal macrophages, IC_{50} > 10 μmol/L, weak); antibacterial (*Pseudomonas aeruginosa* and *Escherichia coli*, weak); antifungal (*Candida albicans* and *Aspergillus fumigatus*, weak). Ref: P. Yan, et al, Mar. Drugs, 2010, 8, 2837



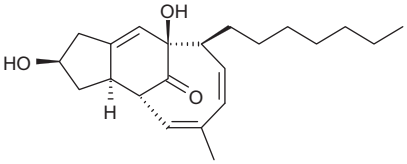
408 Penicillone A

Type: Polycyclic aldehydes and ketones. $C_{14}H_{18}O_4$ Plates (Me_2CO), mp 200–201 °C, $[\alpha]_D^{20}$ = +169.7° (*c* = 0.2, MeOH). Source: Marine-derived fungus *Penicillium terrestre*. Pharm: Cytotoxic (P_{388} and A549, weak). Ref: W. -H. Liu, et al, Tet. Lett., 2005, 46, 4993 | M. Saleem, et al, NPR, 2007, 24, 1142 (rev)



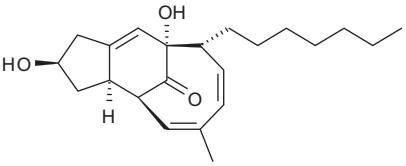
409 Penostatin F

Type: Polycyclic aldehydes and ketones. $C_{22}H_{32}O_3$ $[\alpha]_D$ = −12.5° (*c* = 0.24, $CHCl_3$). Source: Marine-derived fungus *Penicillium* sp. strain OUPS-79 from green alga *Enteromorpha intestinalis*. Pharm: Cytotoxic (P_{388}, ED_{50} = 1.4 μg/mL). Ref: C. lwamoto, et al, JCS Perkin I, 1998, 449



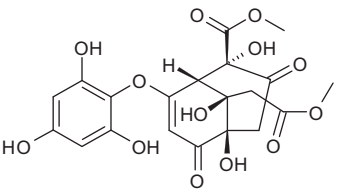
410 Penostatin I

Type: Polycyclic aldehydes and ketones. $C_{22}H_{32}O_3$ $[\alpha]_D$ = +13.3° (*c* = 0.30, $CHCl_3$). Source: Marine-derived fungus *Penicillium* sp. strain OUPS-79 from green alga *Enteromorpha intestinalis*. Pharm: Cytotoxic (P_{388}, ED_{50} = 1.2 μg/mL). Ref: C. lwamoto, et al, JCS Perkin I, 1998, 449



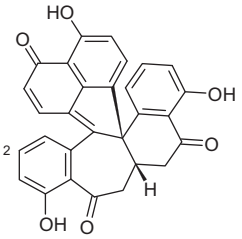
411 Sargussumol

Type: Polycyclic aldehydes and ketones. $C_{20}H_{20}O_{13}$ Source: Brown alga *Sargassum micracanthum* (Wando County, Jeonnam province, S. Korea). Pharm: Antioxidant (radical scavenger). Ref: C. Kim, et al, J. Antibiot., 2012, 65, 87



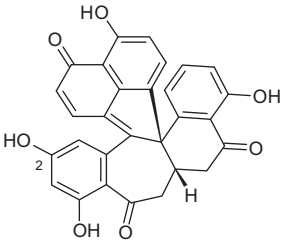
412 Sporothrin A

Dalesconol A Type: Polycyclic aldehydes and ketones. $C_{29}H_{18}O_6$ Red needles, mp 283–284 °C. Source: Mangrove-derived fungi *Sporothrix* sp. 4335 and *Daldinia eschscholzii* IFB-TL01. Pharm: AChE inhibitor (IC_{50} = 1.05 μmol/L); cytotoxic (HepG2, IC_{50} = 50 μg/mL); immunosuppressant. Ref: Y. L. Zhang, et al, Angew. Chem., Int. Ed., 2008, 47, 5823 | L. Wen, et al, JOC, 2009, 74, 1093 | M. E. Rateb, et al, NPR, 2011, 28, 290 (rev)



413 Sporothrin B

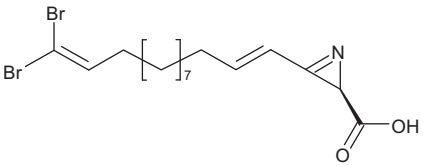
Dalesconol B Type: Polycyclic aldehydes and ketones. $C_{29}H_{18}O_7$ Red needles, mp 280–282 °C. Source: Mangrove-derived fungi *Sporothrix* sp. 4335 and *Daldinia eschscholzii* IFB-TL01. Pharm: Cytotoxic (HepG2, IC_{50} = 20 μg/mL). Ref: Y. L. Zhang, et al, Angew. Chem., Int. Ed., 2008, 47, 5823 | L. Wen, et al, JOC, 2009, 74, 1093 | M. E. Rateb,et al, NPR, 2011, 28, 290 (rev)



1.7 Heteroalicyclic

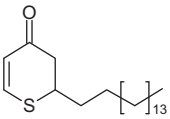
414 Motualevic acid F

Type: Simple heteroalicyclics (one N). $C_{16}H_{23}Br_2NO_2$ Pale yellow solid, $[\alpha]_D$ = −74° (*c* = 0.1, MeOH). Source: Lithistid sponge *Siliquariaspongia* sp. (Motualevu Reef, Fiji). Pharm: Antibacterial (microbroth dilution assay, *Staphylococcus aureus*, MIC_{50} = (1.2 ± 0.3)μg/mL; MRSA, MIC_{50} = (3.9 ± 1.0)μg/mL); antibacterial (agar disk diffusion assay, *Staphylococcus aureus*, 2 μg/mL, IZD = 8–11 mm; MRSA, 5 μg/mL, IZD = 8–11 mm). Ref: J. L. Keffer, et al, Org. Lett., 2009, 11, 1087 | P. L. Winder, et al, Mar. Drugs, 2011, 9, 2644 (rev)



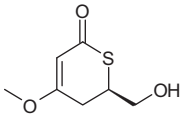
415 Dihydrothiopyranone

2-Hexadecyl-2,3-dihydro-4*H*-thiopyran-4-one Type: Simple heteroalicyclics (one S). $C_{21}H_{38}OS$ $[\alpha]_D$ = −14.6° (*c* = 0.9, MeOH). Source: Sponge *Reniochalina* sp. (Chuuk State, Federated States of Micronesia). Pharm: Cytotoxic (ACHN, NCI-H23, MDA-MB-231, HCT15, NUGC-3, and PC3, all GI_{50}s > 10 μg/mL, control Adriamycin, GI_{50} = (0.198–0.708) μg/mL). Ref: H. -S. Lee, et al, Lipids, 2009, 44, 71



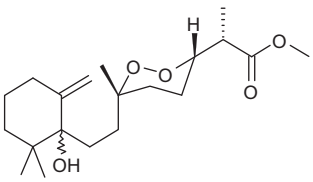
416 Thiopalmyrone

Type: Simple heteroalicyclics (one S). $C_7H_{10}O_3S$ Source: Cyanobacteria *Oscillatoria* cf. and *Hormoscilla* spp. (assemblage, North beach, Palmyra Atoll). Pharm: Molluscacidal (snail *Biomphalaria glabrata*, potent). Ref: A. R. Pereira, et al, JNP, 2011, 74, 1175



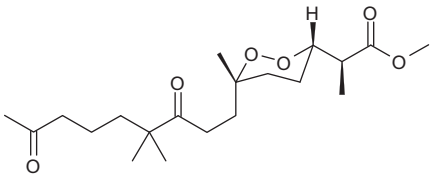
417 Aikupikoxide B

(3*S*,4*S*,7*S*,10ξ)-10,15-Cyclo-4,7-epoxy-10-hydroxy-1-nor-11(18)-phyten-2-oic acid methyl ester Type: Simple heteroalicyclics (two O). $C_{20}H_{34}O_5$ Oil, $[\alpha]_D$ = +76° (*c* = 0.5, CH_2Cl_2). Source: Sponge *Diacarnus erythraenus* (Red Sea). Pharm: Cytotoxic (P_{388} ATCC: CCL46, A549 ATCC: CCL8 and HT29 ATCC: HTB38, IC_{50} > 1 μg/mL). Ref: D. T. A. Youssef, et al, JNP, 2001, 64, 1332



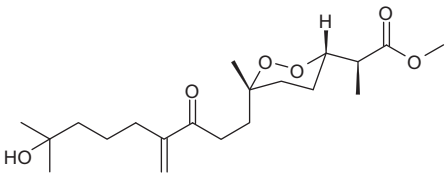
418 Aikupikoxide C

Type: Simple heteroalicyclics (two O). $C_{20}H_{34}O_6$ Oil, $[\alpha]_D$ = +88° (*c* = 2.0, CH_2Cl_2). Source: Sponge *Diacarnus erythraenus* (Red Sea). Pharm: Cytotoxic (P_{388} ATCC: CCL46, A549 ATCC: CCL8 and HT29 ATCC: HTB38, IC_{50} > 1 μg/mL). Ref: D. T. A. Youssef, et al, JNP, 2001, 64, 1332



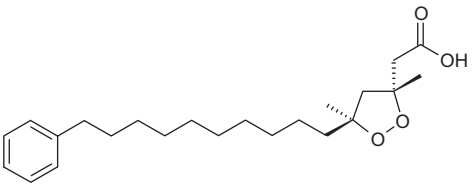
419 Aikupikoxide D

Type: Simple heteroalicyclics (two O). $C_{20}H_{34}O_6$ Oil, $[\alpha]_D$ = +69° (*c* = 0.45, CH_2Cl_2). Source: Sponge *Diacarnus erythraenus* (Red Sea). Pharm: Cytotoxic (P_{388} ATCC: CCL46, A549 ATCC: CCL8 and HT29 ATCC: HTB38, IC_{50} > 1 μg/mL). Ref: D. T. A. Youssef, et al, JNP, 2001, 64, 1332



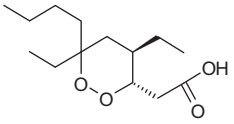
420 Andavadoic acid

3,5-Dimethyl-5-(10-phenyldecyl)-1,2-dioxolane-3-acetic acid Type: Simple heteroalicyclics (two O). $C_{23}H_{36}O_4$ Oil, $[\alpha]_D$ = +34.7° (*c* = 0.004, $CHCl_3$). Source: Sponge *Plakortis* aff. *simplex*. Pharm: Cytotoxic (13 tumor cells, GI_{50} values in submicromolar range). Ref: A. Rudi, et al, JNP, 2003, 66, 682



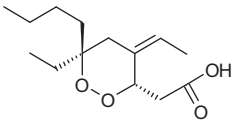
421 6-Butyl-4,6-diethyl-1,2-dioxan-3-acetic acid

Type: Simple heteroalicyclics (two O). $C_{14}H_{26}O_4$ Gum, $[\alpha]_D$ = +48° (*c* = 0.5, $CHCl_3$). Source: Sponge *Callyspongia* sp. (Papua New Guinea). Pharm: Cytotoxic (P_{388}, ED_{50} = 2.6 μg/mL). Ref: S. I. Toth, et al, JNP, 1994, 57, 123



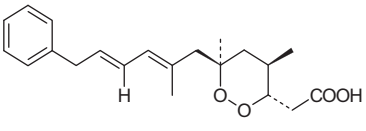
422 6-Butyl-6-ethyl-4-ethylidene-1,2-dioxan-3-acetic acid

Type: Simple heteroalicyclics (two O). $C_{14}H_{24}O_4$ Faint yellow gum, $[\alpha]_D$ = +50° (*c* = 0.7, $CHCl_3$). Source: Sponge *Callyspongia* sp. (Papua New Guinea). Pharm: Cytotoxic (P_{388}, ED_{50} = 5.5 μg/mL). Ref: S. I. Toth, et al, JNP, 1994, 57, 123



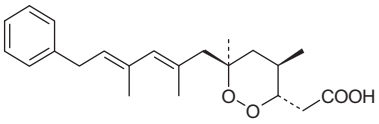
423 Capucinoic acid A

Type: Simple heteroalicyclics (two O). $C_{21}H_{28}O_4$ Source: Sponge *Plakinastrella onkodes* (Dominica). Pharm: Cytotoxic (B16F1, IC_{50} = 12 μg/mL). Ref: D. E. Williams, et al, JNP, 2001, 64, 281



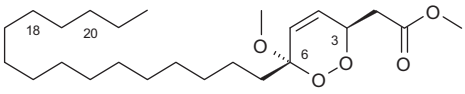
424 Capucinoic acid B

Type: Simple heteroalicyclics (two O). $C_{22}H_{30}O_4$ Oil (Me ester), $[\alpha]_D^{25}$ = −48.7° (*c* = 0.37, CH_2Cl_2) (Me ester). Source: Sponges *Plakinastrella onkodes* and *Plakortis* sp. Pharm: Cytotoxic. Ref: D. E. Williams, et al, JNP, 2001, 64, 281



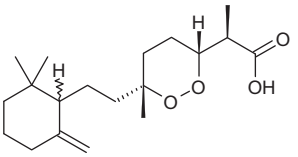
425 Chondrillin

(3*R*,6*S*)-Methyl 6-hexadecyl-3,6-dihydro-6-methoxy-1,2-dioxin-3-acetate Type: Simple heteroalicyclics (two O). $C_{24}H_{44}O_5$ Pale yellow oil which forms a waxy solid, mp 30 °C, $[\alpha]_D^{20}$ = +144°. Source: Lithistid sponges *Chondrilla* sp. (Great Barrier Reef) and *Chondrilla* spp., sponges *Plakortis simplex* (Taiwan waters), *Plakortis lita, Plakortis* spp. and *Plakinastrella onkodes* (Gulf of Mexico). Pharm: Cytotoxic (KB16, IC_{50} = 0.74 μg/mL; Colon250, inactive); cytotoxic (A549, IC_{50} = 0.3 μg/mL; P_{388}, IC_{50} = 2.4 μg/mL); cell adhesion inducer (EL-4, IC_{50} = 0.4 μg/mL); PKC isoenzymesmodest antagonist (α, IC_{50} = 36 μg/mL; *β*I, IC_{50} = 49 μg/mL; *β*II, IC_{50} = 49 μg/mL; *δ*, IC_{50} = 23 μg/mL; *ε*, IC_{50} = 30 μg/mL; *y*, IC_{50} > 150 μg/mL; *ζ*, IC_{50} = 43 μg/mL). Ref: R. J. Wells, Tet. Lett., 1976, 2637 | S. Sakemi, et al, Tetrahedron, 1987, 43, 263 | T. Murayama, et al, Experientia, 1989, 45, 898 | F. S. De Guzman, et al, JNP, 1990, 53, 926 | B. B. Snider, et al, JACS, 1992, 114, 1790 | P. A. Horton, et al, JNP, 1994, 57, 1374 | P.H.Dussault, et al, JACS, 1997, 119, 3824 | P. H. Dussault, et al, JOC, 1999, 64, 1789 | Y. C. Shen, et al, JNP, 2001, 64, 324



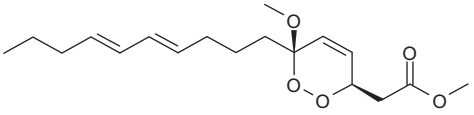
426 10,15-Cyclo-4,7-epidioxy-1-nor-11(18)-phyten-2-oic acid

Type: Simple heteroalicyclics (two O). $C_{19}H_{32}O_4$ Clear colorless oil, $[\alpha]_D$ = +45° (*c* = 0.46, $CHCl_3$). Source: Sponge *Diacarnus* cf. *spinopoculum* (Solomon Is. and Papua New Guinea). Pharm: Differential cytotoxicity (softagar assay, 50 μg/disk, zone differential of 250 units is expected for "selectiveactivity", C38-L_{1210}, 70 zone differential units; M17-L_{1210}, 100 zone differential units); cytotoxic (HL60, GI_{50} = 1.63 μmol/L; Molt4, GI_{50} = 2.16 μmol/L; A549/ATCC, GI_{50} = 3.05 μmol/L; KM12, GI_{50} = 4.82 μmol/L; LOX-IMVI, GI_{50} = 0.25 μmol/L; IGROV1, GI_{50} = 0.63 μmol/L; 786-0, GI_{50} = 0.94 μmol/L; BT-549, GI_{50} = 1.05 μmol/L). Ref: S, Sperry, et al, JNP, 1998, 61, 241



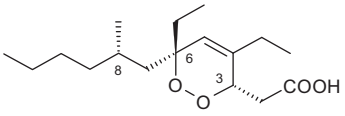
427 2-Demethyl-4-peroxyplakoenoic acid A_1 methyl ester

Type: Simple heteroalicyclics (two O). $C_{18}H_{28}O_5$ $[\alpha]_D^{23}$ = +52° (*c* = 0.25, $CHCl_3$). Source: Sponge *Plakortis* aff. *simplex* (South Africa). Pharm: Cytotoxic (P_{388}, IC_{50} < 0.1 µg/mL). Ref: A. Rudi, et al, JNP, 1993, 56, 2178



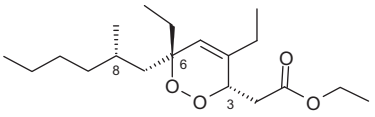
428 4,6-Diethyl-3,6-dihydro-6-(2-methylhexyl)-1,2-dioxin-3-acetic acid

Type: Simple heteroalicyclics (two O). $C_{17}H_{30}O_4$ Oil, $[\alpha]_D$ = −19.8° (*c* = 0.89, $CHCl_3$). Source: Sponge *Plakortis* aff. *angulospiculatus* (Palau, Oceania, Oceania). Pharm: Antileishmanial (effects on proliferation of *Leishmania mexicana* promastigotes, at 1 µg/mL, caused lysis of cell membrane after 24h, LD_{50} = 0.29 µg/mL; control 1 sponge metabolite Ilimaquinone, LD_{50} = 5.6 µg/mL, control 2 Ketoconozole, LD_{50} = 0.06 µg/mL). Ref: R. S. Compagnone, et al, Tetrahedron, 1998, 54, 3057



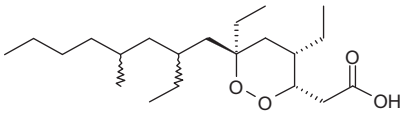
429 (3*S*,6*R*,8*S*)-4,6-Diethyl-3,6-dihydro-6-(2-methylhexyl)-1,2-dioxin-3-acetic acid ethyl ester

Type: Simple heteroalicyclics (two O). $C_{19}H_{34}O_4$ Amorph. solid, $[\alpha]_D^{20}$ = −25° (*c* = 0.1, hexane). Source: Sponge *Plakorti*s sp. (Amirantes Is., Seychelles, Indian Ocean). Pharm: Toxic (brine shrimp *Artemia* sp. larvae, LD_{50} > 100 µg/mL). Ref: J. C. Braekman, et al, JNP, 1998, 61, 1038



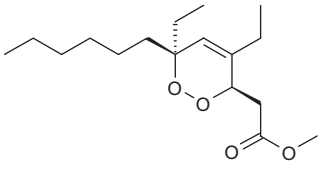
430 4,6-Diethyl-6-(2-ethyl-4-methyloctyl)-1,2-dioxane-3-acetic acid

3,6-Epidioxy-4,6,8-triethyl-10-methyltetradecanoic acid Type: Simple heteroalicyclics (two O). $C_{21}H_{40}O_4$ Amorph. solid, $[\alpha]_D^{20}$ = −168° (*c* = 1.5, CH_2Cl_2). Source: Sponge *Plakortis* sp. (Amirantes Is., Seychelles, Indian Ocean). Pharm: Toxic (brine shrimp *Artemia* sp. larvae, LD_{50} = 15 μg/mL). Ref: J. C. Braekman, et al, JNP, 1998, 61, 1038



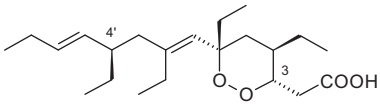
431 4,6-Diethyl-6-hexyl-3,6-dihydro-1,2-dioxin-3-acetic acid Me ester

Type: Simple heteroalicyclics (two O). $C_{17}H_{30}O_4$ Source: Sponge *Plakortis simplex* (psychrophilic, Norway, cold water). Pharm: Cytotoxic (*in vitro*, six solid hmn tumor cell lines, IC_{50} = 7–15 μg/mL). Ref: M.Holzwarth, et al, JNP, 2005, 68, 759 | M. D. Lebar, et al, NPR, 2007, 24, 774 (rev) | S. Abbas, Mar. Drugs, 2011, 9, 2423 (rev)



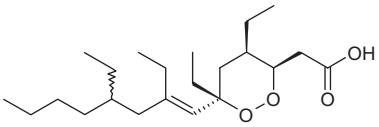
432 (1′*E*,3*S*,4*R*,4′*R*,5′*E*,6*S*)-6-(2,4-Diethyl-1,5-octadienyl)-4,6-diethyl-1,2-dioxane-3-acetic acid

Type: Simple heteroalicyclics (two O). $C_{22}H_{38}O_4$ Pale yellow oil, $[\alpha]_D^{23}$ = +76.2° (*c* = 1.6, $CHCl_3$). Source: Sponge *Plakortis* sp. (Okinawa). Pharm: Cytotoxic (KB, IC_{50} = 0.4 μg/mL, L_{1210}, IC_{50} = 1.1 μg/mL). Ref: A. Fontana, et al, Tetrahedron, 1998, 54, 2041 | A. Fontana, et al, JNP, 1998, 61, 1427



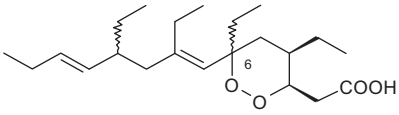
433 6-(2,4-Diethyl-1-octenyl)-4,6-diethyl-1,2-dioxane-3-acetic acid

Type: Simple heteroalicyclics (two O). $C_{22}H_{40}O_4$ Oil (Me ester), $[\alpha]_D^{23}$ = +12.4° (*c* = 0.4, $CHCl_3$) (Me ester). Source: Sponges *Monotria japonica* and *Plakortis* sp. (Okinawa). Pharm: Oocyte-lytic activity (selectively lyses immature starfish oocytes *Asterina pectinifera*, without affecting nuclear morphology, MEC = 13 μg/mL). Ref: M. Yanai, et al, BoMC, 2003, 11, 1715 | A. Fontana, et al, Tetrahedron, 1998, 54, 2041 | A. Fontana, et al, JNP, 1998, 61, 1427



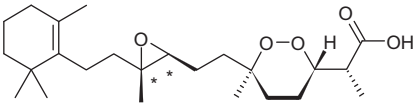
434 3,6-Epidioxy-4,6,8,10-tetraethyltetradeca-7,11-dienoic acid

Type: Simple heteroalicyclics (two O). $C_{22}H_{38}O_4$ Oil, $[\alpha]_D$ = +164° (*c* = 2.4, $CHCl_3$). Source: Sponge *Plakortis* aff. *angulospiculatus* (Palau, Oceania, Oceania). Pharm: Antileishmanial (effects on proliferation of *Leishmania mexicana* promastigotes, LD_{50} = 1.00 µg/mL; control 1 sponge metabolite Ilimaquinone, LD_{50} = 5.6 µg/mL, control 2 Ketoconozole, LD_{50} = 0.06 µg/mL). Ref: R. S. Compagnone, et al, Tetrahedron, 1998, 54, 3057



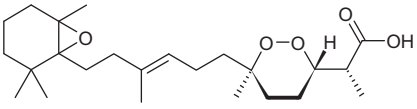
435 (–)-9,10-Epoxy muqublin A isomer

Type: Simple heteroalicyclics (two O). $C_{24}H_{40}O_5$ Colorless oil, $[\alpha]_D^{25}$ = −26.2° (*c* = 0.20, $CHCl_3$). Source: Sponge *Diacarnus erythraeanus* (Elfanadir, Hurghada, Egypt). Pharm: Cytotoxic (glioma: Hs683, IC_{50} = 3 µmol/L, U373, IC_{50} = 4 µmol/L, U251, not tested; melanoma: SK-MEL-28, IC_{50} = 15 µmol/L; carcinoma: A549, IC_{50} = 3 µmol/L, MCF7, IC_{50} = 4 µmol/L, PC3, IC_{50} = 1 µmol/L). Ref: F. Lefranc, et al, JNP, 2013, 76, 1541



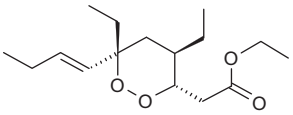
436 (–)-13,14-Epoxymuqublin A

Type: Simple heteroalicyclics (two O). $C_{24}H_{40}O_5$ Colorless oil, $[\alpha]_D^{25}$ = −47.8° (*c* = 0.10, $CHCl_3$). Source: Sponge *Diacarnus erythraeanus* (Elfanadir, Hurghada, Egypt). Pharm: Cytotoxic (glioma: Hs683, IC_{50} = 3 µmol/L, U373, IC_{50} = 7 µmol/L, U251, not tested; melanoma: SK-MEL-28, IC_{50} = 22 µmol/L; carcinoma: A549, IC_{50} = 3 µmol/L, MCF7, IC_{50} = 6 µmol/L, PC3, IC_{50} = 2 µmol/L). Ref: F. Lefranc, et al, JNP, 2013, 76, 1541



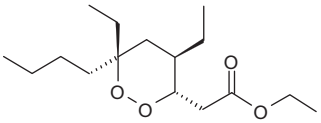
437 Ethyl didehydroplakortide Z

Type: Simple heteroalicyclics (two O). $C_{16}H_{28}O_4$ Yellow oil, $[\alpha]_D^{25}$ = +81.5° (*c* = 1.7, CH_2Cl_2). Source: Sponge *Plakortis lita* (Papua New Guinea). Pharm: Cytotoxic (*in vitro* solid carcinoma, selective). Ref: B. Harrison, et al, JNP, 1998, 61, 1033



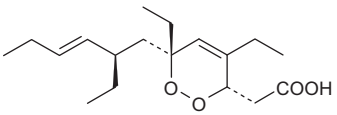
438 Ethyl plakortide Z

3 Type: Simple heteroalicyclics (two O). $C_{16}H_{30}O_4$ Yellow oil, $[\alpha]_D^{25}$ = +58.8° (*c* = 6.8, CH_2Cl_2). Source: Sponge *Plakortis lita* (Papua New Guinea). Pharm: Cytotoxic (solid carcinoma and L_{1210}, *in vitro*). Ref: B. Harrison, et al, JNP, 1998, 61, 1033



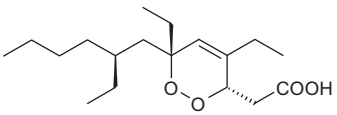
439 Haterumadioxin A

Type: Simple heteroalicyclics (two O). $C_{18}H_{30}O_4$ Oil, $[\alpha]_D^{29}$ = −102° (*c* = 1.56, MeOH). Source: Sponge *Plakortis lita* (yield = 0.038% ww, Okinawa). Pharm: Cytotoxic (P_{388}, IC_{50} = 11 ng/mL). Ref: N. Takada, et al, JNP, 2001, 64, 356



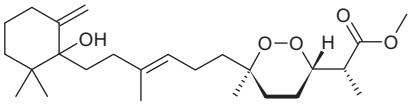
440 Haterumadioxin B

Type: Simple heteroalicyclics (two O). $C_{18}H_{32}O_4$ Oil, $[\alpha]_D^{29}$ = −28° (*c* = 0.42, MeOH). Source: Sponge *Plakortis lita* (yield = 0.008% ww, Okinawa). Pharm: Cytotoxic (P_{388}, IC_{50} = 5.5 ng/mL). Ref: N. Takada, et al, JNP, 2001, 64, 356



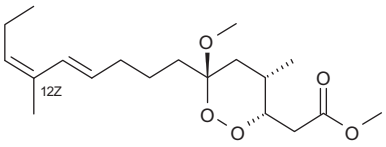
441 Hurghaperoxide

Type: Simple heteroalicyclics (two O). $C_{25}H_{42}O_5$ Source: Sponge *Diacarnus erythraeanus* (Elfanadir, Hurghada, Egypt). Pharm: Cytotoxic (glioma: Hs683, IC_{50} = 37 µmol/L, U373, IC_{50} = 83 µmol/L, U251, IC_{50} = 87 µmol/L; melanoma: SK-MEL-28, IC_{50} = 73 µmol/L; carcinoma: A549, IC_{50} = 31 µmol/L, MCF7, IC_{50} = 45 µmol/L, PC3, IC_{50} = 73 µmol/L). Ref: F. Lefranc, et al, JNP, 2013, 76, 1541



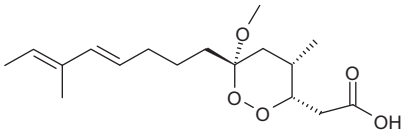
442 12-Isomanadoperoxide B

Type: Simple heteroalicyclics (two O). $C_{19}H_{32}O_5$ Colorless solid, $[\alpha]_D^{25}$ −5.0 (*c* = 0.2, $CHCl_3$). Source: Sponge *Plakortis lita* (Bunaken I., Manado, Indonesia). Pharm: Antitrypanosomal (*Trypanosoma brucei rhodesiense*, IC_{50} = 0.011 µg/mL (0.032 µmol/L), ultrapotent, control Melarsoprol, IC_{50} = 2.0 ng/mL (5.0 nmol/L)); cytotoxic (L-6, IC_{50} = 3.80 µg/mL (11.18 µmol/L), control Podophyllotoxin, IC_{50} = 0.004 µg/mL (0.0096 µmol/L). Ref: G. Chianese, ET AL, Mar. Drugs, 2013, 11, 3297



443 Manadic acid A

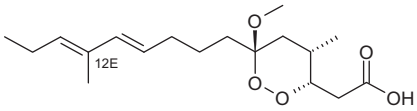
Type: Simple heteroalicyclics (two O). $C_{17}H_{28}O_5$ Oil, $[\alpha]_D^{18}$ = +83.9° (*c* = 43.8, MeOH). Source: Sponge Plakortis sp. (Indonesia). Pharm: Immumomodulatory (MLR, IC_{50} = 0.015 µg/mL, LCV, IC_{50} = 0.55 µg/mL); cytotoxic (P_{388}, IC_{50} = 0.5 µg/mL, A549, IC_{50} = 1 µg/mL, HT29, IC_{50} = 2 µg/mL; MEL28, IC_{50} = 5 µg/mL). Ref: T. Ichiba, et al, Tetrahedron, 1995, 51, 12195



444 (–)-Manadic acid B

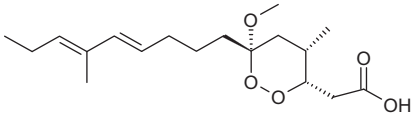
Manadoperoxidic acid B Type: Simple heteroalicyclics (two O). $C_{18}H_{30}O_5$ Colorless solid, $[\alpha]_D^{25}$ = −23.0° (*cL^* = 0.1, $CHCl_3$). Source: Sponge *Plakortis lita* (Bunaken I., Manado, Indonesia). Pharm: Antitrypanosomal (*Trypanosoma brucei rhodesiense*, IC_{50} = 1.87 µg/mL (5.74 µmol/L), ultrapotent, control Melarsoprol, IC_{50} = 2.0 ng/mL (5.0 nmol/L)); cytotoxic (L-6, IC_{50} = 7.12 µg/mL (21.84 µmol/L), control Podophyllotoxin,

IC_{50} = 0.004 µg/mL (0.0096 µmol/L)). Ref: G. Chianese, ET AL, Mar. Drugs, 2013, 11, 3297



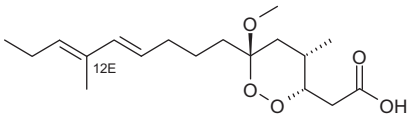
445 (+)-Manadic acid B

Type: Simple heteroalicyclics (two O). $C_{18}H_{30}O_5$ Oil, $[\alpha]_D^{18}$ = +130.3° (*c* = 43.8, MeOH). Source: Sponge Plakortis sp. (Indonesia). Pharm: Cytotoxic (P_{388}, IC_{50} = 0.5 µg/mL, A549, IC_{50} = 1 µg/mL, HT29, IC_{50} = 2 µg/mL, MEL28, IC_{50} = 2.5 µg/mL). Ref: T. Ichiba, et al, Tetrahedron, 1995, 51, 12195



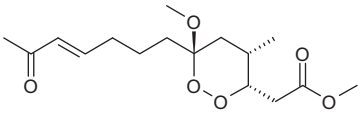
446 Manadoperoxide B

Type: Simple heteroalicyclics (two O). $C_{19}H_{32}O_5$ Colorless amorphous solid, $[\alpha]_D^{25}$ −7.5° (*c* = 0.1, $CHCl_3$). Source: Sponge *Plakortis lita* (Bunaken I., Manado, Indonesia). Pharm: Antitrypanosomal (*Trypanosoma brucei rhodesiense,* IC_{50} = 3.0 ng/mL (8.8 nmol/L), ultrapotent, one of the most potent natural products, either marine or terrestrial, to possess such activity, control Melarsoprol, IC_{50} = 2.0 ng/mL (5.0 nmol/L)); cytotoxic (HMEC1, IC_{50} = 10.8 µg/mL (31.76 µmol/L), control Podophyllotoxin, IC_{50} = 0.004 µg/mL (0.0096 µmol/L)). Ref: G. Chianese, et al, Org. Biomol. Chem. 2012, 10, 7197 | G. Chianese, ET AL, Mar. Drugs, 2013, 11, 3297



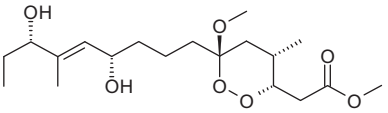
447 Manadoperoxide C

Peroxyplakoric ester C Type: Simple heteroalicyclics (two O). $C_{16}H_{26}O_6$ Source: Sponges *Plakortis* cf. *simplex* (Bunaken I., Manado, Indonesia) and *Plakortis lita* (Bunaken, Sulawesi, Indonesia). Pharm: Antitrypanosomal (*Trypanosoma brucei rhodesiense*). Ref: C. Fattorusso, et al, JNP, 2010, 73, 1138 | G. Chianese, et al, Org. Biomol. Chem., 2012, 10, 7197



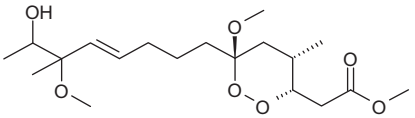
448 Manadoperoxide E

Type: Simple heteroalicyclics (two O). $C_{19}H_{34}O_7$ Source: Sponge *Plakortis lita* (Bunaken, Sulawesi, Indonesia). Pharm: Antitrypanosomal (*Trypanosoma brucei rhodesiense*). Ref: G. Chianese, et al, Org. Biomol. Chem., 2012, 10, 7197



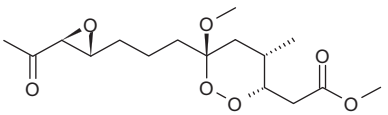
449 Manadoperoxide F

Type: Simple heteroalicyclics (two O). $C_{19}H_{34}O_7$ Source: Sponge *Plakortis lita* (Bunaken, Sulawesi, Indonesia). Pharm: Antitrypanosomal (*Trypanosoma brucei rhodesiense*). Ref: G. Chianese, et al, Org. Biomol. Chem., 2012, 10, 7197



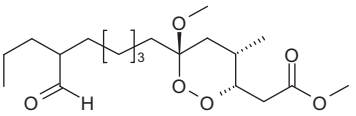
450 Manadoperoxide G

Type: Simple heteroalicyclics (two O). $C_{16}H_{26}O_7$ Source: Sponge *Plakortis lita* (Bunaken, Sulawesi, Indonesia). Pharm: Antitrypanosomal (*Trypanosoma brucei rhodesiense*). Ref: G. Chianese, et al, Org. Biomol. Chem., 2012, 10, 7197



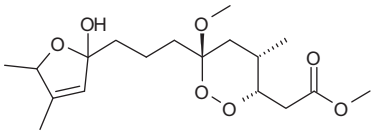
451 Manadoperoxide H

Type: Simple heteroalicyclics (two O). $C_{19}H_{34}O_6$ Source: Sponge *Plakortis lita* (Bunaken, Sulawesi, Indonesia). Pharm: Antitrypanosomal (*Trypanosoma brucei rhodesiense*). Ref: G. Chianese, et al, Org. Biomol. Chem., 2012, 10, 7197



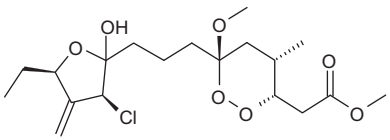
452 Manadoperoxide I

Type: Simple heteroalicyclics (two O). $C_{18}H_{30}O_7$ Source: Sponge *Plakortis lita* (Bunaken, Sulawesi, Indonesia). Pharm: Antitrypanosomal (*Trypanosoma brucei rhodesiense*). Ref: G. Chianese, et al, Org. Biomol. Chem., 2012, 10, 7197



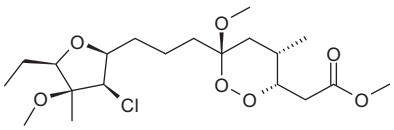
453 Manadoperoxide J

Type: Simple heteroalicyclics (two O). $C_{19}H_{31}ClO_7$ Source: Sponge *Plakortis lita* (Bunaken, Sulawesi, Indonesia). Pharm: Antitrypanosomal (*Trypanosoma brucei rhodesiense*). Ref: G. Chianese, et al, Org. Biomol. Chem., 2012, 10, 7197



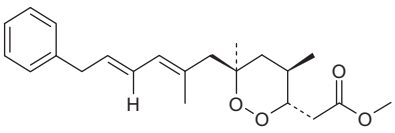
454 Manadoperoxide K

Type: Simple heteroalicyclics (two O). $C_{20}H_{35}ClO_7$ Source: Sponge *Plakortis lita* (Bunaken, Sulawesi, Indonesia). Pharm: Antitrypanosomal (*Trypanosoma brucei rhodesiense*). Ref: G. Chianese, et al, Org. Biomol. Chem., 2012, 10, 7197



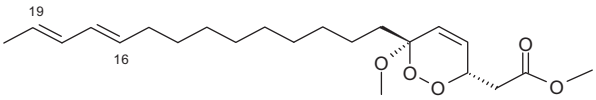
455 Methyl Capucinoate A

Type: Simple heteroalicyclics (two O). $C_{22}H_{30}O_4$ Oil (Me ester), $[\alpha]_D^{25}$ = −44.8° (*c* = 0.67, CH_2Cl_2) (Me ester). Source: Sponge *Plakortis halichondrioides* (Dominica). Pharm: Cytotoxic (B16F1, IC_{50} = 12 μg/mL). Ref: D. E. Williams, et al, JNP, 2001, 64, 281



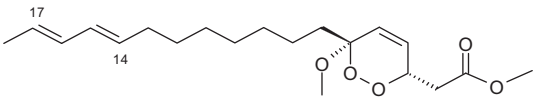
456 Methyl 3,6-epidioxy-6-methoxy-4,16,18-eicosatrienoate

Type: Simple heteroalicyclics (two O). $C_{22}H_{36}O_5$ Solid, mp 47.5 °C, $[\alpha]_D^{20}$ = +36.4° (*c* = 1.1, MeOH). Source: Sponge *Plakortis lita* (Okinawa). Pharm: Cytotoxic. Ref: S. Sakemi, et al, Tetrahedron, 1987, 43, 263



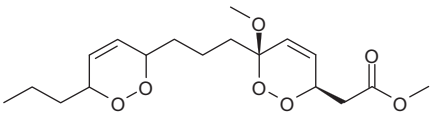
457 Methyl 3,6-epidioxy-6-methoxy-4,14,16-octadecatrienoate

Type: Simple heteroalicyclics (two O). $C_{20}H_{32}O_5$ Solid, mp 38–39 °C, $[\alpha]_D^{20}$ = +40.8° (*c* = 4.9, MeOH). Source: Sponge *Plakortis lita* (Okinawa). Pharm: Cytotoxic. Ref: S. Sakemi, et al, Tetrahedron, 1987, 43, 263



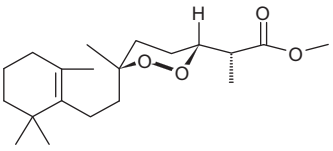
458 Methyl-6-methoxy-3,6:10,13-diperoxy-4,11-hexadecadienoate

Type: Simple heteroalicyclics (two O). $C_{18}H_{28}O_7$ Source: sponge *Plakortis* aff. *simplex* (South Africa). Pharm: Cytotoxic (P_{388}, IC_{50} < 0.1 µg/mL). Ref: A. Rudi, et al, JNP, 1993, 56, 2178



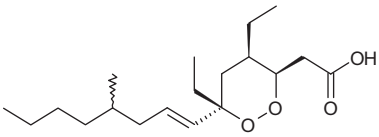
459 Methyl-nuapapuanoate

Nuapapuin A methyl ester Type: Simple heteroalicyclics (two O). $C_{20}H_{34}O_4$ Source: Sponge *Diacarnus erythraeanus* (Elfanadir, Hurghada, Egypt). Pharm: Cytotoxic (glioma: Hs683, IC_{50} = 38 µmol/L, U373, IC_{50} = 99 µmol/L, U251, IC_{50} = 91 µmol/L; melanoma: SK-MEL-28, IC_{50} = 80 µmol/L; carcinoma: A549, IC_{50} = 25 µmol/L, MCF7, IC_{50} = 51 µmol/L, PC3, IC_{50} = 80 µmol/L). Ref: F. Lefranc, et al, JNP, 2013, 76, 1541



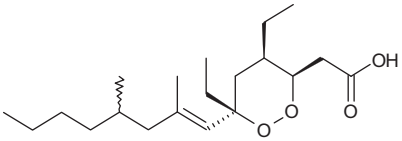
460 Monotriajaponide B

4,6-Diethyl-6-(4-methyl-1-octenyl)-1,2-dioxane-3-acetic acid Type: Simple heteroalicyclics (two O). $C_{19}H_{34}O_4$ Viscous oil, $[\alpha]_D^{25}$ = +127° (*c* = 0.52, $CHCl_3$). Source: Sponge *Monotria japonica*. Pharm: Oocyte-lytic activity (selectively lyses immature starfish oocytes *Asterina pectinifera*, without affecting nuclear morphology, MEC = 6.3 µg/mL). Ref: M. Yanai, et al, BoMC, 2003, 11, 1715



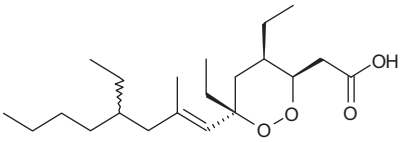
461 Monotriajaponide C

Type: Simple heteroalicyclics (two O). $C_{20}H_{36}O_4$ Viscous oil, $[\alpha]_D^{25}$ = +64° (*c* = 0.6, $CHCl_3$). Source: Sponge *Monotria japonica*. Pharm: Oocyte-lytic activity (selectively lyses immature starfish oocytes *Asterina pectinifera*, without affecting nuclear morphology, MEC = 6.3 µg/mL). Ref: M. Yanai, et al, BoMC, 2003, 11, 1715



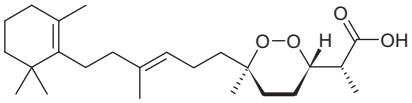
462 Monotriajaponide D

Type: Simple heteroalicyclics (two O). $C_{21}H_{38}O_4$ Viscous oil, $[\alpha]_D^{25}$ = +108° (*c* = 0.9, $CHCl_3$). Source: Sponge *Monotria japonica*. Pharm: Oocyte-lytic activity (selectively lyses immature starfish oocytes *Asterina pectinifera*, without affecting nuclear morphology, MEC = 6.3 µg/mL). Ref: M. Yanai, et al, BoMC, 2003, 11, 1715



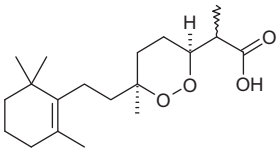
463 (–)-Muqublin A

Type: Simple heteroalicyclics (two O). $C_{24}H_{40}O_4$ Colorless oil, $[\alpha]_D^{25}$ = –32.7° (*c* = 0.34, $CHCl_3$). Source: Sponge *Diacarnus erythraeanus* (Elfanadir, Hurghada, Egypt). Pharm: Cytotoxic (glioma: Hs683, IC_{50} = 4 µmol/L, U373, IC_{50} = 7 µmol/L, U251, IC_{50} = 8 µmol/L; melanoma: SK-MEL-28, IC_{50} = 8 µmol/L; carcinoma: A549, IC_{50} = 3 µmol/L, MCF7, IC_{50} = 7 µmol/L, PC3, IC_{50} = 8 µmol/L). Ref: F. Lefranc, et al, JNP, 2013, 76, 1541



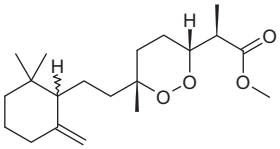
464 Nuapapuin A

Type: Simple heteroalicyclics (two O). $C_{19}H_{32}O_4$ $[\alpha]_D$ = +35.2° (*c* = 0.2, $CHCl_3$). Source: Sponges *Diacarnus* cf. *spinopoculum* (Solomon Is. and Papua New Guinea) and *Sigmosceptrella* sp. Pharm: Differential cytotoxicity (softagar assay, 50 µg/disk, zone differential of 250 units is expected for "selectiveactivity", C38-L_{1210}, 300 zone differentialunits; M17-L_{1210}, 0 zone differential units). Ref: L. V. Manes, et al, Tet. Lett., 1984, 25, 93 | S, Sperry, et al, JNP, 1998, 61, 241



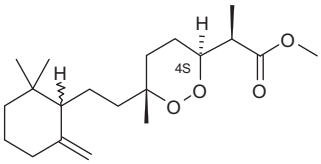
465 Nuapapuin B

Type: Simple heteroalicyclics (two O). $C_{20}H_{34}O_4$ Oil, $[\alpha]_D$ = +39° (*c* = 1.74, $CHCl_3$). Source: Sponge *Diacarnus* cf. *spinopoculum* (Solomon Is. and Papua New Guinea). Pharm: Differential cytotoxicity (softagar assay, 50 µg/disk, zone differential of 250 units is expected for "selectiveactivity", C38-L_{1210}, 120 zone differential units; M17-L_{1210}, 80 zone differential units); cytotoxic (HL60, GI_{50} = 1.60 µmol/L; Molt4, GI_{50} > 5.0 µmol/L; A549/ATCC, GI_{50} = 0.64 µmol/L; KM12, GI_{50} = 0.40 µmol/L; LOX-IMVI, GI_{50} = 0.47 µmol/L; IGROV1, GI_{50} = 0.50 µmol/L; 786-0, GI_{50} = 0.27 µmol/L; BT-549, GI_{50} = 4.95 µmol/L). Ref: S, Sperry, et al, JNP, 1998, 61, 241



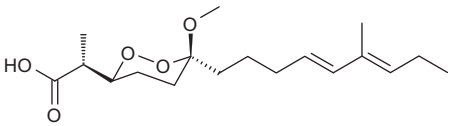
466 *epi*-Nuapapuin B

Type: Simple heteroalicyclics (two O). $C_{20}H_{34}O_4$ Clear colorless oil, $[\alpha]_D$ = −41.6° (*c* = 1.5, $CHCl_3$). Source: Sponge *Diacarnus* cf. *spinopoculum* (Solomon Is. and Papua New Guinea). Pharm: Differential cytotoxicity (softagar assay, 50 µg/disk, zone differential of 250 units is expected for "selectiveactivity", M17-L_{1210}, 50 zone differential units); cytotoxic (HL60, GI_{50} = 2.06 µmol/L; Molt4, GI_{50} > 5.0 µmol/L; A549/ATCC, GI_{50} > 5.0 µmol/L; KM12, GI_{50} > 5.0 µmol/L; IGROV1, GI_{50} = 1.73 µmol/L; 786-0, GI_{50} > 5.0 µmol/L; BT-549, GI_{50} > 5.0 µmol/L). Ref: S, Sperry, et al, JNP, 1998, 61, 241



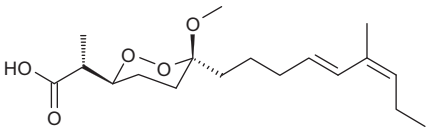
467 Peroxyplakoric acid A_1

Type: Simple heteroalicyclics (two O). $C_{18}H_{30}O_5$ $[\alpha]_D$ = −164° ($CHCl_3$) (methyl ester). Source: Sponge *Plakortis* sp. (Okinawa). Pharm: Antifungal. Ref: M. Kobayashi, et al, CPB, 1993, 41, 1324



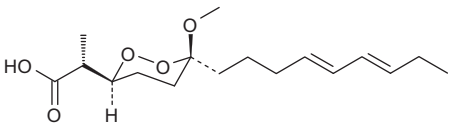
468 Peroxyplakoric acid A_2

Type: Simple heteroalicyclics (two O). $C_{18}H_{30}O_5$ $[\alpha]_D$ = −163° ($CHCl_3$) (methyl ester). Source: Sponge *Plakortis* sp. (Okinawa). Pharm: Antifungal. Ref: M. Kobayashi, et al, CPB, 1993, 41, 1324



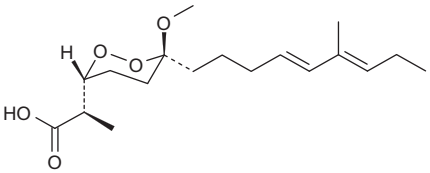
469 Peroxyplakoric acid A_3

Type: Simple heteroalicyclics (two O). $C_{17}H_{28}O_5$ $[\alpha]_D$ = −167° ($CHCl_3$, as Me ester). Source: Sponge *Plakortis* sp. (Okinawa). Pharm: Antifungal. Ref: M. Kobayashi, et al, CPB, 1993, 41, 1324



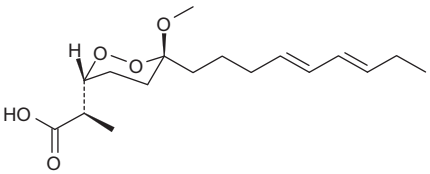
470 Peroxyplakoric acid B_1

Type: Simple heteroalicyclics (two O). $C_{18}H_{30}O_5$ $[\alpha]_D$ = −197° ($CHCl_3$, as Me ester). Source: Sponge *Plakortis* sp. (Okinawa). Pharm: Antifungal. Ref: M. Kobayashi, et al, CPB, 1993, 41, 1324



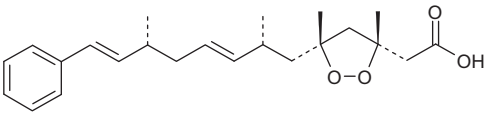
471 Peroxyplakoric acid B_3

Type: Simple heteroalicyclics (two O). $C_{17}H_{28}O_5$ $[\alpha]_D$ = −191° ($CHCl_3$, as Me ester). Source: Sponge *Plakortis* sp. (Okinawa). Pharm: Antifungal. Ref: M. Kobayashi, et al, CPB, 1993, 41, 1324



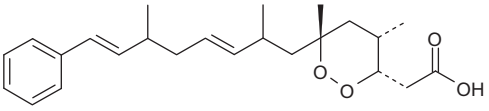
472 Plakinic acid A

Type: Simple heteroalicyclics (two O). $C_{23}H_{32}O_4$ $[\alpha]_D^{21}$ = −57.8° (Me ester). Source: An unidentified sponge (family Plakinidae, Caribbean Sea). Pharm: Antifungal (*in vitro*, 100 μg/disk, *Saccharomyces cerevisiae*, IZD = 24 mm; *P. atrouenetum*, IZD = 25 mm). Ref: D. W. Jr. Phillipson, et al, JACS, 1983, 105, 7735 | P. Dai, et al, JOC, 2006, 71, 2283



473 Plakinic acid B

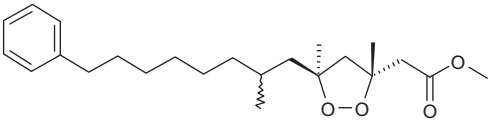
Type: Simple heteroalicyclics (two O). $C_{24}H_{34}O_4$ Source: An unidentified sponge (family Plakinidae, Caribbean Sea). Pharm: Antifungal (*in vitro*, 100 μg/disk, *Saccharomyces cerevisiae*, IZD = 20 mm; *P. atrouenetum*, IZD = 18 mm). Ref: D. W. Jr. Phillipson, et al, JACS, 1983, 105, 7735



474 *epi*-Plakinic acid E methyl ester

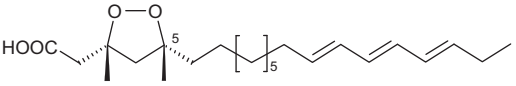
Type: Simple heteroalicyclics (two O). $C_{23}H_{36}O_4$ Oil, $[\alpha]_D$ = +7.5° (*c* = 0.6, $CDCl_3$). Source: Sponge *Plakinastrella onkodes* (Gulf of Mexico). Pharm: Cytotoxic (A549,

IC_{50} = 2.0 μg/mL; P_{388}, IC_{50} = 2.5 μg/mL); inhibits cell adhesion (EL-4, IC_{50} = 4.6 μg/mL). Ref: P. A. Horton, et al, JNP, 1994, 57, 1374



475 Plakinic acid F

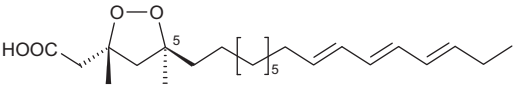
Type: Simple heteroalicyclics (two O). $C_{23}H_{38}O_4$ Oil. Source: Sponge *Plakinastrella* sp. (Seychelles). Pharm: Antifungal (yeast *Candida albicans*, MIC = 25 μg/mL (SDB media), MIC = 3.1 μg/mL (RPMI media); *Aspergillus fumigatus*, IC_{90} = 25 μg/mL). Ref: Y. Chen, et al, JNP, 2001, 64, 262



5-beta-Me

476 *epi*-Plakinic acid F

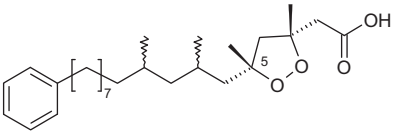
Type: Simple heteroalicyclics (two O). $C_{23}H_{38}O_4$ Source: Sponge *Plakinastrella* sp. (Seychelles). Pharm: Antifungal (yeast *Candida albicans*, MIC = 25 μg/mL (SDB media), MIC = 6.5 μg/mL (RPMI media); *Aspergillus fumigatus*, IC_{90} = 25 μg/mL). Ref: Y. Chen, et al, JNP, 2001, 64, 262



5-alpha-Me

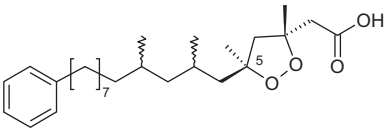
477 Plakinic acid G

epi-Plakinic acid H Type: Simple heteroalicyclics (two O). $C_{27}H_{44}O_4$ Oil, $[\alpha]_D$ = +33° (*c* = 0.07, MeOH). Source: Sponge *Plakortis nigra* (Palau, Oceania, depth of 380 ft). Pharm: Cytotoxic (HCT116, IC_{50} = 0.39 μmol/L). Ref: J. S. Sandler, et al, JNP, 2002, 65, 1258



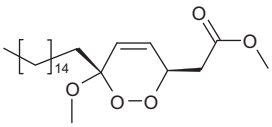
478 *epi*-Plakinic acid G

Type: Simple heteroalicyclics (two O). $C_{27}H_{44}O_4$ Oil, $[\alpha]_D$ = –17.2° (*c* = 0.3, MeOH). Source: Sponge *Plakortis nigra* (Palau, Oceania, depth of 380 ft). Pharm: Cytotoxic (HCT116, IC_{50} = 0.16 µmol/L). Ref: J. S. Sandler, et al, JNP, 2002, 65, 1258



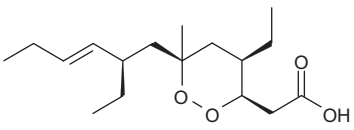
479 Plakorin

6-*epi*-Chondrillin Type: Simple heteroalicyclics (two O). $C_{24}H_{44}O_5$ Solid, mp 42.5–43.5 °C, $[\alpha]_D^{30}$ = +30.5° (*c* = 1.09, $CHCl_3$), $[\alpha]_D^{27}$ = +44.3° (*c* = 0.2, $CHCl_3$); $[\alpha]_D$ = +26° (*c* = 0.5, MeOH). Source: Sponges *Plakortis simplex* (Taiwan waters) and *Plakortis* spp. Pharm: Ca^{2+}-ATPase activator; cytotoxic (L_{1210}, IC_{50} = 0.85 µg/mL; KB, IC_{50} = 1.8 µg/mL). Ref: S. Sakemi, et al, Tetrahedron, 1987, 43. 263 | T. Murayama, et al, Experientia, 1989.45, 898 | P. H. Dussault, et al, JACS, 1997, 119, 3824 | P. H. Dussault, et al, JOC, 1999, 64, 1789 | Y. C. Shen, et al, JNP, 2001, 64, 324



480 Plakortic acid

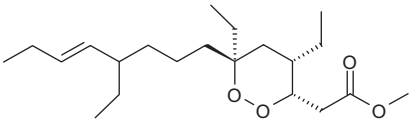
Type: Simple heteroalicyclics (two O). $C_{17}H_{30}O_4$ Source: Sponges *Plakortis halichondrioides* (Jamaica) and *Plakortis zyggompha*. Pharm: Antibacterial; antifungal. Ref: D. W. Phillipson, et al, JACS, 1983, 105, 7735 | A. Rudi, et al, JNP, 1993, 56, 1827



481 Plakortide F

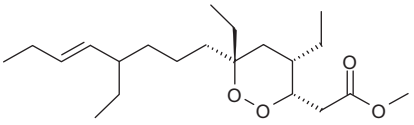
Type: Simple heteroalicyclics (two O). $C_{21}H_{38}O_4$ Oil (Me ester), $[\alpha]_D$ = –161.6° (*c* = 0.04, $CHCl_3$). Source: Sponge *Plakortis halichondrioides* (Jamaica). Pharm: Cardiac SR-Ca^{2+}-Pumping ATPase activator; antiplasmodial (*Plasmodium falciparum* D6 clone, *in vitro*, IC_{50} = 480 ng/mL, control Artemlsinin, IC_{50} = 12 ng/mL; CRPF W2 clone, *in vitro*, IC_{50} = 390 ng/mL, control Artemlsinin, IC_{50} = 7 ng/mL); cytotoxic (P_{388}, IC_{50} = 1.25 µg/mL; HT29, IC_{50} = 1.25 µg/mL, control Tamoxifen, IC_{50} = 1.86 µg/mL; A549, IC_{50} = 2.5 µg/mL, control Tamoxifen, IC_{50} = 1.86 µg/mL;

MEL28, IC_{50} = 2.5 μg/mL, control Tamoxifen, IC_{50} = 1.86 μg/mL; hmn primary tumor cells, IC_{50} = 3.4–3.9 μg/mL, control Doxorubicin, IC_{50} = 25 nmol/L); anti-HIV (EC_{50} = 13–42 μmol/L, control AZT, EC_{50} = 0.004 μmol/L); Anti-hepatitis-B (EC_{50} > 100 μg/mL, control 3TC, EC_{50} = 0.062–0.065 μg/mL); antituberculosis (*Mycobacterium tuberculosis*, InRt = 29% at 6.25 μg/mL, control Rifampin, MIC = 0.25 μg/mL); antitoxoplasma (*Toxoplasma gondii*, InRt = 67% at 1 μmol/L, control Atovaquine, InRt = 100% at 1 μmol/L). Ref: A. D. Patil, et al, JNP, 1996, 59, 219 | A. D. Patil, et al, Tetrahedron, 1996, 52, 377 | D. J. Gochfeld, et al, JNP, 2001, 64, 1477



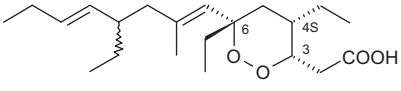
482 Plakortide G

Type: Simple heteroalicyclics (two O). $C_{21}H_{38}O_4$ Oil (Me ester), $[\alpha]_D^{25}$ = +67.2° (Me ester). Source: Sponge *Plakortis halichondrioides* (Jamaica). Pharm: Cardiac SR-Ca^{2+}-Pumping ATPase activator; cytotoxic (P_{388}, IC_{50} = 0.5 μg/mL). Ref: A. Rudi, et al, JNP, 1993, 56, 1827 | A. D. Patil, et al, JNP, 1996, 59, 219 | A. D. Patil, et al, Tetrahedron, 1996, 52, 377



483 (4*S*)-Plakortide H

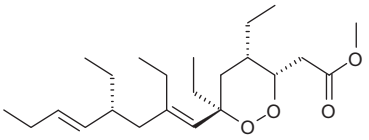
Type: Simple heteroalicyclics (two O). $C_{22}H_{38}O_4$ Oil (Me ester), $[\alpha]_D^{25}$ = +5.5° (*c* = 2.9, $CHCl_3$) (Me ester). Source: Sponge *Plakortis halichondrioides* (Jamaica) and *Plakortis simplex*. Pharm: Cardiac SR-Ca^{2+}-Pumping ATPase activator. Ref: A. D. Patil, et al, JNP, 1996, 59, 219 | A. D. Patil, et al, Tetrahedron, 1996, 52, 377



484 Plakortide P

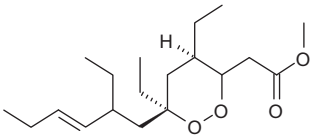
Type: Simple heteroalicyclics (two O). $C_{23}H_{40}O_4$ Oil, $[\alpha]_D^{24}$ = −275° (*c* = 0.52, $CHCl_3$). Source: Sponge *Plakortis angulospiculatus* (Brazil). Pharm: Antileishmanial and anti-trypanosomal (*Leishmania chagasi* and *Trypanosoma cruzi*, IC_{50} = 0.5–2.3 μg/mL, though not involving nitric oxide); anti-inflammatory (modulation of LPS-activated

brain microglia *in vitro*, IC_{50} = 0.93 μmol/L, MMOA: TXB_2 inhibition). Ref: M. H. Kossuga, et al, JNP, 2008,71, 334



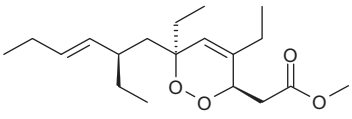
485 Plakortide Q

Type: Simple heteroalicyclics (two O). $C_{19}H_{34}O_4$ Oil, $[\alpha]_D^{25}$ = +10.3° (*c* = 2.5, $CHCl_3$). Source: Sponge *Plakortis simplex*. Pharm: Antimalarial (*Plasmodium falciparum* D10 and W2, IC_{50} = 0.5–1 μmol/L). Ref: C. Campagnuolo, et al, EurJOC, 2005, 5077



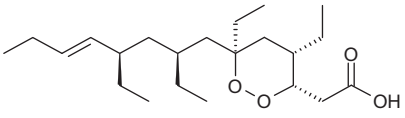
486 Plakortide R

Type: Simple heteroalicyclics (two O). $C_{19}H_{32}O_4$ Light yellow oil, $[\alpha]_D^{25}$ = –29.8° (*c* = 0.26, $CHCl_3$). Source: Sponge *Plakinastrella mamillaris* (Fiji). Pharm: Antiplasmodial ([^{3}H]-hypoxanthine (Amersham-France) incorporation method, CRPF FcM29 strain, IC_{50} = 5–50 μmol/L, less active than Plakortidn U). Ref: C. Festa, et al, Tetrahedron, 2013, 69, 3706



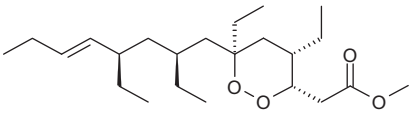
487 Plakortide S

Type: Simple heteroalicyclics (two O). $C_{22}H_{40}O_4$ Light yellow oil, $[\alpha]_D^{25}$ = –149.8° (*c* = 3.45, $CHCl_3$). Source: Sponge *Plakinastrella mamillaris* (Fiji). Pharm: Antiplasmodial ([^{3}H]-hypoxanthine (Amersham-France) incorporation method, CRPF FcM29 strain, IC_{50} = 5–50 μmol/L, less active than Plakortidn U). Ref: C. Festa, et al, Tetrahedron, 2013, 69, 3706



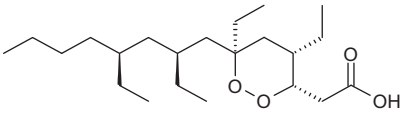
488 Plakortide T

Type: Simple heteroalicyclics (two O). $C_{23}H_{42}O_4$ Light yellow oil, $[\alpha]_D^{25}$ = –144.6° (*c* = 0.13, $CHCl_3$). Source: Sponge *Plakinastrella mamillaris* (Fiji). Pharm: Antiplasmodial ([^{3}H]-hypoxanthine (Amersham-France) incorporation method, CRPF FcM29 strain, IC_{50} = 5–50 μmol/L, less active than Plakortidn U). Ref: C. Festa, et al, Tetrahedron, 2013, 69, 3706



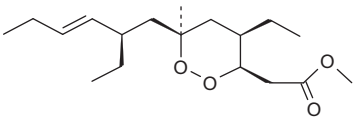
489 Plakortide U

Type: Simple heteroalicyclics (two O). $C_{22}H_{42}O_4$ Light yellow oil, $[\alpha]_D^{25}$ = –109.0° (*c* = 0.09, $CHCl_3$). Source: Sponge *Plakinastrella mamillaris* (Fiji). Pharm: Antiplasmodial ([^{3}H]-hypoxanthine (Amersham-France) incorporation method, CRPF FcM29 strain, IC_{50} = 0.80 μmol/L). Ref: C. Festa, et al, Tetrahedron, 2013, 69, 3706



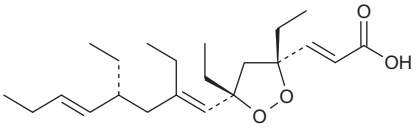
490 Plakortin

Type: Simple heteroalicyclics (two O). $C_{18}H_{32}O_4$ $[\alpha]_D^{20}$ = +189° (*c* = 2.9, $CHCl_3$), Sol. MeOH, C_6H_6. Source: Sponges *Plakortis simplex* (Caribbean Sea Sea) and *Plakortis halichondrioides*. Pharm: Cytotoxic (WEHI-164, IC_{50} = 7.0 μg/mL); antiplasmodial (*Plasmodium falciparum* D10 and W2, MMOA: toxic carbon-radical). Ref: M. D. Higgs, et al, JOC, 1978, 43, 3454 | F. Cafieri, et al, Tetrahedron, 1999, 55, 7045 | O. Taglialatela-Scafati, et al, Org. Biomol. Chem., 2010, 8, 846



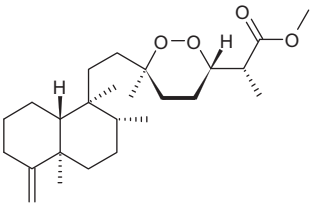
491 Plakortisinic acid

Type: Simple heteroalicyclics (two O). $C_{22}H_{36}O_4$ Yellow oil, $[\alpha]_D^{25}$ = +120° (*c* = 0.1, $CHCl_3$). Source: Sponge *Plakortis* cf. *angulospiculatus* (Jamaica). Pharm: Antifungal. Ref: R. Mohammed, et al, Aust. J. Chem., 2010, 63, 877



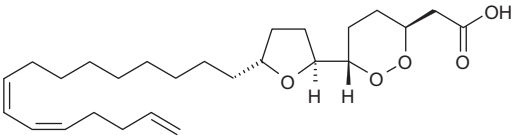
492 Sigmosceptrellin B methyl ester

Type: Simple heteroalicyclics (two O). $C_{25}H_{42}O_4$ Source: Sponge *Diacarnus erythraeanus* (Elfanadir, Hurghada, Egypt). Pharm: Cytotoxic (glioma: Hs683, IC_{50} = 35 µmol/L, U373, IC_{50} = 53 µmol/L, U251, IC_{50} = 54 µmol/L; melanoma: SK-MEL-28, IC_{50} = 44 µmol/L; carcinoma: A549, IC_{50} = 24 µmol/L, MCF7, IC_{50} = 36 µmol/L, PC3, IC_{50} = 44 µmol/L). Ref: F. Lefranc, et al, JNP, 2013, 76, 1541



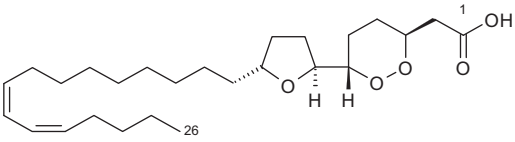
493 Stolonic acid A

Type: Simple heteroalicyclics (two O). $C_{26}H_{42}O_5$ Pale yellow oil, $[\alpha]_D$ = −30.5° (*c* = 0.43, $CHCl_3$). Source: Ascidian *Stolonica* sp. Pharm: Cytotoxic (LOX and OVCAR-3, IC_{50} = 0.05 µg/mL). Ref: M. T. Davies-Coleman, et al, JNP, 2000, 63, 1411



494 Stolonic acid B

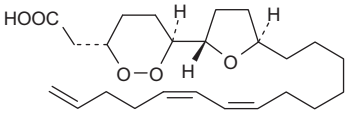
Type: Simple heteroalicyclics (two O). $C_{26}H_{44}O_5$ Pale yellow oil, $[\alpha]_D$ = −18.4° (*c* = 0.42, $CHCl_3$). Source: Ascidian *Stolonica* sp. Pharm: Cytotoxic (LOX and OVCAR-3, IC_{50} = 0.09 µg/mL). Ref: M. T. Davies-Coleman, et al, JNP, 2000, 63, 1411



495 Stolonoxide A

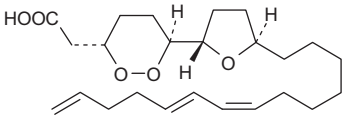
3,6-Epidioxy-7,10-epoxy-17,19,23-tetracosatrienoic acid Type: Simple heteroalicyclics (two O). $C_{24}H_{38}O_5$ Colorless oil, $[\alpha]_D^{25}$ = −50.8° (*c* = 0.39, $CHCl_3$). Source: Ascidian

Stolonica socialis (Tarifa I., Cádiz, Spain). Pharm: Cytotoxic (9:1 mixture of stolonoxide A and stolonoxide B, P_{388}, IC_{50} = 0.01 μg/mL; A549, IC_{50} = 0.10 μg/mL; HT29, IC_{50} = 0.10 μg/mL; MEL28, IC_{50} = 0.10 μg/mL; DU145, IC_{50} = 0.10 μg/mL; control Doxorubicin, P_{388}, IC_{50} = 0.02 μg/mL; A549, IC_{50} = 0.002 μg/mL; HT29, IC_{50} = 0.05 μg/mL; MEL28, IC_{50} = 0.02 μg/mL). Ref: R. Durán, et al, Tetrahedron, 2000, 56, 6031 | A. Fontana, et al, Tet. Lett., 2000, 41, 429



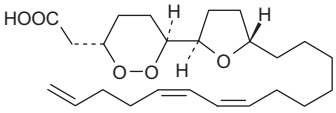
496 Stolonoxide B

Type: Simple heteroalicyclics (two O). $C_{24}H_{38}O_5$ Colorless oil, $[\alpha]_D^{25}$ = −37.7° (*c* = 0.26, $CHCl_3$). Source: Ascidian *Stolonica socialis* (Tarifa I., Cádiz, Spain). Pharm: Cytotoxic (9:1 mixture of stolonoxide A and stolonoxide B, P_{388}, IC_{50} = 0.01 μg/mL; A549, IC_{50} = 0.10 μg/mL; HT29, IC_{50} = 0.10 μg/mL; MEL28, IC_{50} = 0.10 μg/mL; DU145, IC_{50} = 0.10 μg/mL; control Doxorubicin, P_{388}, IC_{50} = 0.02 μg/mL; A549, IC_{50} = 0.002 μg/mL; HT29, IC_{50} = 0.05 μg/mL; MEL28, IC_{50} = 0.02 μg/mL); inhibits mitochondrial respiratory chain (potent). Ref: A. Fontana, et al, Tet. Lett., 2000, 41, 429 | R. Durán, et al, Tetrahedron, 2000, 56, 6031 | A. Fontana, et al, JMC, 2001, 44, 2362



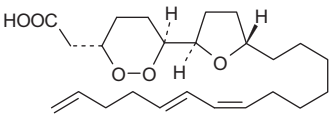
497 Stolonoxide C

Type: Simple heteroalicyclics (two O). $C_{24}H_{38}O_5$ Source: Ascidian *Stolonica socialis* (Tarifa I., Cádiz, Spain). Pharm: Cytotoxic (6:4 mixture of stolonoxide C and stolonoxide D, P_{388}, IC_{50} = 0.01 μg/mL; A549, IC_{50} = 0.01 μg/mL; HT29, IC_{50} = 0.05 μg/mL; MEL28, IC_{50} = 0.10 μg/mL; DU145, IC_{50} = 0.10 μg/mL; control Doxorubicin, P_{388}, IC_{50} = 0.02 μg/mL; A549, IC_{50} = 0.002 μg/mL; HT29, IC_{50} = 0.05 μg/mL; MEL28, IC_{50} = 0.02 μg/mL); inhibits mitochondrial respiratory chain (potent). Ref: A. Fontana, et al, Tet. Lett., 2000, 41, 429 | R. Durán, et al, Tetrahedron, 2000, 56, 6031 | A. Fontana, et al, JMC, 2001, 44, 2362



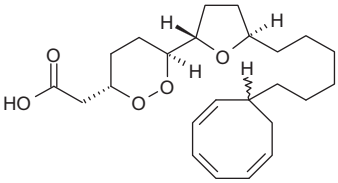
498 Stolonoxide D

Type: Simple heteroalicyclics (two O). $C_{24}H_{38}O_5$ Source: Ascidian *Stolonica socialis* (Tarifa I., Cádiz, Spain). Pharm: Cytotoxic (6:4 mixture of stolonoxide C and stolonoxide D, P_{388}, IC_{50} = 0.01 µg/mL; A549, IC_{50} = 0.01 µg/mL; HT29, IC_{50} = 0.05 µg/mL; MEL28, IC_{50} = 0.10 µg/mL; DU145, IC_{50} = 0.10 µg/mL; control Doxorubicin, P_{388}, IC_{50} = 0.02 µg/mL; A549, IC_{50} = 0.002 µg/mL; HT29, IC_{50} = 0.05 µg/mL; MEL28, IC_{50} = 0.02 µg/mL). Ref: A. Fontana, et al, Tet. Lett., 2000, 41, 429 | R. Durán, et al, Tetrahedron, 2000, 56, 6031



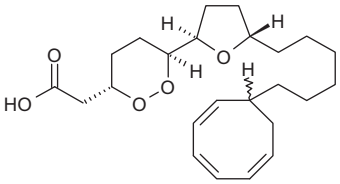
499 Stolonoxide E

Type: Simple heteroalicyclics (two O). $C_{24}H_{36}O_5$ Oil, $[\alpha]_D^{25}$ = −33.4° (*c* = 0.09, $CHCl_3$). Source: Ascidian *Stolonica socialis*. Pharm: Cytotoxic (MDA-MB-231, GI_{50} = 4.94 µmol/L, TGI = 5.44 µmol/L, LC_{50} = 6.18 µmol/L, control Doxorubicin, GI_{50} = 0.038 µmol/L, TGI = 0.31 µmol/L, LC_{50} = 2.41 µmol/L; HT29, GI_{50} = 3.96 µmol/L, TGI = 5.19 µmol/L, LC_{50} = 6.67 µmol/L, Doxorubicin, GI_{50} = 0.066 µmol/L, TGI = 0.40 µmol/L, LC_{50} = 17.2 µmol/L; A549, GI_{50} = 7.91 µmol/L, TGI = 8.16 µmol/L, LC_{50} = 8.65 µmol/L, Doxorubicin, GI_{50} = 0.062 µmol/L, TGI = 0.26 µmol/L, LC_{50} = 1.57 µmol/L). Ref: F. Reyes, et al, JNP, 2010, 73, 83



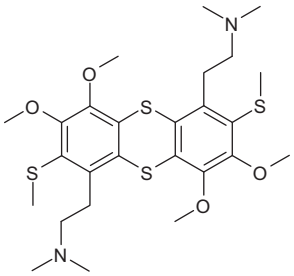
500 Stolonoxide F

Type: Simple heteroalicyclics (two O). $C_{24}H_{36}O_5$ Oil, $[\alpha]_D^{25}$ = +18.5° (*c* = 0.13, $CHCl_3$). Source: Ascidian *Stolonica socialis*. Pharm: Cytotoxic (MDA-MB-231, GI_{50} = 4.70 µmol/L, TGI = 5.44 µmol/L, LC_{50} = 6.18 µmol/L, control Doxorubicin, GI_{50} = 0.038 µmol/L, TGI = 0.31 µmol/L, LC_{50} = 2.41 µmol/L; HT29, GI_{50} = 2.72 µmol/L, TGI = 3.21 µmol/L, LC_{50} = 3.71 µmol/L, Doxorubicin, GI_{50} = 0.066 µmol/L, TGI = 0.40 µmol/L, LC_{50} = 17.2 µmol/L; A549, GI_{50} = 5.44 µmol/L, TGI = 5.93 µmol/L, LC_{50} = 6.67 µmol/L, Doxorubicin, GI_{50} = 0.062 µmol/L, TGI = 0.26 µmol/L, LC_{50} = 1.57 µmol/L). Ref: F. Reyes, et al, JNP, 2010, 73, 83



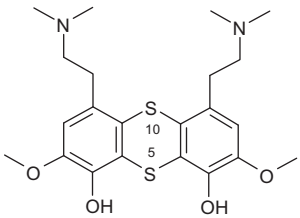
501 Lissoclibadin 3

Type: Simple heteroalicyclics (two S). $C_{26}H_{38}N_2O_4S_4$ Source: Ascidian *Lissoclinum* cf. *badium*. Pharm: Cytotoxic (V79, IC_{50} = 0.34 μmol/L (0.19 μg/mL), inhibits colony formation; L_{1210}, IC_{50} = 2.79 μmol/L (1.59 μg/mL), inhibits cell proliferation) (Wang, 2009). Ref: H. Liu, et al, Tetrahedron, 2005, 61, 8611 | W. Wang, et al, Tetrahedron, 2009, 65, 9598



502 Lissoclibadin 11

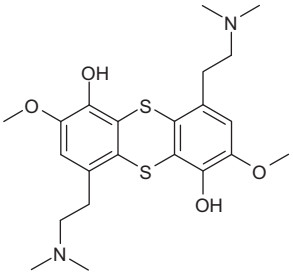
Type: Simple heteroalicyclics (two S). $C_{22}H_{30}N_2O_4S_2$ Yellow film (bistrifluoroacetate salt). Source: Ascidian *Lissoclinum* cf. *badium* (Manado, Indonesia). Pharm: Cytotoxic (V79, IC_{50} > 20.0 μmol/L (> 9.0 μg/mL), inhibits colony formation); L_{1210}, IC_{50} > 20.0 μmol/L (> 9.0 μg/mL), inhibits cell proliferation)). Ref: W. Wang, et al, Tetrahedron, 2009, 65, 9598



503 Lissoclibadin 12

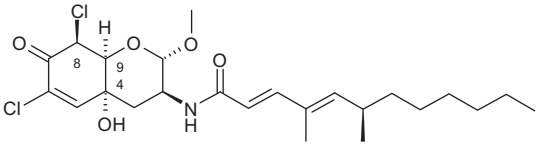
Type: Simple heteroalicyclics (two S). $C_{22}H_{30}N_2O_4S_2$ Yellow film (bistrifluoroacetate salt). Source: Ascidian *Lissoclinum* cf. *badium* (Manado, Indonesia). Pharm: Cytotoxic (V79, IC_{50} = 7.90 μmol/L (3.56 μg/mL), inhibits colony formation; L_{1210},

IC_{50} > 20.0 μmol/L (> 9.0 μg/mL), inhibits cell proliferation). Ref: W. Wang, et al, Tetrahedron, 2009, 65, 9598



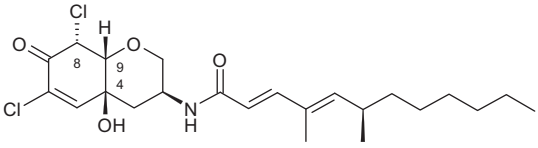
504 Dankastatin A

Type: Bicycloheteroalicyclics (one O) $C_{24}H_{35}Cl_2NO_5$ Powder, mp 169–171 °C, $[\alpha]_D^{22}$ = +114.4° (*c* = 0.18, $CHCl_3$). Source: Marine-derived fungus *Gymnascella dankaliensis* OUPS-N134 from sponge *Halichondria japonica* (off Osaka, Japan waters). Pharm: Cytotoxic (P_{388}, cell growth inhibitor). Ref: T. Amagata, et al, JNP, 2008, 71, 340



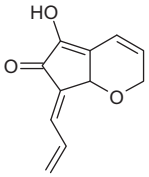
505 Dankastatin B

Type: Bicycloheteroalicyclics (one O) $C_{23}H_{33}Cl_2NO_4$ Powder, mp 90–92.5 °C, $[\alpha]_D^{22}$ = −157.4° (*c* = 0.18, $CHCl_3$). Source: Marine-derived fungus *Gymnascella dankaliensis* OUPS-N134 from sponge *Halichondria japonica* (off Osaka, Japan waters). Pharm: Cytotoxic (P_{388}, cell growth inhibitor). Ref: T. Amagata, et al, JNP, 2008, 71, 340

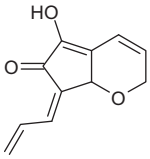


506 (*E*)-7,7*a*-Dihydro-5-hydroxy-7-(2-propenylidene)cyclopenta[*c*]pyran-6(2*H*)-one

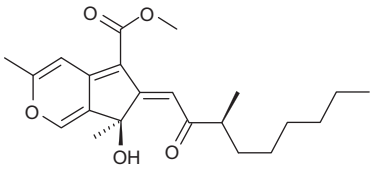
Type: Bicycloheteroalicyclics (one O) $C_{11}H_{10}O_3$ Pale yellow powder, $[\alpha]_D^{21}$ = +4.1° (*c* = 0.15, MeOH), very unstable. Source: Sponge *Ulosa* sp. Pharm: Cytotoxic; antimicrobial (*in vitro,* facile polymerization). Ref: S. J. Wratten, et al, Tet. Lett., 1978, 961



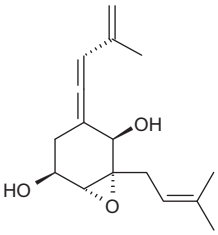
507 (*Z*)-7,7*a*-Dihydro-5-hydroxy-7-(2-propenylidene)cyclopenta[*c*]pyran-6(2*H*)-one
Type: Bicycloheteroalicyclics (one O) $C_{11}H_{10}O_3$ Pale yellow powder, $[\alpha]_D^{21}$ = +11° (*c* = 0.32, MeOH), very unstable. Source: Sponge *Ulosa* sp. Pharm: Cytotoxic; antimicrobial (*in vitro,* facile polymerization). Ref: S. J. Wratten, et al, Tet. Lett., 1978, 961



508 Sequoiatone B
Type: Bicycloheteroalicyclics (one O) $C_{22}H_{30}O_5$ Amorph. yellow solid, $[\alpha]_D^{25}$ = +72.7° (*c* = 0.11, MeOH). Source: Mangrove-derived fungus *Penicillium* sp. JP-1 from mangrove *Aegiceras corniculatum* (China waters waters). Pharm: Cytotoxic (breast cancer cell lines, GI_{50} = 4–10 μmol/L with LC_{50} > 100 μmol/L). Ref: Z. J. Lin, et al, Phytochemistry, 2008, 69, 1273

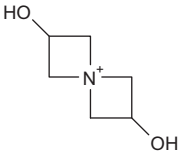


509 Spartinoxide
Type: Bicycloheteroalicyclics (one O) $C_{16}H_{22}O_3$ Source: Marine-derived fungus *Phaeosphaeria spartinae* from red alga *Ceramium* sp. (North Sea, Büsum, Germany). Pharm: Leukocyte elastase Inhibitor (hmn, potent). Ref: M. F. Elsebai, et al, Nat. Prod. Commun., 2010, 5, 1071



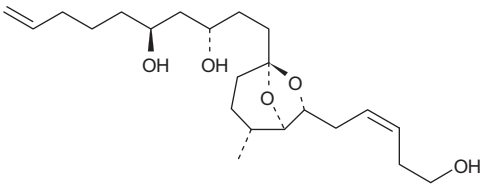
510 4-Azoniaspiro[3.3]heptane-2,6-diol

Charamin Type: Bicycloheteroalicyclics (one N). $C_6H_{12}NO_2^{1+}$ Source: Green alga *Chara globularis*. Pharm: Antibacterial. Ref: U. Anthoni, et al, JOC, 1987, 52, 694



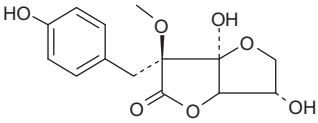
511 Attenol B

Type: Bicycloheteroalicyclics (two O). $C_{22}H_{38}O_5$ Source: Bivalve Filibranch *Pinna attenuata* (China waters waters). Pharm: Cytotoxic (P_{388}, IC_{50} = 12 μg/mL). Ref: N. Takada, et al, Chem. Lett., 1999, 1025 | K. Suenaga, et al, Org. Lett., 2001, 3, 527



512 Delesserine

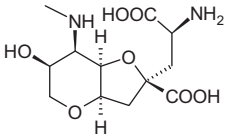
Type: Bicycloheteroalicyclics (two O). $C_{14}H_{16}O_7$ Cryst. (MeOH), mp 117 °C, $[\alpha]_D^{20}$ = +36° (*c* = 0.72, MeOH). Source: Red alga *Delesseria sanguinea*. Pharm: Anticoagulant. Ref: J. -C. Yvin, et al, JACS, 1982, 104, 4497



513 Dysiherbaine

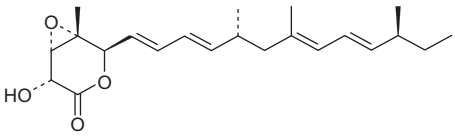
Type: Bicycloheteroalicyclics (two O). $C_{12}H_{20}N_2O_7$ $[\alpha]_D^{25}$ = −3.5° (*c* = 0.4, H_2O). Source: Sponge *Dysidea herbacea* (Yap, Federated States of Micronesia). Pharm:

Neurotoxin (inhibits on rat brain synaptic membranes, bindings of [^{3}H]KA, IC_{50} = (59 ± 7.8)nmol/L and [^{3}H]AMPA, IC_{50} = (224 ± 22)nmol/L, but not [^{3}H]CGS-19755, an NMDA antagonist (IC_{50} > 10,000 nmol), results indicate Dysiherbaine is a selective agonist of non-NMDA type glutamate receptors in CNS). Ref: R. Sakai, et al, JACS, 1997, 119, 4112



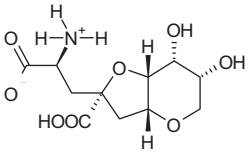
514 Nafuredin

Type: Bicycloheteroalicyclics (two O). $C_{22}H_{32}O_4$ Powder, mp 105 °C, $[\alpha]_D^{25}$ = +35.3°, $[\alpha]_D^{25}$ = +89.9° (*c* = 0.1, $CHCl_3$). Source: Marine-derived fungus *Aspergillus niger* from an unidentified sponge (Palau, Oceania, Oceania). Pharm: Anaerobic electron transport inhibitor; NADH-fumarate reductase (NFRD) inhibitor (pig roundworm *Ascaris suu*m, highly selective). Ref: H. Ui, et al, J. Antibiot., 2001, 54, 234



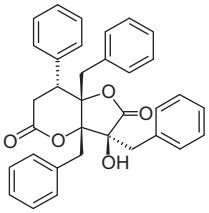
515 Neodysiherbaine A

Type: Bicycloheteroalicyclics (two O). $C_{11}H_{17}NO_8$ Pale yellow solid, $[\alpha]_D^{23}$ = −6.5° (*c* = 0.75, H_2O). Source: Sponge *Dysidea herbacea* (Federated States of Micronesia). Pharm: Neurologically-active (potent). Ref: R. Sakai, et al, Org. Lett., 2001, 3, 1479



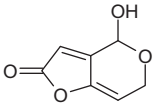
516 Ophiodilactone A

Type: Bicycloheteroalicyclics (two O). $C_{34}H_{30}O_5$ Yellow powder, $[\alpha]_D^{21}$ = −67° (*c* = 0.07, MeOH). Source: Ophiuroid *Ophiocoma scolopendrina* (inter-tidal). Pharm: Cytotoxic (P_{388}, IC_{50} = 5.0 μg/mL). Ref: R. Ueoka, et al, JOC, 2009, 74, 4396



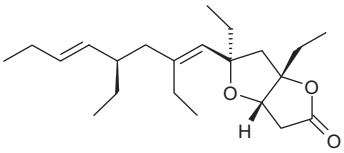
517 Patulin

Type: Bicycloheteroalicyclics (two O). $C_7H_6O_4$ Prisms or plates (Et_2O or $CHCl_3$), mp 111 °C, $[\alpha]_D^{21}$ = −6.2° ($CHCl_3$). Source: Marine-derived fungi *Penicillium* sp. OUPS-79 from green alga *Enteromorpha intestinalis* and *Aspergillus varians*. Pharm: Cytotoxic (P_{388}, ED_{50} = 0.06 μg/mL; BSY1, ED_{50} = 0.04 μg/mL; MCF7, ED_{50} = 0.65 μg/mL; HCC2998, ED_{50} = 1.54 μg/mL; NCI-H522, ED_{50} = 0.30 μg/mL; DMS114, ED_{50} = 0.57 μg/mL; OVCAR-3, ED_{50} = 0.37 μg/mL; MKN1, ED_{50} = 0.39 μg/mL); seed germination inhibitor; antibacterial; hepatitis C virus protease inhibitor; mycotoxin; LD_{50} (rat, orl) = 27.8 mg/kg Ref: C. Iwamoto, et al, Tetrahedron, 1999, 55, 14353



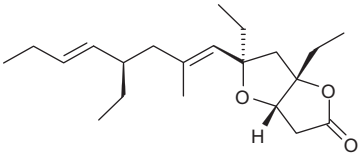
518 Plakortone A

Type: Bicycloheteroalicyclics (two O). $C_{22}H_{36}O_3$ $[\alpha]_D^{25}$ = −21.1° (*c* = 0.038, $CHCl_3$). Source: Sponge *Plakortis halichondrioides* (Jamaica). Pharm: Cardiac SR-Ca^{2+}-Pumping ATPase activator. Ref: A. D. Patil, et al, JNP, 1996, 59, 219 | A. D. Patil, et al, Tetrahedron, 1996, 52, 377



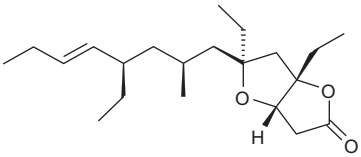
519 Plakortone B

Type: Bicycloheteroalicyclics (two O). $C_{21}H_{34}O_3$ Oil, $[\alpha]_D^{25}$ = −9.2° (*c* = 0.7, $CHCl_3$). Source: Sponge *Plakortis halichondrioides* (Jamaica). Pharm: Cardiac SR-Ca^{2+}-Pumping ATPase activator. Ref: A. D. Patil, et al, JNP, 1996, 59, 219 | A. D. Patil, et al, Tetrahedron, 1996, 52, 377



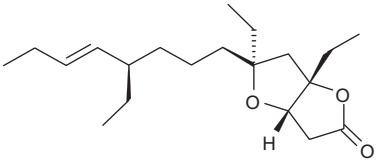
520 Plakortone C

Type: Bicycloheteroalicyclics (two O). $C_{21}H_{36}O_3$ Oil, $[\alpha]_D^{25}$ = −24.9° (*c* = 1.23, $CHCl_3$). Source: Sponge *Plakortis halichondrioides* (Jamaica). Pharm: Cardiac SR-Ca^{2+}-Pumping ATPase activator. Ref: A. D. Patil, et al, JNP, 1996, 59, 219 | A. D. Patil, et al, Tetrahedron, 1996, 52, 377



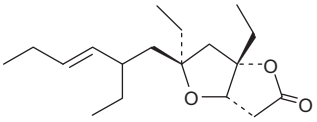
521 Plakortone D

Type: Bicycloheteroalicyclics (two O). $C_{20}H_{34}O_3$ Oil, $[\alpha]_D^{25}$ = −26.3° (*c* = 1.27, $CHCl_3$). Source: Sponge *Plakortis halichondrioides* (Jamaica). Pharm: Cardiac SR-Ca^{2+}-Pumping ATPase activator. Ref: A. D. Patil, et al, JNP, 1996, 59, 219 | A. D. Patil, et al, Tetrahedron, 1996, 52, 377



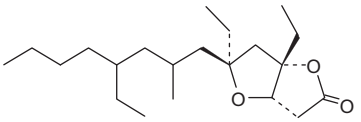
522 Plakortone E

Type: Bicycloheteroalicyclics (two O). $C_{18}H_{30}O_3$ Oil, $[\alpha]_D^{25}$ = −10° (*c* = 0.001, $CHCl_3$). Source: Sponge *Plakortis simplex* (Caribbean Sea Sea). Pharm: Cytotoxic (WEHI-164, IC_{50} = 8.0 μg/mL). Ref: F. Cafieri, et al, Tetrahedron, 1999, 55, 13831



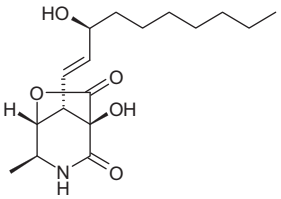
523 Plakortone F

Type: Bicycloheteroalicyclics (two O). $C_{21}H_{38}O_3$ Oil, $[\alpha]_D^{25} = -11°$ (c = 0.001, $CHCl_3$). Source: Sponge *Plakortis simplex* (Caribbean Sea). Pharm: Cytotoxic (WEHI-164, IC_{50} = 11.0 μg/mL). Ref: F. Cafieri, et al, Tetrahedron, 1999, 55, 13831



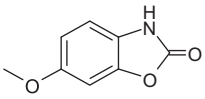
524 Awajanomycin

Type: Bicycloheteroalicyclics (one O, one N). $C_{17}H_{27}NO_5$ Gum, $[\alpha]_D^{25} = +78°$ (c = 0.1, MeOH). Source: Marine-derived fungus *Acremonium* sp. AWA16-1 (from sea mud sample, Japan waters). Pharm: Cytotoxic (A549, moderate). Ref: J. -H. Jang, et al, JNP, 2006, 69, 1358



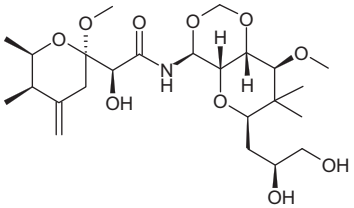
525 Coixol

6-Methoxy-2(3*H*)-benzoxazolinone Type: Bicycloheteroalicyclics (one O, one N). $C_8H_7NO_3$ Source: Sponge *Oceanapia* sp. (India waters), terrestrial plants (wheat *Triticum aestivum*, corn *Zea mays*, rye *Secale cereal* and *Coix lacryma jobi* roots). Pharm: Toxic (brine shrimp). Ref: Y. Venkateswarlu, et al, Biochem. Syst. EcoL, 1999, 27, 519



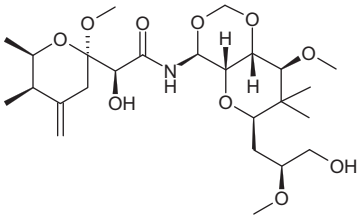
526 Mycalamide A

Type: Bicycloheteroalicyclics (three O). $C_{24}H_{41}NO_{10}$ Oil, $[\alpha]_{365.00} = +110°$ (c = 0.2, $CHCl_3$). Source: Sponges *Mycale* sp. and *Stylinos* sp. Pharm: Cytotoxic (P_{388}, IC_{50} = 1.1 ng/mL) (Simpson, 2000); cytotoxic (LLC-PK_1, IC_{50} = (0.65 ± 0.27)nmol/L; H441, IC_{50} = (0.46 ± 0.14)nmol/L; SH-SY5Y, IC_{50} = (0.52 ± 0.22)nmol/L) (Lyndon, 2000); antineoplastic (undergoing preclinical trials at U.S. Natl. Cancer Inst., 1994). Ref: N. B. Perry, et al, JOC, 1990, 55, 223 | C. Y. Hong, et al, JOC, 1990, 55, 4242 | J. S. Simpson, et al, JNP, 2000, 63, 704 | M. W. Lyndon, et al, JNP, 2000, 63, 707 | K. A. Hood, et al, Apoptosis, 2001, 6, 207



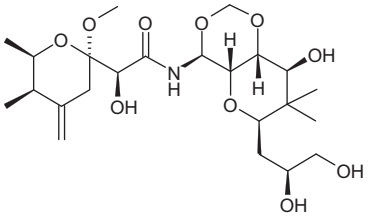
527 Mycalamide B

Type: Bicycloheteroalicyclics (three O). $C_{25}H_{43}NO_{10}$ Oil, $[\alpha]_D$ = +39° (*c* = 0.2, $CHCl_3$). Source: Sponge *Mycale* sp. (New Zealand). Pharm: Antiviral (minimum active dose 1–2 ng/disk); cytotoxic (P_{388}, IC_{50} = (0.7 ± 0.3)ng/mL); antineoplastic (P_{388}). Ref: N. B. Perry, et al, JOC, 1990, 55, 223 | P. J. Kocienski, et al, Synlett, 1998, 869 | P. J. Kocienski, et al, Synlett, 1998, 1432



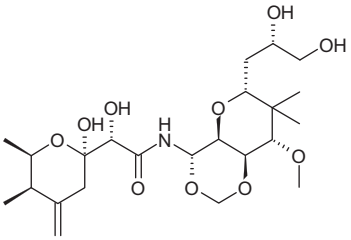
528 Mycalamide D

Type: Bicycloheteroalicyclics (three O). $C_{23}H_{39}NO_{10}$ Oil, $[\alpha]_D^{20}$ = +41° (*c* = 0.3, $CHCl_3$). Source: Sponges *Mycale* sp. and *Stylinos* sp. Pharm: Cytotoxic (P_{388}, IC_{50} = 35 ng/mL) (Simpson, 2000); cytotoxic (LLC-PK_1, IC_{50} = (19.43 ± 10.76)nmol/L; H441, IC_{50} = (9.30 ± 3.96)nmol/L; SH-SY5Y, IC_{50} = (6.42 ± 1.65)nmol/L) (Lyndon, 2000). Ref: J. S. Simpson, et al, JNP, 2000, 63, 704 | M. W. Lyndon, et al, JNP, 2000, 63, 707



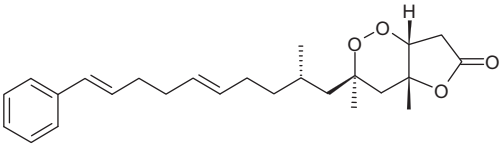
529 Mycalamide E

Type: Bicycloheteroalicyclics (three O). $C_{23}H_{39}NO_{10}$ Source: Sponge *Mycale hentscheli* (PelorusSound, New Zealand). Pharm: Protein synthesis inhibitor. Ref: V. Venturi, et al, J. Biochem. Mol. Toxicol., 2012, 26, 94



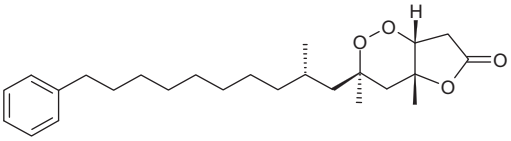
530 Plakortolide

Type: Bicycloheteroalicyclics (three O). $C_{25}H_{34}O_4$ Light orange oil, $[\alpha]_D$ = +5.6° (c = 0.014, $CHCl_3$). Source: Sponges *Plakortis* sp. and *Plakinastrella onkodes*. Pharm: Cytotoxic; anti-toxoplasma effect (strong). Ref: B. S. Davidson, Tet. Lett., 1991, 32, 7167 | T. L. Perry, et al, Tetrahedron, 2001, 57, 1483



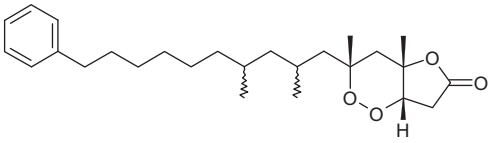
531 Plakortolide B

Type: Bicycloheteroalicyclics (three O). $C_{25}H_{38}O_4$ Oil, $[\alpha]_D$ = −4.7° (c = 0.1, $CDCl_3$). Source: Sponge *Plakinastrella onkodes* (Gulf of Mexico). Pharm: Cytotoxic (A549, IC_{50} = 1.3 μg/mL; $P_{388,}$ IC_{50} = 0.4 μg/mL); cell adhesion inducer (EL-4, IC_{50} = 4.4 μg/mL; IL-2, which correlates with signal transduction activity); PKC isoenzymesmodest agonist (50 μg/mL: α, +19%; βI, +13%; βII, +27%; δ, +9%; ε, +38%; y, +9%). Ref: P. A. Horton, et al, JNP, 1994, 57, 1374 | T. L. Perry, et al, Tetrahedron, 2001, 57, 1483 | D. S. Dalisay, et al, Angew. Chem., Int. Ed., 2009, 48, 4367



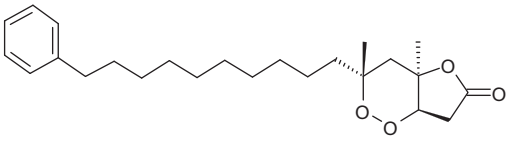
532 Plakortolide D

Type: Bicycloheteroalicyclics (three O). $C_{26}H_{40}O_4$ Oil, $[\alpha]_D$ = +61.1° (c = 0.04, $CDCl_3$). Source: Sponge *Plakinastrella onkodes* (Gulf of Mexico). Pharm: Cytotoxic (A549, IC_{50} = 3.8 μg/mL; $P_{388,}$ IC_{50} = 0.8 μg/mL); inhibits cell adhesion (EL-4, IC_{50} = 15.8 μg/mL). Ref: P. A. Horton, et al, JNP, 1994, 57, 1374



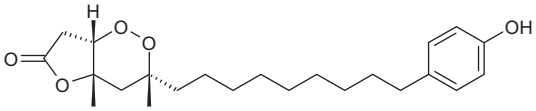
533 Plakortolide E

Type: Bicycloheteroalicyclics (three O). $C_{24}H_{36}O_4$ Brown waxy solid, $[\alpha]_D$ = +10.0° (*c* = 0.09, CH_2Cl_2). Source: Sponge *Placortis* sp. (Fiji). Pharm: Cytotoxic (NCI 60-cell panel, selective melanoma and breast tumour cell lines). Ref: M. Varoglu, et al, JNP, 1995, 58, 27 | J. W. Blunt, et al, NPR, 2014, 31, 160 (rev)



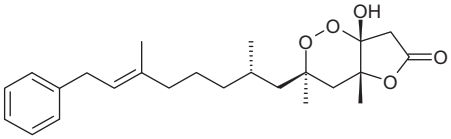
534 Plakortolide F

Type: Bicycloheteroalicyclics (three O). $C_{23}H_{34}O_5$ Source: Sponge *Plakinastrella* sp. (Seychelles). Pharm: Antifungal (yeast *Candida albicans*, MIC > 125 μg/mL (SDB and RPMI media); *Aspergillus fumigatus*, IC_{90} > 125 μg/mL). Ref: Y. Chen, et al, JNP, 2001, 64, 262



535 Plakortolide F‡

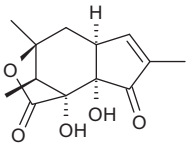
Type: Bicycloheteroalicyclics (three O). $C_{24}H_{34}O_5$ Oil, $[\alpha]_D$ = −59.2° (*c* = 0.025, $CHCl_3$). Source: Sponge *Plakinastrella onkodes*. Pharm: Antibacterial (gram-positive bacterium *Toxoplasma* sp.). Ref: T. L. Perry, et al, Tetrahedron, 2001, 57, 1483



536 Acremostrictin

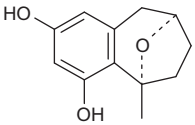
Type: Tricycloheteroalicyclics (one O). $C_{13}H_{16}O_5$ Source: Marine-derived fungus *Acremonium strictum* from an unidentified sponge (Gageo I., Korea waters). Pharm: Antioxidant (DPPH radical-scavenging assay and inhibited hydrogen peroxide-induced death of hmn keratinocyte HaCaT cells, moderate); antibacterial (*Micrococcus luteus*,

MIC = 50 μg/mL, *Salmonella typhimurium*, MIC = 50 μg/mL, *Proteus vulgaris*, MIC = 12.5 μg/mL). Ref: E. Julianti, et al, JNP, 2011, 74, 2592



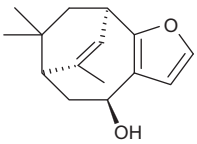
537 Bruguierol C

Type: Tricycloheteroalicyclics (one O). $C_{12}H_{14}O_3$ Amorph. solid, $[\alpha]_D^{20}$ = +4° (*c* = 0.5, MeOH). Source: Mangrove *Bruguiera gymnorrhiza* (stem). Pharm: Antibacterial (*Staphylococcus aureus* SG 511, *Micrococcus luteus* ATCC 10240, *Enterococcus faecalis* 1528 vanA, *Escherichia coli* SG 458 and *Mycobacterium vaccae* MT 10670, MIC = 12.5 μg/mL). Ref: D. M. Solorio, et al, JOC, 2007, 72, 6621



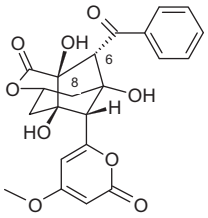
538 Dehydroeuryspongin A

Type: Tricycloheteroalicyclics (one O). $C_{15}H_{18}O$ Pale yellow oil, $[\alpha]_D^{20}$ = +55.9° (*c* = 0.46, $CHCl_3$). Source: Sponge *Euryspongia* sp. (dehydrated product of Euryspongin A, formed in an NMR tube). Pharm: PTP1B inhibitor (an important target enzyme for the treatment of diabetes, IC_{50} = 3.6 μmol/L, control Oleanolic acid, IC_{50} = 1.1 μmol/L). Ref: H. Yamazaki, et al, Bioorg. Med. Chem. Lett., 2013, 23, 2151



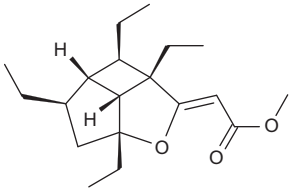
539 3-Epideoxyenterocin

Type: Tricycloheteroalicyclics (one O). $C_{22}H_{20}O_9$ $[\alpha]_D$ = −22.9° (*c* = 1.0, MeOH). Source: Marine-derived streptomycete *Streptomyces* sp. BD-26T(20) (shallow water sediment in Hawaii). Pharm: Antibacterial (inhibits growth of *Staphylococcus aureus*). Ref: N. Sitachitta, et al, Tetrahedron, 1996, 52, 8073



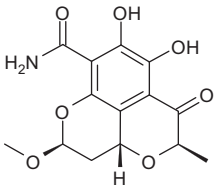
540 Hippolachnin A

Type: Tricycloheteroalicyclics (one O). $C_{19}H_{30}O_3$ Colorless oil. Source: Sponge *Hippospongia lachne* (Xisha Is., South China waters Sea, China waters). Pharm: Antifungal (pathogenic fungi: *Cryptococcus neoformans*, MIC = 0.41 μmol/L, control Voriconazole (VCZ), MIC = 0.18 μmol/L; *Trichophyton rubrum*, MIC = 0.41 μmol/L, VCZ, MIC = 0.09 μmol/L; *Microsporum gypseum*, MIC = 0.41 μmol/L, VCZ, MIC = 0.18 μmol/L; *Candida glabrata*, MIC = 1.63 μmol/L, VCZ, MIC = 0.18 μmol/L; *Cryptococcus parapsilosis*, MIC = 1.63 μmol/L, VCZ, MIC = 0.18 μmol/L; *Candida albicans*, MIC = 13.1 μmol/L, VCZ, MIC = 0.18 μmol/L; *Aspergillus fumigatus*, MIC = 13.1 μmol/L, VCZ, MIC = 5.73 μmol/L). Ref: S. -J. Piao, et al, Org. Lett., 2013, 15, 3526



541 JBIR 58

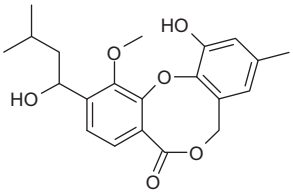
Type: Tricycloheteroalicyclics (two O). $C_{14}H_{15}NO_7$ Yellow powder, $[\alpha]_D^{24}$ = +72.3° (*c* = 0.1, $CHCl_3$). Source: Marine-derived streptomycete *Streptomyces* sp. SpD081030ME-02 from an unidentified sponge (Ishigaki I., Okinawa). Pharm: Cytotoxic (WST-8 colorimetric assay, 48 h, HeLa, IC_{50} = 28 μmol/L). Ref: J. Ueda, et al, J. Antibiot., 2010, 63, 267



542 Paeciloxocin A

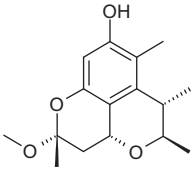
Type: Tricycloheteroalicyclics (two O). $C_{21}H_{24}O_6$ Source: Mangrove-derived fungus *Paecilomyces* sp. from an unidentified mangrove (bark, Taiwan Strain). Pharm:

Cytotoxic (HepG2, IC_{50} = 1 μg/mL); antifungal (*Curvularia lunata*, IZD = 12 mm; *Candida albicans*, IZD = 10 mm). Ref: L. Wen, et al, Russ. Chem. Bull., 2010, 59, 1656



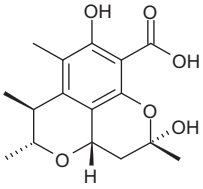
543 Penicitrinol E

Type: Tricycloheteroalicyclics (two O). $C_{16}H_{22}O_4$ Source: Marine-derived fungus *Penicillium citrinum* (sediment, Lanqi I., Fujian, China waters). Pharm: Cytotoxic (HL60, weak). Ref: L. Chen, et al, CPB, 2011, 59, 515



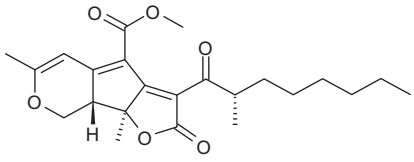
544 Penicitrinol K

Type: Tricycloheteroalicyclics (two O). $C_{16}H_{20}O_6$ Source: Marine-derived fungus *Penicillium* sp. ML226. Pharm: Antibacterial (20 μg/disk, *Staphylococcus aureus* CMCC26003, IZ = 3 mm). Ref: M. L. Wang, et al, Molecules, 2013, 18, 5723



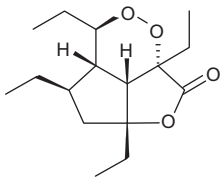
545 Sequoiatone A

Type: Tricycloheteroalicyclics (two O). $C_{23}H_{30}O_6$ Yellow cryst., mp 93.4–95.3 °C, $[\alpha]_D^{25}$ = −750° (*c* = 0.26, MeOH). Source: Mangrove-derived fungus *Penicillium* sp. JP-1 from mangrove *Aegiceras corniculatum* (China waters waters). Pharm: Cytotoxic (breast cancer cell lines, GI_{50} = 4–10 μmol/L with LC_{50} > 100 μmol/L). Ref: Z. J. Lin, et al, Phytochemistry, 2008, 69, 1273



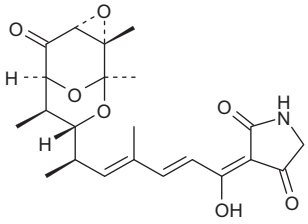
546 Gracilioether H

Type: Tricycloheteroalicyclics (three O). $C_{16}H_{26}O_4$ Source: Sponge *Plakinastrella mamillaris* (Fiji). Pharm: Antiplasmodial (*Plasmodium falciparum*). Ref: C. Festa, et al, Tetrahedron, 2012, 68, 10157



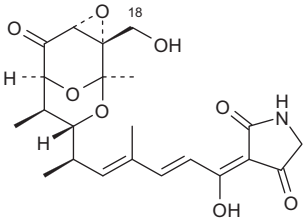
547 Tirandamycin A

Type: Tricycloheteroalicyclics (three O). $C_{22}H_{27}NO_7$ mp 98–102 °C, $[\alpha]_D^{25}$ = +51° (EtOH). Source: Marine-derived streptomycete *Streptomyces* sp. 307-9. Pharm: Antibacterial (gram-positive bacteria; RNA-polymerase inhibitor (potent)); LD_{50} (mus, scu) = 370 mg/kg. Ref: D. J. Duchamp, et al, JACS, 1973, 95, 4077



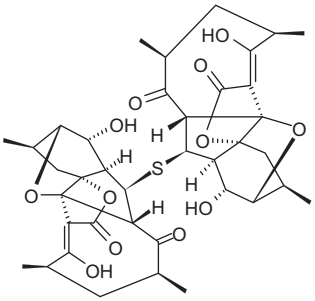
548 Tirandamycin B

Type: Tricycloheteroalicyclics (three O). $C_{22}H_{27}NO_8$ Yellow powder, mp 92–96 °C. Source: Marine-derived streptomycete *Streptomyces* sp. 307-9. Pharm: Antibacterial (gram-positive bacteria); RNA polymerase inhibitor. Ref: H. Hagenmaier, et al, Arch. Microbiol., 1976, 109, 65



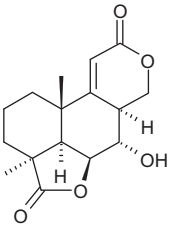
549 Abyssomicin J

Type: Polycycloheteroalicyclic Compounds. $C_{38}H_{46}O_{12}S$ Source: Marine-derived bacterium *Verrucosispora* sp. (deep sea sediment, S. China waters Sea). Pharm: Prodrug of anti-TB antibiotic (upon oxidative activation, will be selectively transformed to *atrop*-abyssomicin C). Ref: Q. Wang, et al, Angew. Chem., Int. Ed., 2013, 52, 1231



550 Botryosphaerin F

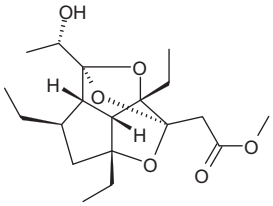
Type: Polycycloheteroalicyclic Compounds. $C_{16}H_{20}O_5$ Source: Mangrove-derived fungus *Aspergillus terreus* (endophytic) from mangrove *Bruguiera gymnorrhiza* (branch, Guangxi, China waters). Pharm: Cytotoxic (HTCLs). Ref: C. Deng, et al, Nat. Prod. Res., 2013, 27, 1882



551 Gracilioether K

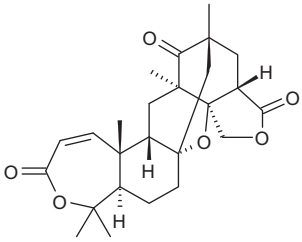
Type: Polycycloheteroalicyclic Compounds. $C_{19}H_{30}O_6$ Source: Sponge *Plakinastrella mamillaris* (Fiji). Pharm: PXR (pregnane X receptor) agonist (docking studies

suggested a similar binding motif to other gracilioether congeners). Ref: C. Festa, et al, Mar. Drugs, 2013, 11, 2314



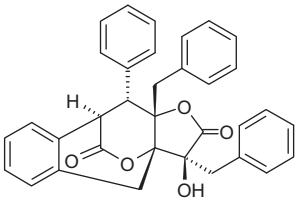
552 Insuetolide A

Type: Polycycloheteroalicyclic Compounds. $C_{25}H_{32}O_6$ Glassy material, $[\alpha]_D^{30} = -68°$ (c = 0.35, $CHCl_3$). Source: Marine-derived fungus *Aspergillus insuetus* OY-207 from sponge *Psammocinia* sp. (Sdot-Yam, Israel). Pharm: Antifungal (*Neurospora crassa*, MIC = 140 μmol/L). Ref: E. Cohen, et al, BoMC, 2011, 19, 6587



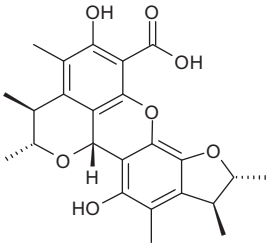
553 Ophiodilactone B

Type: Polycycloheteroalicyclic Compounds. $C_{34}H_{28}O_5$ Yellow powder, $[\alpha]_D^{20} = -222°$ (c = 0.04, MeOH). Source: Ophiuroid *Ophiocoma scolopendrina* (inter-tidal). Pharm: Cytotoxic (P_{388}, IC_{50} = 2.2 μg/mL). Ref: R. Ueoka, et al, JOC, 2009, 74, 4396



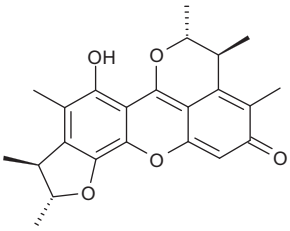
554 Penicitrinol J

Type: Polycycloheteroalicyclic Compounds. $C_{24}H_{26}O_7$ Source: Marine-derived fungus *Penicillium* sp. ML226. Pharm: Antibacterial (20 μg/disk, *Staphylococcus aureus* CMCC26003, IZ = 4 mm). Ref: M. L. Wang, et al, Molecules, 2013, 18, 5723



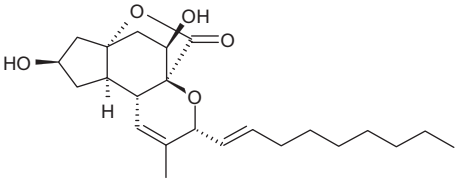
555 Penicitrinone A

Type: Polycycloheteroalicyclic Compounds. $C_{23}H_{24}O_5$ Orange cryst. (C_6H_6/hexane), mp 150–152 °C, $[\alpha]_D^{17}$ = +106.9° (*c* = 0.36, $CHCl_3$). Source: Deep-sea fungus *Aspergillus* sp. SCSIOW3, fungi *Penicillium citrinum* IFM 53298 and *Penicillium notatum* B-52. Pharm: Anti-Aβ peptide aggregation inhibition (Aβ42 assembling activity, 100 μmol/L, 40.3%–72.3%). Ref: D. Wakana, et al, J. Nat. Med. (Tokyo), 2006, 60, 279 | H. Liu, et al, Chin. J. Mar. Drugs, 2014, 33, 71 (in Chinese)



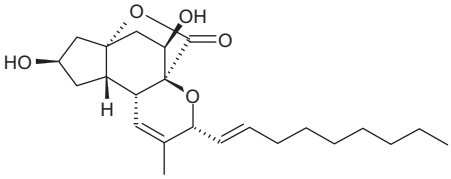
556 Penostatin G

Type: Polycycloheteroalicyclic Compounds. $C_{23}H_{34}O_5$ $[\alpha]_D$ = −35.1° (*c* = 0.29, $CHCl_3$). Source: Marine-derived fungus *Penicillium* sp. strain OUPS-79 from green alga *Enteromorpha intestinalis*. Pharm: Cytotoxic (P_{388}, ED_{50} = 0.5 μg/mL). Ref: C. Iwamoto, et al, JCS Perkin I, 1998, 449



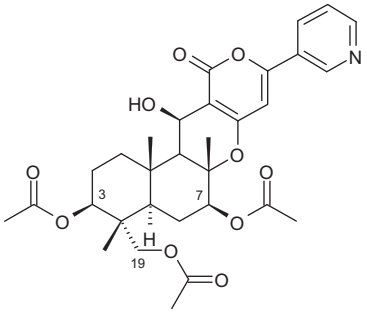
557 Penostatin H

Type: Polycycloheteroalicyclic Compounds. $C_{23}H_{34}O_5$ $[\alpha]_D$ = −11.4° (*c* = 0.18, $CHCl_3$). Source: Marine-derived fungus *Penicillium* sp. strain OUPS-79 from green alga *Enteromorpha intestinalis*. Pharm: Cytotoxic (P_{388}, ED_{50} = 0.8 μg/mL). Ref: C. Iwamoto, et al, JCS Perkin I, 1998, 449



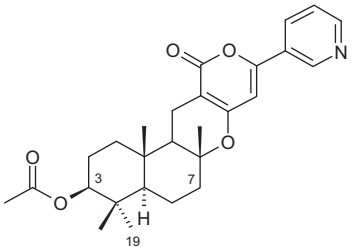
558 Pyripyropene A

Type: Polycycloheteroalicyclic Compounds. $C_{31}H_{37}NO_{10}$ Powder, $[\alpha]_D^{18}$ = +65.8° (*c* = 1, $CHCl_3$). Source: Marine-derived fungi *Aspergillus sydowi* PFW1-13 from driftwood sample (China waters waters) and *Aspergillus* sp. GF-5. Pharm: Insecticide; MDR reversing activity. Ref: H. Tomoda, et al, JACS, 1994, 116, 12097 | M. Zhang, et al, JNP, 2008, 71, 985 | A. Hayashi, et al, Biol. Pharm. Bull., 2009, 32, 1261



559 Pyripyropene E

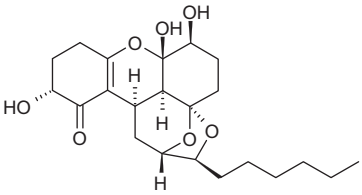
Antibiotic GERI-BP001 M Type: Polycycloheteroalicyclic Compounds. $C_{27}H_{33}NO_5$ Cryst. (MeOH), mp 174–176 °C, $[\alpha]_D^{18}$ = +146° (*c* = 0.5, $CHCl_3$), $[\alpha]_D^{28}$ = +113° (*c* = 1, MeOH). Source: Marine-derived fungus *Aspergillus sydowi* PFW1-13 (from driftwood sample, China waters). Pharm: ACAT inhibitor. Ref: H. Tomoda, et al, J. Antibiot. 1995, 48, 495 | M. Zhang, et al, JNP, 2008, 71, 985



560 Trichodermatide A

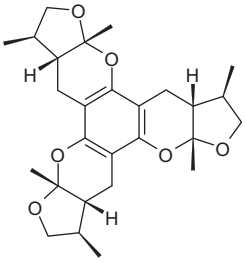
Type: Polycycloheteroalicyclic Compounds. $C_{22}H_{32}O_7$ Oil, $[\alpha]_D^{20}$ = −62.5° (*c* = 0.04, MeOH). Source: Marine-derived fungus *Trichoderma reesei* (sediment sample, China

waters waters). Pharm: Cytotoxic (MTT assay, A375-S2, IC_{50} = 102.2 μg/mL). Ref: Y. Sun, et al, Org. Lett., 2008, 10, 393



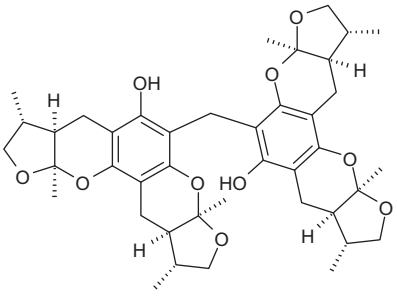
561 Xyloketal A

Type: Polycycloheteroalicyclic Compounds. $C_{27}H_{36}O_6$ Cryst., mp 164–166 °C, $[\alpha]_D^{25}$ = −4.9° (*c* = 0.2, $CHCl_3$). Source: Mangrove-derived fungus *Xylaria* sp. 2508. Pharm: Acetylcholinesterase inhibitor. Ref: Y. C. Lin, et al, JOC, 2001, 66, 6252



562 Xyloketal F

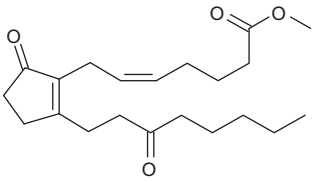
Type: Polycycloheteroalicyclic Compounds. $C_{41}H_{52}O_{10}$ Needles (EtOAc/petrol), mp 160–162 °C, $[\alpha]_D^{25}$ = −50.6° (*c* = 0.2, MeOH). Source: Mangrove-derived fungus *Xylaria* sp. 2508. Pharm: L-Calcium channel blocker. Ref: X. -Y. Wu, et al, EurJOC, 2005, 4061



1.8 Prostaglandins (Prostanoids)

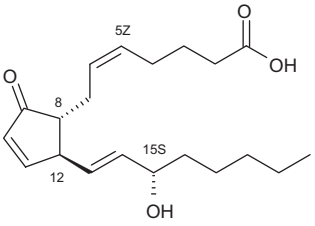
563 Methyl 9,15-dioxo-5,8(12)-prostadienoate

Type: Prostaglandins. $C_{21}H_{32}O_4$ Pale yellow oil. Source: Soft coral *Sarcophyton crassocaule* (Indian Ocean). Pharm: High occular hypotensive. Ref: A. S. R. Anjaneyulu, et al, JNP, 2000, 63, 1425



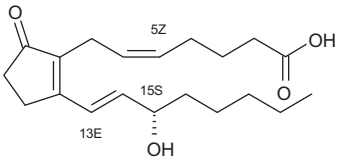
564 (5*Z*)-PGA$_2$

(5*Z*)-Prostaglandin A_2 Type: Prostaglandins. $C_{20}H_{30}O_4$ Oil, $[\alpha]_D^{20}$ = +140° (*c* = 1.15, $CHCl_3$). Source: Gorgonian *Plexaura homomalla,* and occurs in hmn both blood serum and seminal plasma. Pharm: LD_{50} (mus, ipr) 93 mg/kg. Ref: A. J. Weinheimer, et al, Tet. Lett., 1969, 5185 | W. P. Schneider, et al, JACS, 1972, 94, 2122 | A. E. Greene, et al, JOC, 1978, 43, 4377 | A. D. Rodríguez, Tetrahedron, 1995, 51, 4571(rev) | S. M. Verbitski, et al, JMC, 2004, 47, 2062



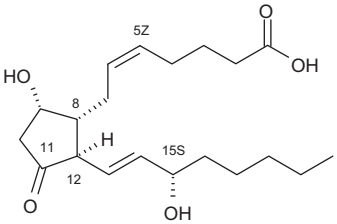
565 PGB$_2$

Prostaglandin B_2 Type: Prostaglandins. $C_{20}H_{30}O_4$ Cryst., $[\alpha]_D^{25}$ = +16.3° (*c* = 0.024, $CHCl_3$). Source: Soft coral *Sarcophyton crassocaule*, sea cucumber *Stichopus japonicus*, starfish *Distolasterias nipon*, ascidian *Halocynthia aurantium*, mussel *Mytilus edulis* (edible), mussel *Modiolus difficilis,* abalone *Haliotis ovina*, yellowtail fish *Seriola quinqueradiata* and *Crenomytilus grayanus*, and occurs in hmn seminal plasma (PGB_2 is the most abundant prostaglandin released from osteoblasts). Pharm: Inhibits uterine motility (*in vitro*). Ref: J. H. M. Feyen, et al, Prostaglandins, 1984, 28, 769 | O. D. Karotchenko, et al, Chem. Nat. Compd. (Engl. Transl.), 1999, 35, 612 | S. R. Ammanamanchi, et al, JNP, 2000, 63, 112



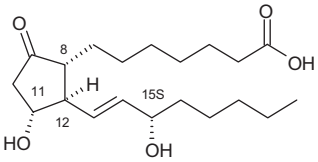
566 PGD_2

Prostaglandin D_2 Type: Prostaglandins. $C_{20}H_{32}O_5$ Cryst., mp 68 °C. Source: Gorgonian *Plexaura homomalla*, soft coral *Gersemia fruticosa*, and occurs in hmn tissues. Pharm: Bronchoconstrictor; platelet aggregation inhibitor. Ref: B. J. R. Whittle, et al, Adv. Exp. Med. Biol., 1985, 192, 109 (rev) | H. Giles, et al, Prostaglandins, 1988, 35, 277 | K. Varvas, et al, Tet. Lett., 1993, 34, 3643



567 PGE_1

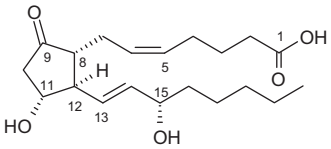
Prostaglandin E_1 Type: Prostaglandins. $C_{20}H_{34}O_5$ Cryst. (EtOAc), mp 114–116.5 °C, $[\alpha]_D^{24}$ = −53.2° (*c* = 0.977, THF). Source: Gorgonian *Plexaura homomalla*, and occurs in hmn both blood serum and seminal plasma. Pharm: Vasodilator and platelet aggregation inhibitor; LD_{50} (rat, orl) = 228 mg/kg. Ref: J. Mai, et al, Prostaglandins, 1980, 20, 187



568 PGE_2

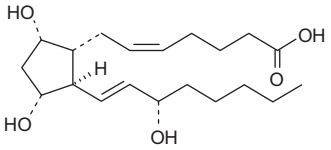
Prostaglandin E_2 Type: Prostaglandins. $C_{20}H_{32}O_5$ Cryst., mp 66–68 °C, $[\alpha]_D^{26}$ = −61° (*c* = 1, THF). Source: Red algae *Gracilaria lichenoide* and *Gracilaria* spp., soft coral *Gersemia fruticosa*, mussel (horse mussel) *Modiolus demissus*, sea cucumber *Stichopus japonicus*, starfish *Distolasterias nipon*, ascidian *Halocynthia aurantium*, yellowtail fish *Seriola quinqueradiata*, occurs in mammalian tissues. Pharm: Oxytocic; abortifacient and vasodilator; luteolytic; LD_{50} (rat, orl) = 500 mg/kg. Ref:

R. P. Gregson, et al, Tet. Lett., 1979, 4505 | K. Varvas, et al, Tet. Lett., 1993, 34, 3643 | O. D. Karotchenko, et al, Chem. Nat. Compd. (Engl. Transl.), 1999, 35, 612



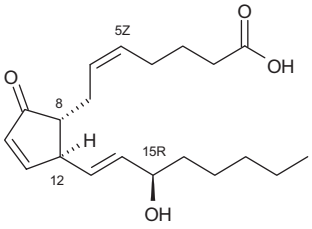
569 $PGF_{2\alpha}$

Prostaglandin F2α Type: Prostaglandins. $C_{20}H_{34}O_5$ Oil or solid, mp 25–35 °C, $[\alpha]_D^{25}$ = +23.5° (*c* = 1, THF). Source: Red alga *Glacilaria lichenoides,* variety of marine algae and invertebrates, common naturally occurring mammalian prostaglandin. Pharm: Abortifacient; oxytocic; smooth muscle stimulant; LD_{50} (rat, orl) = 1170 mg/kg. Ref: R. P. Gregson, et al, Tet. Lett., 1979, 4505 | O. D. Karotchenko, et al, Chem. Nat. Compd. (Engl. Transl.), 1999, 35, 612



570 15-*epi*-Prostaglandin A_2

(5*Z*,8*R*,12*S*,13*E*,15*R*)-15-Hydroxy-9-oxo-5,10,13-prostatrien-1-oic acid Type: Prostaglandins. $C_{20}H_{30}O_4$ Source: Gorgonian *Plexaura homomalla* (content = 0.2%dw). Pharm: Anti-inflammatory. Ref: A. J. Weinheimer, et al, Tet. Lett., 1969, 5185

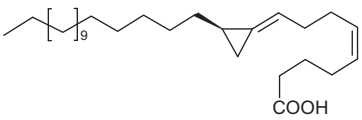


1.9 Oxylipins (Excluding Eicosanoids)

571 Amphimic acid A

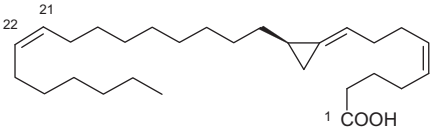
Type: Cyclopropyl-oxylipins. $C_{28}H_{50}O_2$ Needles (MeCN/Et_2O), mp 39–39.5 °C, $[\alpha]_D^{22}$ = +7.7° (*c* = 0.49, MeOH). Source: Sponge *Amphimedon* sp. (Australia). Pharm: Cytotoxic (P_{388}, IC_{50} = 1.8 μmol/L); Hmn DNA topoisomerase I inhibitor.

Ref: T. Nemoto, et al, Tet. Lett., 1997, 38, 5667 | T. Nemoto, et al, Tetrahedron, 1997, 53, 16699



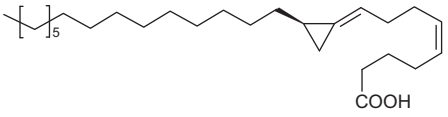
572 Amphimic acid B

Type: Cyclopropyl-oxylipins. $C_{28}H_{48}O_2$ Oil, $[\alpha]_D^{27}$ = +6.2° (*c* = 0.98, MeOH). Source: Sponge *Amphimedon* sp. (Australia). Pharm: Hmn DNA topoisomerase I inhibitor. Ref: T. Nemoto, et al, Tet. Lett., 1997, 38, 5667 | T. Nemoto, et al, Tetrahedron, 1997, 53, 16699



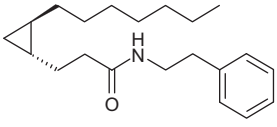
573 Amphimic acid C

Type: Cyclopropyl-oxylipins. $C_{27}H_{48}O_2$ Oil, $[\alpha]_D^{27}$ = +6.3° (*c* = 0.11, MeOH). Source: Sponge *Amphimedon* sp. (Australia). Pharm: Hmn DNA topoisomerase I inhibitor. Ref: T. Nemoto, et al, Tet. Lett., 1997, 38, 5667 | T. Nemoto, et al, Tetrahedron, 1997, 53, 16699



574 Grenadamide A

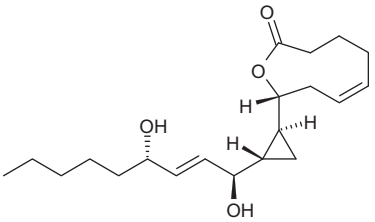
Grenadamide Type: Cyclopropyl-oxylipins. $C_{21}H_{33}NO$ $[\alpha]_D$ = −11° (*c* = 0.1, $CHCl_3$). Source: Cyanobacterium *Lyngbya majuscula* (macroscopic, Grenada). Pharm: Toxic (brine shrimp, LD_{50} = 5 µg/mL), binds to cannabinoid receptor (*K*i = 4.7 µmol/L, modest). Ref: N. Sitachitta, et al, JNP, 1998, 61, 681



575 (–)-Halicholactone

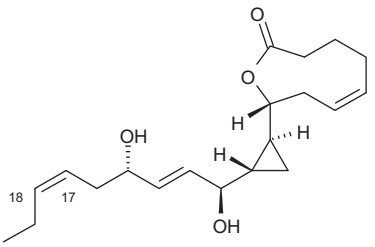
Type: Cyclopropyl-oxylipins. $C_{20}H_{32}O_4$ Oil, $[\alpha]_D^{23}$ = −85.4°. Source: Sponge *Halichondria okadai*. Pharm: 5-Lipoxygenase inhibitor (gpg, polymorphonuclear

leukocytes, IC_{50} = 630 µmol/L). Ref: H. Niwa, et al, Tet. Lett., 1989, 30, 4543 | H. Kigoshi, et al, Tet. Lett., 1991, 32, 2427 | P. J. Proteau, et al, JNP, 1994, 57, 1717 | Y. Baba, et al, JOC, 2001, 66, 81



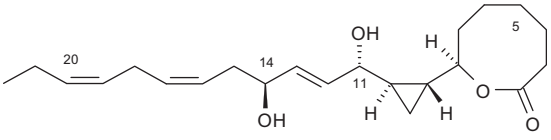
576 Neohalicholactone

Type: Cyclopropyl-oxylipins. $C_{20}H_{30}O_4$ Cryst. (Et_2O/pentane), mp 69–70 °C, $[\alpha]_D^{16}$ = –54.2° (*c* = 0.73, $CHCl_3$). Source: Brown alga *Laminaria sinclairii* from sponge *Halichondria okadai*. Pharm: Lipoxygenase activity (weak). Ref: H. Niwa, K. Et al, Tet. Lett., 1989, 30, 4543 | H. Kigoshi, et al, Tet. Lett., 1991, 32, 2427 | P. J. Proteau, et al, JNP, 1994, 57, 1717 | D. J. Critcher, et al, Tet. Lett., 1995, 36, 3763 | M. Bischop, et al, Synthesis, 2010, 527



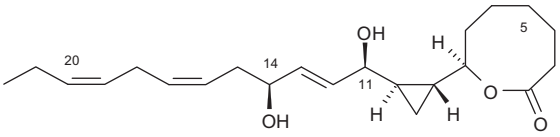
577 Solandelactone C

Type: Cyclopropyl-oxylipins. $C_{22}H_{34}O_4$ Oil, $[\alpha]_D^{25}$ = +2.9° (*c* = 0.2, MeOH). Source: Hydroid *Solanderia secunda* (order Anthoathecata). Pharm: FPT inhibitor (100 µg/mL, InRt = 69%, FPT is associated with cell differentiation and proliferation and its inhibition may be a target for novel anticancer agents). Ref: Y. W. Seo, et al, Tetrahedron 1996, 52, 10583



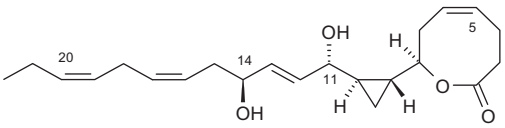
578 Solandelactone D

Type: Cyclopropyl-oxylipins. $C_{22}H_{34}O_4$ Oil, $[\alpha]_D^{25}$ = +5.7° (*c* = 0.2, MeOH). Source: Hydroid *Solanderia secunda* (order Anthoathecata). Pharm: FPT inhibitor (100 µg/mL, InRt = 89%). Ref: Y. W. Seo, et al, Tetrahedron 1996, 52, 10583



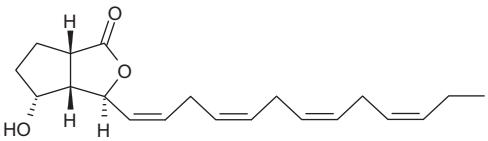
579 Solandelactone G

Type: Cyclopropyl-oxylipins. $C_{22}H_{32}O_4$ Oil, $[\alpha]_D^{25}$ = +3.7° (*c* = 0.8, MeOH). Source: Hydroid *Solanderia secunda* (order Anthoathecata). Pharm: FPT inhibitor (100 µg/mL, InRt = 61%). Ref: Y. W. Seo, et al, Tetrahedron 1996, 52, 10583



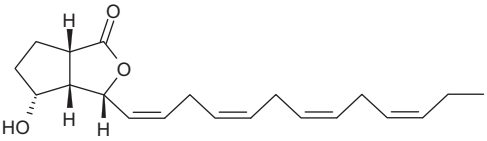
580 Bacillariolide I

Type: Cyclopentyl-oxylipins. $C_{20}H_{28}O_3$ Colorless oil, $[\alpha]_D$ = −23.6° (*c* = 0.55, MeOH); $[\alpha]_D^{24}$ = −25.9° (*c* = 0.21, MeOH). Source: Diatoms *Pseudonitzschia multiseries* and *Nitzschia pungens* f. *multiseries*. Pharm: PLA_2 inhibitor (significant); toxic (causes amnesic shellfish poisoning). Ref: Y. Shimizu, et al, Pure Appl. Chem., 1989, 61, 513 | R. Wang, et al, J. Chem. Soc., Chem. Commun., 1993, 397 | H. Miyaoka, et al, Tetrahedron, 2000, 56, 8083



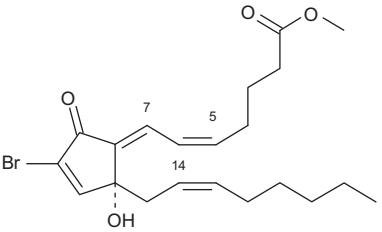
581 Bacillariolide II

Type: Cyclopentyl-oxylipins. $C_{20}H_{28}O_3$ Colorless oil, $[\alpha]_D$ = −58.5° (*c* = 0.33, MeOH); $[\alpha]_D^{23}$ = −59.2° (*c* = 0.33, MeOH). Source: Diatoms *Pseudonitzschia multiseries* and *Nitzschia pungens* f. *multiseries*. Pharm: Toxin (causes amnesic shellfish poisoning). Ref: Y. Shimizu, et al, Pure Appl. Chem., 1989, 61, 513 | R. Wang, et al, J. Chem. Soc., Chem. Commun., 1993, 397 | H. Miyaoka, et al, Tetrahedron, 2000, 56, 8083



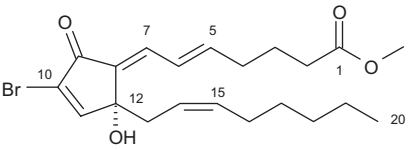
582 Bromovulone I

Type: Cyclopentyl-oxylipins. $C_{21}H_{29}BrO_4$ Oil. Source: Stolonifer *Clavularia viridis* (Japan waters waters). Pharm: Antineoplastic, antiproliferative. Ref: K. Iguchi, et al, Chem. Comm., 1986, 981



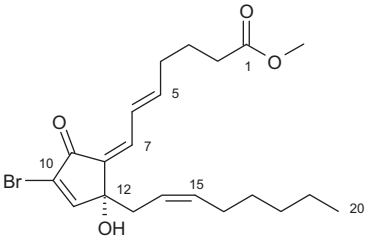
583 Bromovulone II

Type: Cyclopentyl-oxylipins. $C_{21}H_{29}BrO_4$ Pale yellow oil, $[\alpha]_D^{25}$ = +23° (*c* = 0.25, CH_2Cl_2). Source: Stolonifer *Clavularia viridis* (Taiwan waters). Pharm: Cytotoxic (PC3, IC_{50} = 5.6 µmol/L, control Chlorovulone II, IC_{50} = 0.8 µmol/L; HT29, IC_{50} = 5.4 µmol/L, Chlorovulone III, IC_{50} = 2.7 µmol/L). Ref: Y. -C. Shen, et al, JNP, 2004, 67, 542



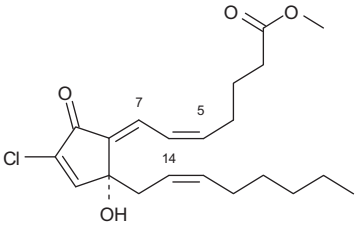
584 Bromovulone III

Type: Cyclopentyl-oxylipins. $C_{21}H_{29}BrO_4$ Pale yellow oil, $[\alpha]_D^{25}$ = +39° (*c* = 0.38, CH_2Cl_2). Source: Stolonifer *Clavularia viridis* (Taiwan waters). Pharm: Cytotoxic (PC3, IC_{50} = 0.5 µmol/L, control Chlorovulone II, IC_{50} = 0.8 µmol/L; HT29, IC_{50} = 0.5 µmol/L, Chlorovulone III, IC_{50} = 2.7 µmol/L, induced apoptotic signaling in a sequential manner). Ref: Y. -C. Shen, et al, JNP, 2004, 67, 542 | P. -C. Chiang, et al, J. Hepatol., 2005, 43, 679



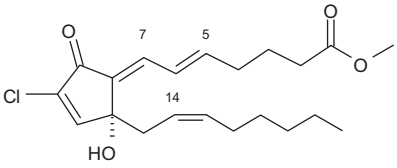
585 Chlorovulone I

Type: Cyclopentyl-oxylipins. $C_{21}H_{29}ClO_4$ Oil, $[\alpha]_D$ = −1.2° (*c* = 0.17, $CHCl_3$). Source: Stolonifer *Clavularia viridis*. Pharm: Antineoplastic. Ref: K. Iguchi, et al, Tet. Lett., 1985, 26, 5787 | K. Iguchi, et al, Chem. Comm., 1986, 981



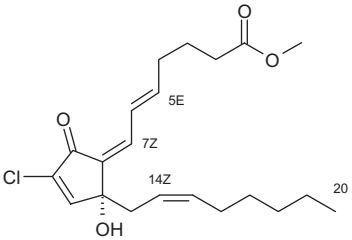
586 Chlorovulone II

Type: Cyclopentyl-oxylipins. $C_{21}H_{29}ClO_4$ $[\alpha]_D$ = +22.7° (*c* = 0.75, $CHCl_3$). Source: Stolonifers *Clavularia viridis* and *Clavularia viridis* (Taiwan waters). Pharm: Cytotoxic (HL60, IC_{50} = 30 nmol/L; PC3, IC_{50} = 0.8 µmol/L). Ref: K. Iguchi, et al, Tet. Lett., 1985, 26, 5787 | K. Iguchi, et al, Chem. Comm., 1986, 981 | M. A. Ciufolini, et al, JOC, 1998, 63, 1668 | Y. -C. Shen, et al, JNP, 2004, 67, 542



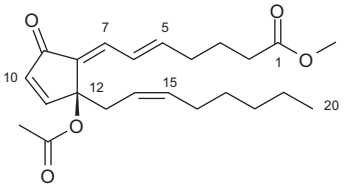
587 Chlorovulone III

Type: Cyclopentyl-oxylipins. $C_{21}H_{29}ClO_4$ $[\alpha]_D$ = +27.3° (*c* = 0.033, $CHCl_3$). Source: Stolonifers *Clavularia viridis* and *Clavularia viridis* (Taiwan waters). Pharm: Cytotoxic (PC3, IC_{50} = 1.9 µmol/L; HT29, IC_{50} = 2.7 µmol/L). Ref: K. Iguchi, et al, Tet. Lett., 1985, 26, 5787 | K. Iguchi, et al, Chem. Comm., 1986, 981 | Y. -C. Shen, et al, JNP, 2004, 67, 542



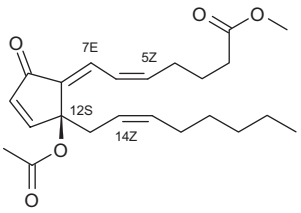
588 Claviridenone E

Type: Cyclopentyl-oxylipins. $C_{23}H_{32}O_5$ Oil, $[\alpha]_D^{25}$ = +8.6° (*c* = 0.3, $CHCl_3$). Source: Stolonifer *Clavularia viridis* (Taiwan waters). Pharm: Cytotoxic (A549, ED_{50} = 0.41 µg/mL; HT29, ED_{50} = 1.02 µg/mL; P_{388}, ED_{50} = 0.11 µg/mL); cytotoxic (PC3, IC_{50} = 3.5 µmol/L, control Chlorovulone II, IC_{50} = 0.8 µmol/L; HT29, IC_{50} > 10 µmol/L, control Chlorovulone II, IC_{50} = 2.7 µmol/L). Ref: C. -Y. Duh, et al, JNP, 2002, 65, 1535 | Y. -C. Shen, et al, JNP, 2004, 67, 542



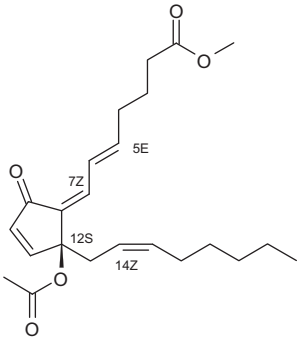
589 Claviridenone F

Type: Cyclopentyl-oxylipins. $C_{23}H_{32}O_5$ Amorph. solid, $[\alpha]_D^{25}$ = +6.7° (*c* = 0.3, $CHCl_3$). Source: Stolonifers *Clavularia viridis* and *Clavularia violacea* Pharm: Cytotoxic (A549, ED_{50} = 0.0050 µg/mL; HT29, ED_{50} = 0.051 µg/mL; P_{388}, ED_{50} = 0.52 pg/mL). Ref: C. -Y. Duh, et al, JNP, 2002, 65, 1535



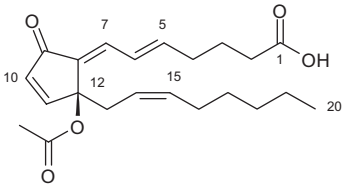
590 Claviridenone G

Type: Cyclopentyl-oxylipins. $C_{23}H_{32}O_5$ Oil, $[\alpha]_D^{25}$ = +5.4° (*c* = 0.1, $CHCl_3$). Source: Stolonifer *Clavularia viridis*. Pharm: Cytotoxic (A549, ED_{50} = 0.051 µg/mL; HT29, ED_{50} = 1.22 µg/mL; P_{388}, ED_{50} = 0.26 µg/mL). Ref: C. -Y. Duh, et al, JNP, 2002, 65, 1535



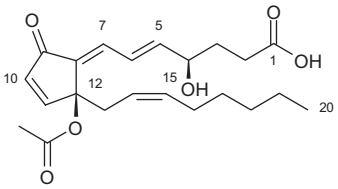
591 Claviridic acid A

Type: Cyclopentyl-oxylipins. $C_{22}H_{30}O_5$ Oil, $[\alpha]_D^{26}$ = −33.6° (*c* = 0.1, CH_2Cl_2). Source: Stolonifer *Clavularia viridis*. Pharm: Inhibits PHA-induced proliferation of PBMC (drug 10 μg/mL: PHA 0.2 μg/mL, InRt = 80.4%, PHA 5 μg/mL, InRt = 87.9%, an anti-inflammatory mechanism), cytotoxic (AGS, IC_{50} = (1.73 ± 0.03)μg/mL, control Doxorubicin, IC_{50} = (0.1 ± 0.01)μg/mL). Ref: Y. -S. Lin, et al, Chem. Biodiversity, 2008, 5, 784



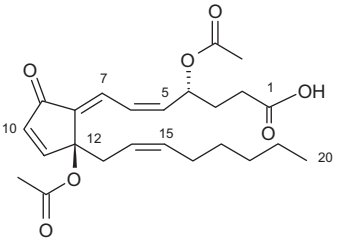
592 Claviridic acid B

Type: Cyclopentyl-oxylipins. $C_{22}H_{30}O_6$ Oil, $[\alpha]_D^{26}$ = +13.2° (*c* = 0.1, CH_2Cl_2). Source: Stolonifer *Clavularia viridis*. Pharm: Inhibits PHA-induced proliferation of PBMC (drug 10 μg/mL: PHA 0.2 μg/mL, InRt = 65.9%, PHA 5 μg/mL, InRt = 69.5%, an anti-inflammatory mechanism), cytotoxic (AGS, IC_{50} = (3.75 ± 0.13)μg/mL, control Doxorubicin, IC_{50} = (0.1 ± 0.01)μg/mL). Ref: K. Watanabe, et al, JNP, 1996, 59, 980 | Y. -S. Lin, et al, Chem. Biodiversity, 2008, 5, 784



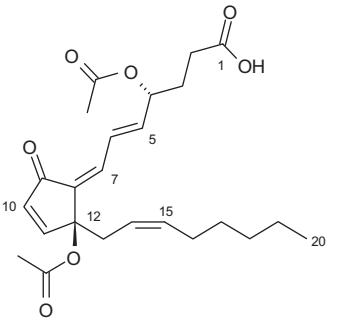
593 Claviridic acid C

Type: Cyclopentyl-oxylipins. $C_{24}H_{32}O_7$ Oil, $[\alpha]_D^{26}$ = −36.8° (*c* = 0.1, CH_2Cl_2). Source: Stolonifer *Clavularia viridis*. Pharm: Inhibits PHA-induced proliferation of PBMC (drug 10 μg/mL: PHA 0.2 μg/mL, InRt = 46.5%, PHA 5 μg/mL, InRt = 61.6%, an anti-inflammatory mechanism), cytotoxic (AGS, IC_{50} = (7.78 ± 0.43)μg/mL, control Doxorubicin, IC_{50} = (0.1 ± 0.01)μg/mL). Ref: Y. -S. Lin, et al, Chem. Biodiversity, 2008, 5, 784



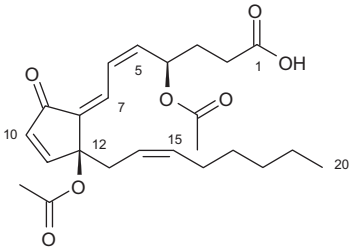
594 Claviridic acid D

Type: Cyclopentyl-oxylipins. $C_{24}H_{32}O_7$ Oil, $[\alpha]_D^{26}$ = +13.2° (*c* = 0.1, CH_2Cl_2). Source: Stolonifer *Clavularia viridis*. Pharm: Inhibits PHA-induced proliferation of PBMC (drug 10 μg/mL: PHA 0.2 μg/mL, InRt = 77.2%, PHA 5 μg/mL, InRt = 79.8%, an anti-inflammatory mechanism), cytotoxic (AGS, IC_{50} = (3.14 ± 0.16)μg/mL, control Doxorubicin, IC_{50} = (0.1 ± 0.01)μg/mL). Ref: Y. -S. Lin, et al, Chem. Biodiversity, 2008, 5, 784



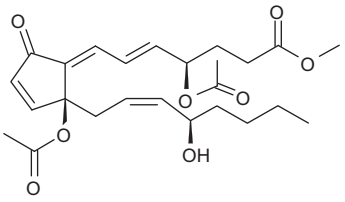
595 Claviridic acid E

Type: Cyclopentyl-oxylipins. $C_{24}H_{32}O_7$ Oil, $[\alpha]_D^{26}$ = −15.6° (*c* = 0.1, CH_2Cl_2). Source: Stolonifer *Clavularia viridis*. Pharm: Inhibits PHA-induced proliferation of PBMC (drug 10 μg/mL: PHA 0.2 μg/mL, InRt = 76.9%, PHA 5 μg/mL, InRt = 81.2%, an anti-inflammatory mechanism), cytotoxic (AGS, IC_{50} = (4.22 ± 0.28)μg/mL, control Doxorubicin, IC_{50} = (0.1 ± 0.01)μg/mL). Ref: Y. -S. Lin, et al, Chem. Biodiversity, 2008, 5, 784



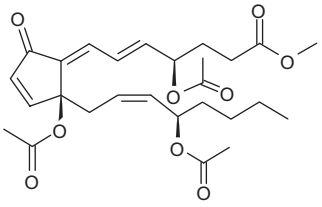
596 Claviridin A

Type: Cyclopentyl-oxylipins. $C_{25}H_{34}O_8$ Source: Stolonifer *Clavularia viridis* (Kenting, South coast of Taiwan). Pharm: Cytotoxic (Hep2, ED_{50} = 0.19 μg/mL, control CPT, ED_{50} = 0.06 μg/mL; Doay hmn medulloblastoma, ED_{50} = 0.18 μg/mL, CPT, ED_{50} = 0.15 μg/mL; WiDr hmn colon adenocarcinoma, ED_{50} = 0.34 μg/mL, CPT, ED_{50} = 0.05 μg/mL; Hela hmn cervical epitheloid carcinoma, ED_{50} = 0.59 μg/mL, CPT, ED_{50} = 0.19 μg/mL). Ref: Y. -C. Shen, et al, Chem. Biodiversity, 2010, 7, 2702



597 Claviridin B

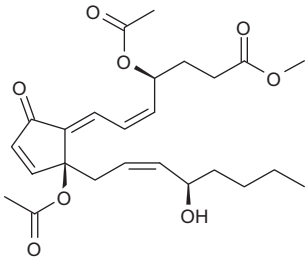
Type: Cyclopentyl-oxylipins. $C_{27}H_{36}O_9$ Source: Stolonifer *Clavularia viridis* (Kenting, South coast of Taiwan). Pharm: Cytotoxic (Hep2, ED_{50} = 0.16 μg/mL, control CPT, ED_{50} = 0.06 μg/mL; Doay, ED_{50} = 0.25 μg/mL, CPT, ED_{50} = 0.15 μg/mL; WiDr, ED_{50} = 0.31 μg/mL, CPT, ED_{50} = 0.05 μg/mL; Hela, ED_{50} = 0.88 μg/mL, CPT, ED_{50} = 0.19 μg/mL). Ref: Y. -C. Shen, et al, Chem. Biodiversity, 2010, 7, 2702



598 Claviridin C

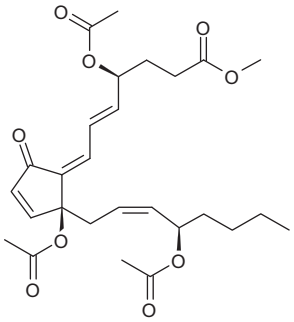
Type: Cyclopentyl-oxylipins. $C_{25}H_{34}O_8$ Source: Stolonifer *Clavularia viridis* (Kenting, South coast of Taiwan). Pharm: Cytotoxic (Hep2, ED_{50} = 0.35 μg/mL, control CPT, ED_{50} = 0.06 μg/mL; Doay, ED_{50} = 0.29 μg/mL, CPT, ED_{50} = 0.15 μg/mL; WiDr,

ED_{50} = 0.25 μg/mL, CPT, ED_{50} = 0.05 μg/mL; Hela, ED_{50} = 0.31 μg/mL, CPT, ED_{50} = 0.19 μg/mL). Ref: Y. -C. Shen, et al, Chem. Biodiversity, 2010, 7, 2702



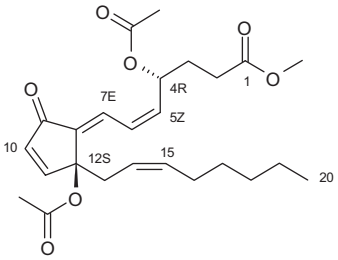
599 Claviridin D

Type: Cyclopentyl-oxylipins. $C_{27}H_{36}O_9$ Source: Stolonifer *Clavularia viridis* (Kenting, South coast of Taiwan). Pharm: Cytotoxic (Hep2, ED_{50} = 0.25 μg/mL, control CPT, ED_{50} = 0.06 μg/mL; Doay, ED_{50} = 0.23 μg/mL, CPT, ED_{50} = 0.15 μg/mL; WiDr, ED_{50} = 0.22 μg/mL, CPT, ED_{50} = 0.05 μg/mL; Hela, ED_{50} = 0.45 μg/mL, CPT, ED_{50} = 0.19 μg/mL). Ref: Y. -C. Shen, et al, Chem. Biodiversity, 2010, 7, 2702



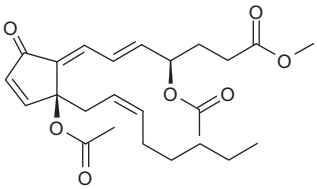
600 Clavulone I

Claviridenone D Type: Cyclopentyl-oxylipins. $C_{25}H_{34}O_7$ Yellowish oil, $[\alpha]_D$ = −28.9° ($CHCl_3$). Source: Stolonifer *Clavularia viridis*. Pharm: Inhibits PHA-induced proliferation of PBMC (drug 10 μg/mL: PHA 0.2 μg/mL, InRt = 79.6%, PHA 5 μg/mL, InRt = 85.2%, an anti-inflammatory mechanism), cytotoxic (AGS, IC_{50} = (1.14 ± 0.02) μg/mL, control Doxorubicin, IC_{50} = (0.1 ± 0.01)μg/mL). Ref: H. Kikuchi, et al, Tet. Lett., 1982, 23, 5171 | M. Kobayashi, et al, Tet. Lett., 1982, 23, 5331 | M. Kobayashi, et al, CPB, 1983, 31, 1440 | I. Kitagawa, et al, Tetrahedron, 1985, 41,995 | Y. -S. Lin, et al, Chem. Biodiversity, 2008, 5, 784



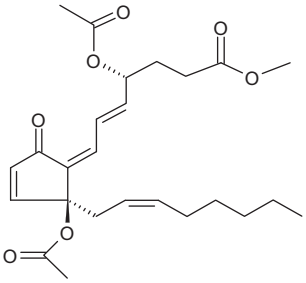
601 Clavulone II

Claviridenone C Type: Cyclopentyl-oxylipins. $C_{25}H_{34}O_7$ Yellowish oil, $[\alpha]_D$ = +10.9° ($CHCl_3$). Source: Stolonifer *Clavularia viridis*. Pharm: Inhibits PHA-induced proliferation of PBMC (drug 10 μg/mL: PHA 0.2 μg/mL, InRt = 74.4%, PHA 5 μg/mL, InRt = 81.6%, an anti-inflammatory mechanism), cytotoxic (AGS, IC_{50} = (0.98 ± 0.19) μg/mL, control Doxorubicin, IC_{50} = (0.1 ± 0.01)μg/mL). Ref: H. Kikuchi, et al, Tet. Lett., 1982, 23, 5171 | M. Kobayashi, et al, Tet. Lett., 1982, 23, 5331 | M. Kobayashi, et al, CPB, 1983, 31, 1440 | H. Nagaoka, et al, Tet. Lett., 1984, 25, 3621 | I. Kitagawa, et al, Tetrahedron, 1985, 41,995 | Y. -S. Lin, et al, Chem. Biodiversity, 2008, 5, 784



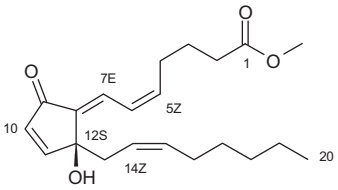
602 Clavulone III

Claviridenone B Type: Cyclopentyl-oxylipins. $C_{25}H_{34}O_7$ Yellowish oil, $[\alpha]_D$ = +45.5° ($CHCl_3$). Source: Stolonifer *Clavularia viridis*. Pharm: Inhibits PHA-induced proliferation of PBMC (drug 10 μg/mL: PHA 0.2 μg/mL, InRt = 75.8%, PHA 5 μg/mL, InRt = 79.8%, an anti-inflammatory mechanism), cytotoxic (AGS, IC_{50} = (3.12 ± 0.15) μg/mL, control Doxorubicin, IC_{50} = (0.1 ± 0.01)μg/mL). Ref: H. Kikuchi, et al, Tet. Lett., 1982, 23, 5171 | M. Kobayashi, et al, Tet. Lett., 1982, 23, 5331 | M. Kobayashi, et al, CPB, 1983, 31, 1440I. Kitagawa, et al, Tetrahedron, 1985, 41,995 | Y. -S. Lin, et al, Chem. Biodiversity, 2008, 5, 784



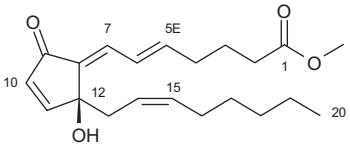
603 4-Deacetoxyl-12-*O*-deacetylclavulone I

Methyl (5*Z*,7*E*,12*S*,14*Z*)-12-Hydroxy-9-oxo-5,7,10,14-prostatetraenoate Type: Cyclopentyloxylipins. $C_{21}H_{30}O_4$ Pale yellow oil, $[\alpha]_D^{25}$ = +24° (*c* = 0.4, CH_2Cl_2). Source: Stolonifer *Clavularia viridis* (Taiwan waters). Pharm: Cytotoxic (PC3, IC_{50} = 7.2 µmol/L, control Chlorovulone II, IC_{50} = 0.8 µmol/L; HT29, IC_{50} = 6.0 µmol/L, Chlorovulone III, IC_{50} = 2.7 µmol/L). Ref: Y. -C. Shen, et al, JNP, 2004, 67, 542



604 4-Deacetoxyl-12-*O*-deacetylclavulone II

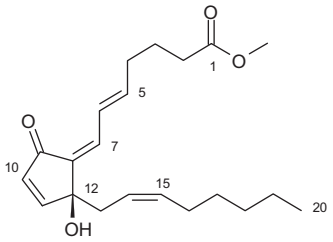
Methyl (5*E*,7*E*,12*S*,14*Z*)-12-Hydroxy-9-oxo-5,7,10,14-prostatetraenoate Type: Cyclopentyloxylipins. $C_{21}H_{30}O_4$ Pale yellow oil, $[\alpha]_D^{25}$ = +54° (*c* = 0.8, CH_2Cl_2). Source: Stolonifer *Clavularia viridis* (Taiwan waters). Pharm: Cytotoxic (PC3, IC_{50} = 5.4 µmol/L, control Chlorovulone II, IC_{50} = 0.8 µmol/L; HT29, IC_{50} = 4.1 µmol/L, Chlorovulone III, IC_{50} = 2.7 µmol/L). Ref: Y. -C. Shen, et al, JNP, 2004, 67, 542



605 4-Deacetoxyl-12-*O*-deacetylclavulone III

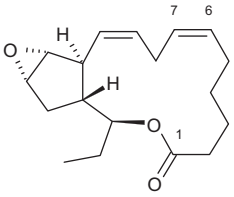
Methyl (5*E*,7*Z*,12*S*,14*Z*)-12-Hydroxy-9-oxo-5,7,10,14-prostatetraenoate Type: Cyclopentyloxylipins. $C_{21}H_{30}O_4$ Pale yellow oil, $[\alpha]_D^{25}$ = +15° (*c* = 0.8, CH_2Cl_2). Source: Stolonifer *Clavularia viridis* (Taiwan waters). Pharm: Cytotoxic (PC3, IC_{50} = 3.9 µmol/L, control

Chlorovulone II, IC_{50} = 0.8 µmol/L; HT29, IC_{50} = 7.9 µmol/L, Chlorovulone III, IC_{50} = 2.7 µmol/L). Ref: Y. -C. Shen, et al, JNP, 2004, 67, 542



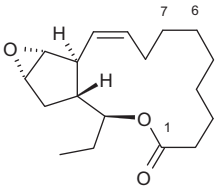
606 Ecklonialactone A

Type: Cyclopentyl-oxylipins. $C_{18}H_{26}O_3$ Cryst. (EtOH), mp 96–98 °C, $[\alpha]_D$ = −87.7° (*c* = 1.02, $CHCl_3$). Source: Brown alga *Ecklonia stolonifera*. Pharm: Antifeedant. Ref: K. Kurata, et al, Chem. Lett., 1989, 267 | J. S. Todd, et al, JNP, 1994, 57, 171



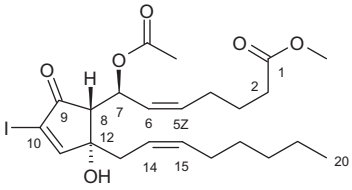
607 Ecklonialactone B

Type: Cyclopentyl-oxylipins. $C_{18}H_{28}O_3$ Cryst. (EtOH), mp 64–66 °C, $[\alpha]_D$ = −49.3° (*c* = 1.08, $CHCl_3$). Source: Brown alga *Ecklonia stolonifera*. Pharm: Antifeedant. Ref: K. Kurata, et al, Chem. Lett., 1989, 267 | J. S. Todd, et al, JNP, 1994, 57, 171



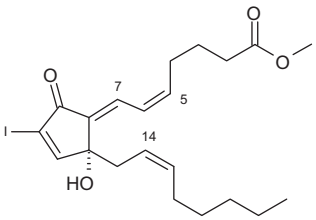
608 (5*Z*)-Iodopunaglandin 8

Type: Cyclopentyl-oxylipins. $C_{23}H_{33}IO_6$ Oil, $[\alpha]_D$ = +22.7° (*c* = 0.67, $CHCl_3$). Source: Stolonifer *Clavularia viridis* (Okinawa). Pharm: Cytotoxic (Molt4, IC_{50} = 0.52 µg/mL; DLD-1, IC_{50} = 0.6 µg/mL; IMR-90, IC_{50} = 4.5 µg/mL). Ref: H. Yamaue, et al, Eur. J. Cancer 1991, 27, 1258 | K. Watanabe, et al, JNP, 2001, 64, 1421 | Y. -C. Shen, et al, JNP, 2004, 67, 542



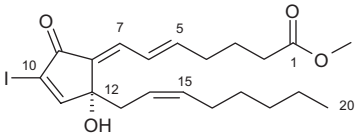
609 Iodovulone I

Type: Cyclopentyl-oxylipins. $C_{21}H_{29}IO_4$ Oil. Source: Stolonifer *Clavularia viridis*. Pharm: Antineoplastic, antiproliferative. Ref: K. Iguchi, et al, Chem. Comm., 1986, 981



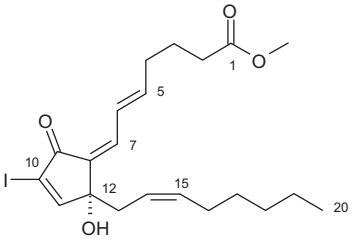
610 Iodovulone II

Type: Cyclopentyl-oxylipins. $C_{21}H_{29}IO_4$ Oil, $[\alpha]_D^{25}$ = +44.6° (*c* = 0.9, CH_2Cl_2), $[\alpha]_D^{25}$ = +23.7° (*c* = 0.07, $CHCl_3$). Source: Stolonifer *Clavularia viridis* (Taiwan waters). Pharm: Cytotoxic (PC3, IC_{50} = 3.9 µmol/L, control Chlorovulone II, IC_{50} = 0.8 µmol/L; HT29, IC_{50} = 6.5 µmol/L, Chlorovulone III, IC_{50} = 2.7 µmol/L). Ref: Y. -C. Shen, et al, JNP, 2004, 67, 542



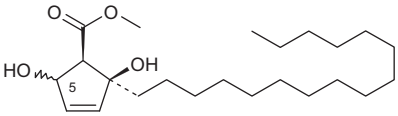
611 Iodovulone III

Type: Cyclopentyl-oxylipins. $C_{21}H_{29}IO_4$ Oil, $[\alpha]_D^{25}$ = +25° (*c* = 0.02, $CHCl_3$), $[\alpha]_D^{25}$ = +8.6° (*c* = 0.27, CH_2Cl_2). Source: Stolonifer *Clavularia viridis* (Taiwan waters). Pharm: Cytotoxic (PC3, IC_{50} = 6.7 µmol/L, control Chlorovulone II, IC_{50} = 0.8 µmol/L; HT29, IC_{50} > 10 µmol/L, Chlorovulone III, IC_{50} = 2.7 µmol/L). Ref: Y. -C. Shen, et al, JNP, 2004, 67, 542



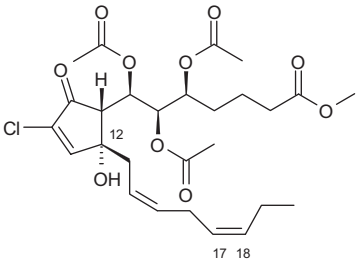
612 Plakevulin A

Type: Cyclopentyl-oxylipins. $C_{23}H_{42}O_4$ $[\alpha]_D^{22} = -25°$ (c = 0.1, $CHCl_3$). Source: Sponge *Plakortis* sp. Pharm: DNA polymerases inhibitor. Ref: M. Saito, et al, Tet. Lett., 2004, 45, 8069



613 Punaglandin 1

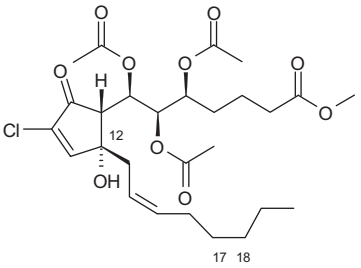
Methyl 5,6,7-tris(acetyloxy)-10-chloro-12-hydroxy-9-oxoprosta-10,14,17-trien-1-oate Type: Cyclopentyl-oxylipins. $C_{27}H_{37}ClO_{10}$ $[\alpha]_D = +10.6°$ (c = 2.4, MeOH). Source: Octacoral *Telesto riisei* (Japan waters waters), stolonifer *Carijoa* sp. (Indo-Pacific). Pharm: Cytotoxic (L_{1210}, cell proliferation inhibitor); anti-inflammatory. Ref: B. J. Baker, et al, JACS, 1985, 107, 2976 | H. Sasai, et al, Tet. Lett., 1987, 28, 333 | B. J. Baker, et al, JNP, 1994, 57, 1346 | M. L. Ciavatta, et al, Tet. Lett., 2004, 45, 7745



614 Punaglandin 2

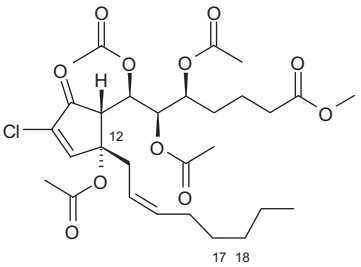
Type: Cyclopentyl-oxylipins. $C_{27}H_{39}ClO_{10}$ $[\alpha]_D = +8.8°$ (c = 1.9, MeOH). Source: Octacoral *Telesto riisei* (Hawaii). Pharm: Cytotoxic (HCT116, EC_{50} = (0.040–0.047) µmol/L) (4 assaies: with/without p53, with/without p21, ability to cause apoptosis

is p53-independent); anti-inflammatory. Ref: B. J. Baker, et al, JACS, 1985, 107, 2976 | H. Sasai, et al, Tet. Lett., 1987, 28, 333 | B. J. Baker, et al, JNP, 1994, 57, 1346 | S. M. Verbitski, et al, JMC, 2004, 47, 2062



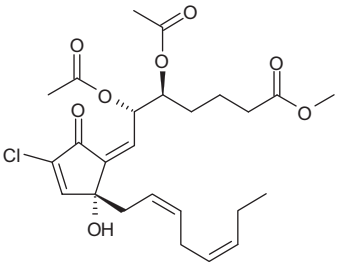
615 Punaglandin 2 acetate

Type: Cyclopentyl-oxylipins. $C_{29}H_{41}ClO_{11}$ $[\alpha]_D$ = +10° (*c* = 0.6, MeOH). Source: Octacoral *Telesto riisei*. Pharm: Anti-inflammatory. Ref: B. J. Baker, et al, JNP, 1994, 57, 1346



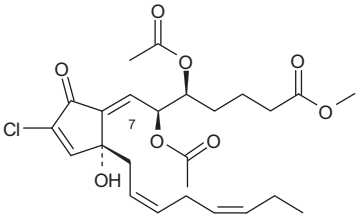
616 (*Z*)-Punaglandin 3

Type: Cyclopentyl-oxylipins. $C_{25}H_{33}ClO_8$ Oil. Source: Octocoral *Telesto riisei* (Hawaii). Pharm: Cytotoxic (potent); anti-inflammatory (potent). Ref: B. J. Baker, et al, JNP, 1994, 57, 1346



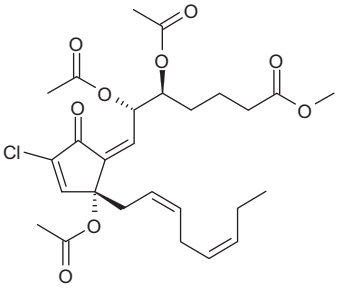
617 (*E*)-Punaglandin 3

Methyl 5,6-bis(acetyloxy)-10-chloro-12-hydroxy-9-oxoprosta-7,10,14,17-tetraen-1-oate Type: Cyclopentyl-oxylipins. $C_{25}H_{33}ClO_8$ Oil, $[\alpha]_D$ = +66.8° (*c* = 0.5, MeOH). Source: Octocorals *Telesto riisei* (Japan waters waters) and *Telesto riisei* (Hawaii), stolonifer *Carijoa* sp. (Indo-Pacific). Pharm: Cytotoxic (HCT116, EC_{50} = (0.29–0.37) µmol/L) (4 assaies: with/without p53, with/without p21, ability to cause apoptosis is p53-independent); anti-inflammatory. Ref: B. J. Baker, et al, JACS, 1985, 107, 2976 | H. Sasai, et al, Tet. Lett., 1987, 28, 333 | B. J. Baker, et al, JNP, 1994, 57, 1346 | M. L. Ciavatta, et al, Tet. Lett., 2004, 45, 7745 | S. M. Verbitski, et al, JMC, 2004, 47, 2062



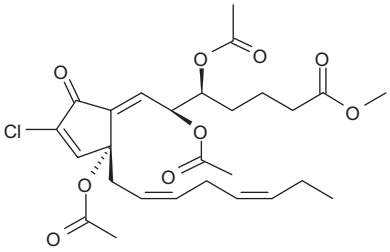
618 (*Z*)-Punaglandin 3 acetate

Type: Cyclopentyl-oxylipins. $C_{27}H_{35}ClO_9$ $[\alpha]_D$ = +19° (*c* = 1.8, $CHCl_3$). Source: Octocoral *Telesto riisei*, stolonifer *Carijoa* sp. Pharm: Anti-inflammatory. Ref: B. J. Baker, et al, JNP, 1994, 57, 1346 | M. L. Ciavatta, et al, Tet. Lett., 2004, 45, 7745



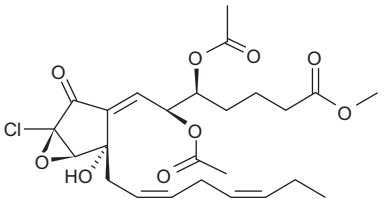
619 (*E*)-Punaglandin 3 acetate

Type: Cyclopentyl-oxylipins. $C_{27}H_{35}ClO_9$ $[\alpha]_D$ = +31° (*c* = 2.7, $CHCl_3$). Source: Octocoral *Telesto riisei* (Indo-Pacific), stolonifer *Carijoa* sp. (Indo-Pacific). Pharm: Anti-inflammatory. Ref: B. J. Baker, et al, JNP, 1994, 57, 1346 | M. L. Ciavatta, et al, Tet. Lett., 2004, 45, 7745



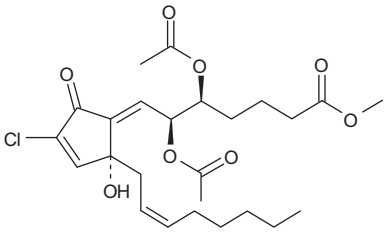
620 (*E*)-Punaglandin 3 epoxide

Type: Cyclopentyl-oxylipins. $C_{25}H_{33}ClO_9$ $[\alpha]_D$ = +16° (*c* = 3, MeOH). Source: Octocoral *Telesto riisei* (Hawaii). Pharm: Anti-inflammatory. Ref: B. J. Baker, et al, JNP, 1994, 57, 1346



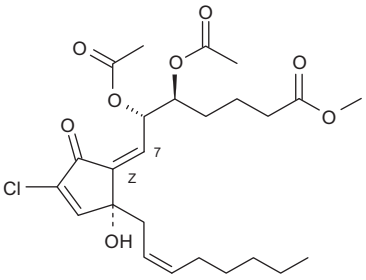
621 (*E*)-Punaglandin 4

Type: Cyclopentyl-oxylipins. $C_{25}H_{35}BrO_8$ Oil, $[\alpha]_D^{24}$ = +72.3° (*c* = 0.52, $CHCl_3$). Source: Octocoral *Telesto riisei* (Hawaii). Pharm: Cytotoxic (HCT116, EC_{50} = (0.28–0.35) µmol/L) (4 assaies: with/without p53, with/without p21, ability to cause apoptosis is p53-independent); cytotoxic (RKO, EC_{50} = 0.31 µmol/L; RKO-E6, EC_{50} = 0.37 µmol/L, cytotoxicity mechanism of punaglandins is p53-independent: RKO cells with competent p53 and RKO-E6 cells with disrupted p53); anti-inflammatory. Ref: B. J. Baker, et al, JACS, 1985, 107, 2976 | B. J. Baker, et al, JNP, 1994, 57, 1346 | S. M. Verbitski, et al, JMC, 2004, 47, 2062



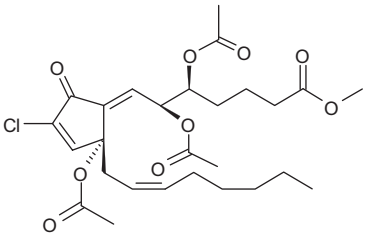
622 (*Z*)-Punaglandin 4

(*Z*)-PNG 4 Type: Cyclopentyl-oxylipins. $C_{25}H_{35}ClO_8$ Oil. Source: Octocoral *Telesto riisei* (Hawaii). Pharm: Cytotoxic (HCT116, EC_{50} = (0.027–0.032) μmol/L (4 assaies: with/without p53, with/without p21), ability to cause apoptosis is p53-independent). Ref: B. J. Baker, et al, JACS, 1985, 107, 2976 | B. J. Baker, et al, JNP, 1994, 57, 1346 | S. M. Verbitski, et al, JMC, 2004, 47, 2062



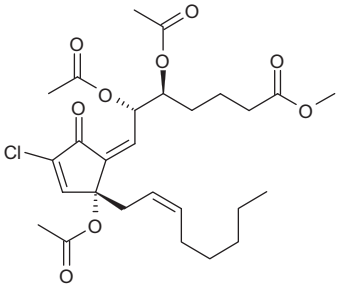
623 (*E*)-Punaglandin 4 acetate

Type: Cyclopentyl-oxylipins. $C_{27}H_{37}ClO_9$ Source: Octocoral *Telesto riisei*, stolonifer *Carijoa* sp. Pharm: Anti-inflammatory. Ref: B. J. Baker, et al, JNP, 1994, 57, 1346 | M. L. Ciavatta, et al, Tet. Lett., 2004, 45, 7745



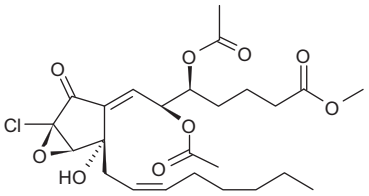
624 (*Z*)-Punaglandin 4 acetate

Type: Cyclopentyl-oxylipins. $C_{27}H_{37}ClO_9$ $[\alpha]_D$ = +11° (*c* = 1.8, $CHCl_3$). Source: Octocoral *Telesto riisei*, stolonifer *Carijoa* sp. Pharm: Anti-inflammatory. Ref: B. J. Baker, et al, JNP, 1994, 57, 1346 | M. L. Ciavatta, et al, Tet. Lett., 2004, 45, 7745



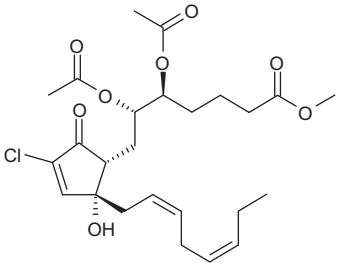
625 (*E*)-Punaglandin 4 epoxide

Type: Cyclopentyl-oxylipins. $C_{25}H_{35}ClO_9$ $[\alpha]_D$ = +22.5° (*c* = 0.8, MeOH). Source: Octocoral *Telesto riisei* (Hawaii). Pharm: Anti-inflammatory. Ref: B. J. Baker, et al, JNP, 1994, 57, 1346



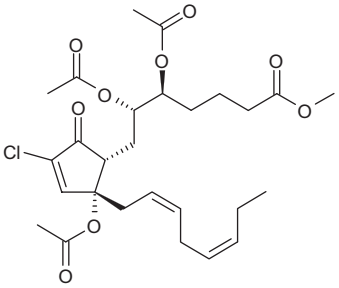
626 Punaglandin 5

Type: Cyclopentyl-oxylipins. $C_{25}H_{35}ClO_8$ $[\alpha]_D$ = +10.2° (*c* = 4.7, $CHCl_3$). Source: Octocoral *Telesto riisei* (Hawaii). Pharm: Cytotoxic. Ref: B. J. Baker, et al, JNP, 1994, 57, 1346



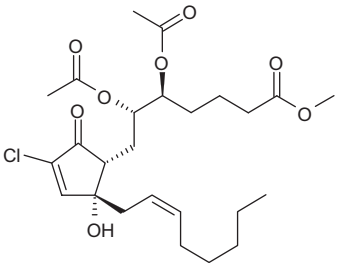
627 Punaglandin 5 acetate

Type: Cyclopentyl-oxylipins. $C_{27}H_{37}ClO_9$ $[\alpha]_D$ = +8° (*c* = 1.2, MeOH). Source: Octocoral *Telesto riisei*. Pharm: Anti-inflammatory. Ref: B. J. Baker, et al, JNP, 1994, 57, 1346



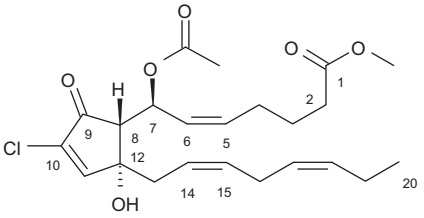
628 Punaglandin 6

Type: Cyclopentyl-oxylipins. $C_{25}H_{37}ClO_8$ $[\alpha]_D$ = +14° (*c* = 0.9, $CHCl_3$). Source: Octocoral *Telesto riisei* (Hawaii). Pharm: Cytotoxic (HCT116, EC_{50} = (0.32–0.36) µmol/L; 4 assaies: with/without p53, with/without p21, ability to cause apoptosis is p53-independent); cytotoxic (RKO, EC_{50} = 0.44 µmol/L; RKO-E6, EC_{50} = 0.47 µmol/L, cytotoxicity mechanism of punaglandins is p53-independent: RKO cells with competent p53 and RKO-E6 cells with disrupted p53); anti-inflammatory. Ref: B. J. Baker, et al, JNP, 1994, 57, 1346 | S. M. Verbitski, et al, JMC, 2004, 47, 2062



629 Punaglandin 7

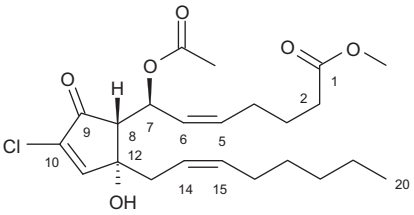
Type: Cyclopentyl-oxylipins. $C_{23}H_{31}ClO_6$ Source: Octocoral *Telesto riisei*. Pharm: Cytotoxic; anti-inflammatory. Ref: B. J. Baker, et al, JNP, 1994, 57, 1346



630 (5*Z*)-Punaglandin 8

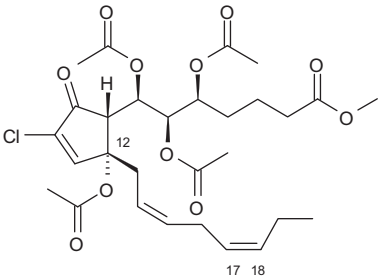
7-Acetoxy-7,8-dihydrochlorovulone I Type: Cyclopentyl-oxylipins. $C_{23}H_{33}ClO_6$ Oil, $[\alpha]_D$ = +43.9° (*c* = 0.04, $CHCl_3$). Source: Stolonifer *Clavularia viridis* (Okinawa),

octocoral *Telesto riisei*. Pharm: Cytotoxic; anti-inflammatory. Ref: B. J. Baker, et al, JNP, 1994, 57, 1346 | K. Watanabe, et al, JNP, 2001, 64, 1421



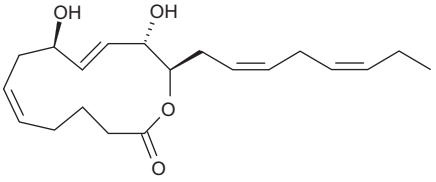
631 Punaglandin 1 acetate

Type: Cyclopentyl-oxylipins. $C_{29}H_{39}ClO_{11}$ Source: Octacoral *Telesto riisei*. Pharm: Anti-inflammatory. Ref: B. J. Baker, et al, JNP, 1994, 57, 1346



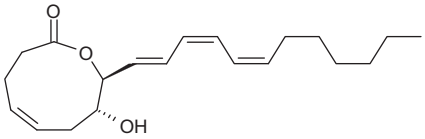
632 Amphidinolactone A

Type: Oxylipin lactones. $C_{20}H_{30}O_4$ $[\alpha]_D$ = −62° (C_6H_6). Source: Dinoflagellate *Amphidinium* sp. Pharm: Cytotoxic (L_{1210}, IC_{50} = 8 µg/mL; KB, IC_{50} > 10 µg/mL). Ref: Y. Takahashi, et al, Heterocycles, 2007, 72, 567 | J. Kobayashi, et al, J. Antibiot., 2008, 61(5), 271 (rev)



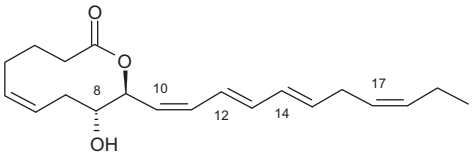
633 Ascidiatrienolide A

Type: Oxylipin lactones. $C_{20}H_{30}O_3$ $[\alpha]_D$ = −14.8° (*c* = 4.5, $CHCl_3$). Source: Ascidian *Didemnum candidum*. Pharm: PLA_2 inhibitor. Ref: N. Lindquist, et al, Tet. Lett., 1989, 30, 2735 | M. S. Congreve, et al, JACS, 1993, 115, 5815



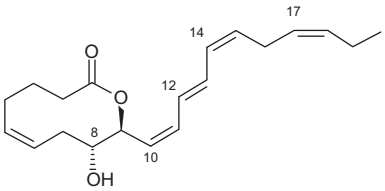
634 Didemnilactone A

Didemnilactone Type: Oxylipin lactones. $C_{20}H_{28}O_3$ Oil, $[\alpha]_D^{22}$ = −190° (*c* = 0.18, MeOH). Source: Ascidian *Didemnum moseleyi*. Pharm: 5-Lipoxygenase inhibitor (PMNL, IC_{50} = 9.4 μmol/L); 15-lipoxygenase inhibitor (PMNL, IC_{50} = 41 μmol/L); binds to Leukotriene B_4 receptor (hmn polymorphonuclear leukocyte (PMNL), IC_{50} = 38 μmol/L). Ref: H. Niwa, et al, Tetrahedron, 1994, 50, 7385



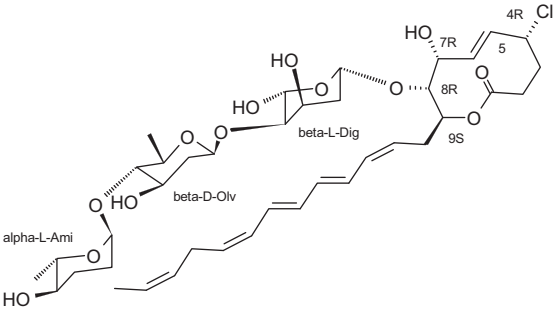
635 Didemnilactone B

Type: Oxylipin lactones. $C_{20}H_{28}O_3$ Oil, $[\alpha]_D^{25}$ = −378° (*c* = 0.005, MeOH). Source: Ascidian *Didemnum moseleyi* (Japan waters waters). Pharm: 5-Lipoxygenase inhibitor; 15-lipoxygenase inhibitor; binds to leukotriene B_4 receptors (weakly). Ref: H. Niwa, et al, Tetrahedron, 1994, 25, 7385



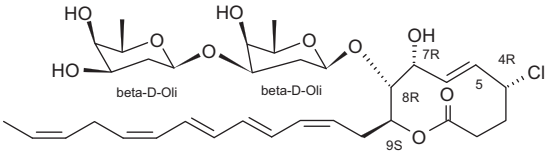
636 Latrunculinoside A

Latrunculin A 8-*O*-[2,3,6-trideoxy-α-*L-erythro*-hexopyranosyl-(1→4)-2,6-dideoxy-*β-D*-arabino-hexopyranosyl-(1→4)-2,6-dideoxy-*β-L-ribo*-hexopyranoside] Type: Oxylipin lactones. $C_{39}H_{57}ClO_{13}$ Powder, $[\alpha]_D^{23}$ = +72° (*c* = 0.13, MeOH). Source: Sponge *Latrunculia corticata* (Red Sea). Pharm: Antifeedant (Aquarium assay, feeding by goldfish on pellets treated with glycoside). Ref: T. Rezanka, et al, EurJOC, 2003, 2144



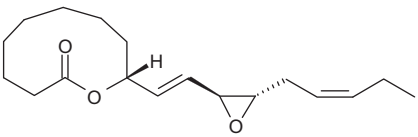
637 Latrunculinoside B

(5*Z*)-Latrunculin A 8-*O*-[2,6-dideoxy-*β*-*D*-*lyxo*-hexopyranosyl-(1→3)-2,6-dideoxy-*β*-*D*-*lyxo*-hexopyranoside] Type: Oxylipin lactones. $C_{34}H_{49}ClO_{10}$ Powder, $[\alpha]_D^{22}$ = −18.5° (*c* = 0.09, MeOH). Source: Sponge *Latrunculia corticata* (Red Sea). Pharm: Antifeedant (Aquarium assay, feeding by goldfish on pellets treated with glycoside). Ref: T. Rezanka, et al, EurJOC, 2003, 2144



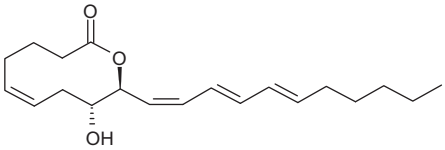
638 Mueggelone

Gloeolactone Type: Oxylipin lactones. $C_{18}H_{28}O_3$ Oil, $[\alpha]_D^{25}$ = +13.00° (*c* = 0.01, MeOH), $[\alpha]_D^{25}$ = +28.30° (*c* = 0.6, $CHCl_3$). Source: Cyanobacteria *Aphanizomenon flos-aquae* and *Gloeotrichia* sp. Pharm: Fish development inhibitor; antimycobacterial. Ref: O. Papendorf, et al, JNP, 1997, 60, 1298 | D. B. Stierle, et al, JNP, 1998, 61, 251 | G. M. Koenig, et al, PM, 2000, 66, 337



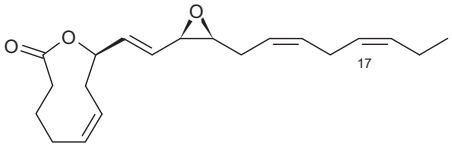
639 Neodidemnilactone

Type: Oxylipin lactones. $C_{20}H_{30}O_3$ Oil, $[\alpha]_D^{22}$ = −200° (*c* = 0.17, MeOH). Source: Ascidian *Didemnum moseleyi*. Pharm: Binds to Leukotriene B_4 receptor (hmn polymorphonuclear leukocyte (PMNL), IC_{50} = 38 µmol/L). Ref: H. Niwa, et al, Tetrahedron, 1994, 50, 7385



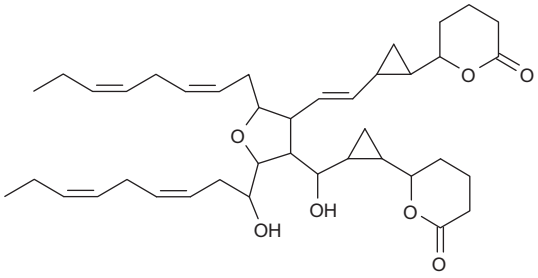
640 Topsentolide A_1

Type: Oxylipin lactones. $C_{20}H_{28}O_3$ Oil, $[\alpha]_D^{24}$ = +59.4° (*c* = 0.11, MeOH). Source: Sponge *Topsentia* sp. Pharm: Cytotoxic (moderate). Ref: X. Luo, et al, JNP, 2006, 69, 567 | M. Kobayashi, et al, Tet. Lett., 2010, 51, 2762



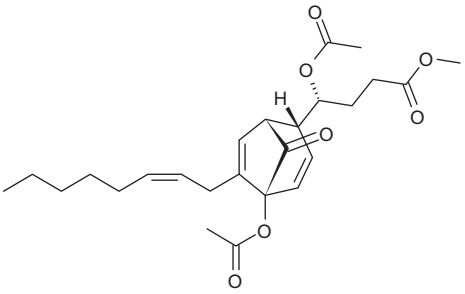
641 Aplydilactone

Type: Bicarbocyclic oxylipins. $C_{40}H_{58}O_7$ Oil, $[\alpha]_D^{27}$ = −1.63° (*c* = 1.00, $CHCl_3$). Source: Sea hare *Aplysia kurodai*. Pharm: PLA_2 activator. Ref: M. Ojika, et al, Tet. Lett., 1990, 31, 4907



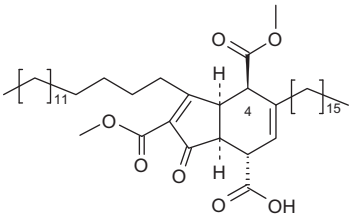
642 Clavubicyclone

Type: Bicarbocyclic oxylipins. $C_{25}H_{34}O_7$ Oil, $[\alpha]_D^{25}$ = −59.4° (*c* = 0.53, $CHCl_3$). Source: Stolonifer *Clavularia viridis*. Pharm: Prostanoid-related oxylipin. Ref: M. Iwashima, et al, JOC, 2002, 67, 2977



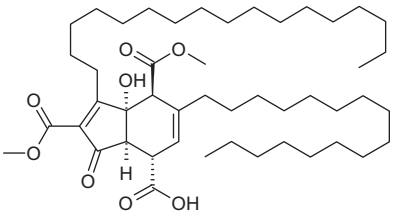
643 Manzamenone A

Type: Bicarbocyclic oxylipins. $C_{46}H_{78}O_7$ Colorless oil, $[\alpha]_D^{17}$ = −3.0° (*c* = 1.3, $CHCl_3$). Source: Sponge *Plakortis* sp. (Okinawa). Pharm: PKC inhibitor Ref: S. Tsukamoto, et al, JOC, 1992, 57, 5255



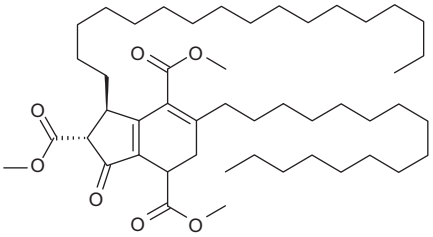
644 Manzamenone M

Type: Bicarbocyclic oxylipins. $C_{47}H_{80}O_8$ Source: Sponge *Plakortis* sp. (Manzamo, Okinawa). Pharm: Antibacterial (*Escherichia coli*, *Staphylococcus aureus* and *Cryptococcus neoformans*). Ref: T. Kubota, et al, Bioorg. Med. Chem. Lett., 2013, 23, 244



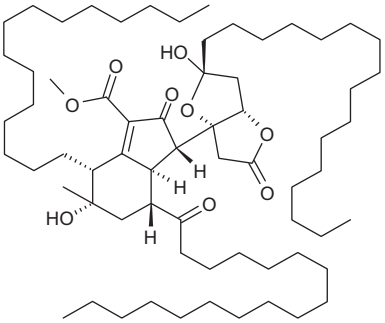
645 Manzamenone N

Type: Bicarbocyclic oxylipins. $C_{48}H_{82}O_7$ Source: Sponge *Plakortis* sp. (Manzamo, Okinawa). Pharm: Antibacterial (*Escherichia coli*, *Staphylococcus aureus* and *Cryptococcus neoformans*). Ref: T. Kubota, et al, Bioorg. Med. Chem. Lett., 2013, 23, 244



646 Manzamenone O

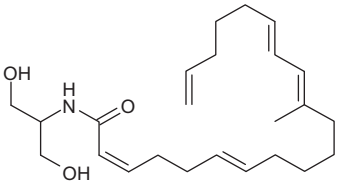
Type: Bicarbocyclic oxylipins. $C_{66}H_{116}O_9$ Source: Sponge *Plakortis* sp. (Manzamo, Okinawa). Pharm: Antimicrobial (moderate). Ref: N. Tanaka, et al, Org. Lett., 2013, 15, 2518



1.10 Acylglycerols

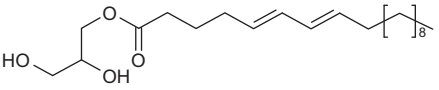
647 Mooreamide A

Type: Monoacylglycerols. $C_{24}H_{39}NO_3$ Source: Cyanobacterium *Moorea bouillonii* Pharm: Neuroreceptor CB1 inhibitor (most potent marine-derived CB1 inhibitor reported to date). Ref: E. Mevers, et al, Lipids, 2014, 49, 1127



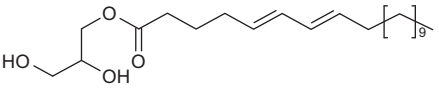
648 Unsaturated fatty acid glycerol ester 3

Type: Monoacylglycerols. $C_{21}H_{38}O_4$ Source: Marine-derived fungus *Aspergillus* sp. MF-93 (from sea water, China waters). Pharm: Antiviral (inhibits multiplication of TMV, 0.2 mg/mL, InRt = 12.5%). Ref: Z. -J. Wu, et al, Pest Manag. Sci., 2009, 65, 60



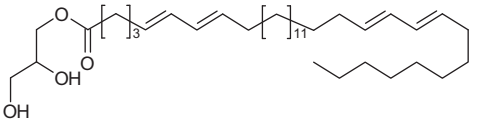
649 Unsaturated fatty acid glycerol ester 4

Type: Monoacylglycerols. $C_{22}H_{40}O_4$ Source: Marine-derived fungus *Aspergillus* sp. MF-93 (from sea water, China waters). Pharm: Antiviral (inhibits multiplication of TMV, 0.2 mg/mL, InRt = 14.9%). Ref: Z. -J. Wu, et al, Pest Manag. Sci., 2009, 65, 60



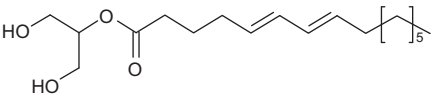
650 Unsaturated fatty acid glycerol ester 5

Type: Monoacylglycerols. $C_{37}H_{66}O_4$ Source: Marine-derived fungus *Aspergillus* sp. MF-93 (from sea water, China waters). Pharm: Antiviral (inhibits multiplication of TMV, 0.2 mg/mL, InRt = 17.4%). Ref: Z. -J. Wu, et al, Pest Manag. Sci., 2009, 65, 60



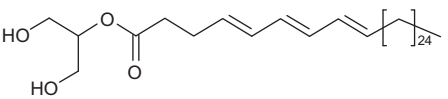
651 Unsaturated fatty acid glycerol ester 6

Type: Monoacylglycerols. $C_{18}H_{32}O_4$ Source: Marine-derived fungus *Aspergillus* sp. MF-93 (from sea water, China waters). Pharm: Antiviral (inhibits multiplication of TMV, 0.2 mg/mL, InRt = 14.2%). Ref: Z. -J. Wu, et al, Pest Manag. Sci., 2009, 65, 60



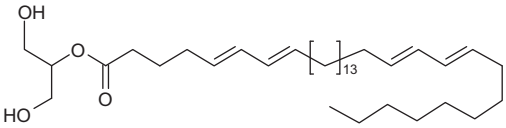
652 Unsaturated fatty acid glycerol ester 7

Type: Monoacylglycerols. $C_{37}H_{68}O_4$ Source: Marine-derived fungus *Aspergillus* sp. MF-93 (from sea water, China waters). Pharm: Antiviral (inhibits multiplication of TMV, 0.2 mg/mL, InRt = 13.9%). Ref: Z. -J. Wu, et al, Pest Manag. Sci., 2009, 65, 60



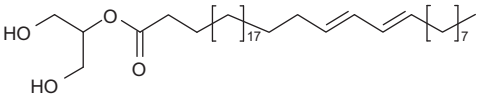
653 Unsaturated fatty acid glycerol ester 8

Type: Monoacylglycerols. $C_{37}H_{66}O_4$ Source: Marine-derived fungus *Aspergillus* sp. MF-93 (from sea water, China waters). Pharm: Antiviral (inhibits multiplication of TMV, 0.2 mg/mL, InRt = 14.3%). Ref: Z. -J. Wu, et al, Pest Manag. Sci., 2009, 65, 60



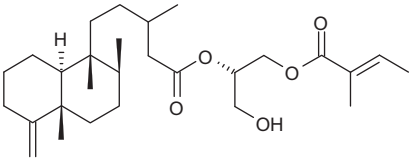
654 Unsaturated fatty acid glycerol ester 9

Type: Monoacylglycerols. $C_{37}H_{70}O_4$ Source: Marine-derived fungus *Aspergillus* sp. MF-93 (from sea water,China waters). Pharm: Antiviral (inhibits multiplication of TMV, 0.2 mg/mL, InRt = 16.3%). Ref: Z. -J. Wu, et al, Pest Manag. Sci., 2009, 65, 60



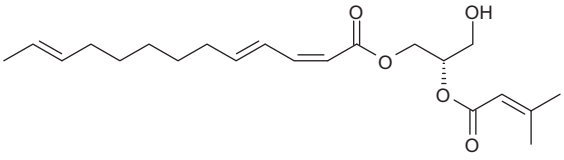
655 Archidorin

Type: Diacylglycerols. $C_{28}H_{46}O_5$ Amorph. powder, $[\alpha]_D^{25}$ = +12.1° (*c* = 0.3, $CHCl_3$). Source: Nudibranch *Archidoris tuberculata* and *Archidoris pseudoargus*. Pharm: Ichthyotoxic. Ref: G. Cimino, et al, JNP, 1993, 56, 1642



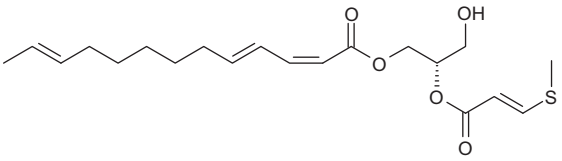
656 Umbraculumin A

Glycerol 2-(3-methyl-2-butenoate) 1-(2,4,11-tridecatrienoate) Type: Diacylglycerols. $C_{21}H_{32}O_5$ $[\alpha]_D$ = −24.3° (*c* = 0.8, $CHCl_3$). Source: Notapsid *Umbraculum mediterraneum*. Pharm: Ichthyotoxic. Ref: G. Cimino, et al, Tet. Lett., 1988, 29, 3613 | E. F. De Madeiros, et al, JCS Perkin I, 1991, 2725



657 Umbraculumin C

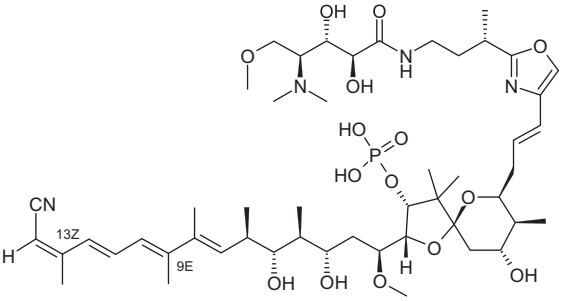
Glycerol 2-(3-methylthio-2-propenoate) 1-(2,4,11-tridecatrienoate) Type: Diacylglycerols. $C_{20}H_{30}O_5S$ $[\alpha]_D$ = +7° (*c* = 0.5, $CHCl_3$). Source: Notapsid *Umbraculum mediterraneum*. Pharm: Ichthyotoxic. Ref: G. Cimino, et al, Tet. Lett., 1988, 29, 3613 | E. F. De Madeiros, et al, JCS Perkin I, 1991, 2725



1.11 Phospholipids

658 Calyculin A

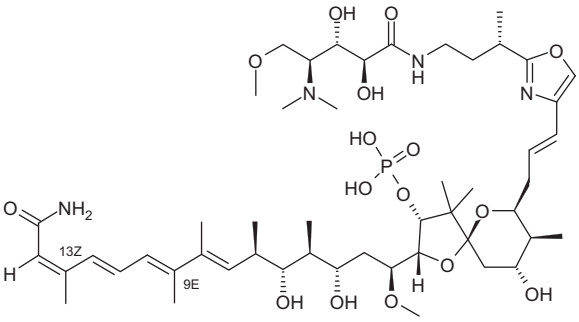
Type: Phospholipids. $C_{50}H_{81}N_4O_{15}P$ Needles (Me_2CO/Et_2O/hexane), mp 247–249 °C, $[\alpha]_D^{15}$ = +59.8° (*c* = 0.12, EtOH). Source: Lithistid sponge *Discodermia calyx*, sponge *Lamellomorpha strongylata*. Pharm: Serine-threonine phosphatase Inhibitor; cytotoxic (L_{1210}, IC_{50} = 0.00074 μg/mL); cell growth inhibitor (starfish *Asterina pectinifera*, IC_{50} = 0.02 μg/mL, sea urchin *Hemicentrotus pulcherrimus* eggs, IC_{50} = 0.01 μg/mL); antineoplastic (mus Ehrlich, P_{388}, *T/C* = 245.8%, 144.4% at 15μg/kg respectively); PP1 inhibitor (IC_{50} = 0.4–2.0 nmol/L); PP2A inhibitor (IC_{50} = 0.25–3.0 nmol/L); apoptosis inducer. Ref: Y. Kato, et al, JACS, 1986, 108, 2780 | Y. Kato, et al, JOC, 1988, 53, 3930 | S. Matsunaga, et al, Tetrahedron, 1991, 47, 2999 | B. Smith III, et al, JOC, 1998, 63, 7596 | A. K. Ogawa, et al, JACS, 1998, 120, 12435 | A. B. Smith III, et al, JACS, 1999, 121, 10478 | A. E. Fagerholm, et al, Mar. Drugs, 2010, 8, 122



659 Calyculinamide A

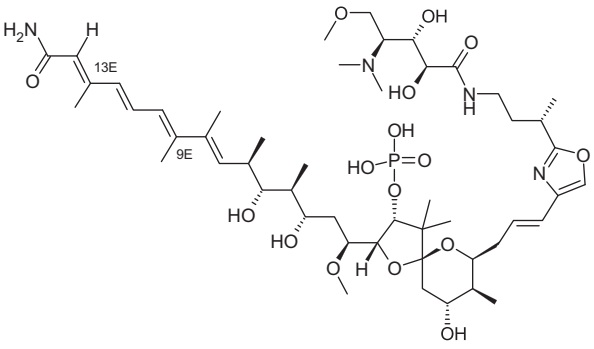
Type: Phospholipids. $C_{50}H_{83}N_4O_{16}P$ $[\alpha]_D$ = −18° (*c* = 0.005, MeOH), $[\alpha]_D$ = −41° (*c* = 0.5, EtOH). Source: Lithistid sponge *Discodermia calyx* (Japan waters), sponge

Lamellomorpha strongylata (New Zealand). Pharm: Cytotoxic (NCI's *in vitro* 60 cell line screening system, mean Log_{10} GI_{50} (mol/L) = −10.14 (Δ = 0.46, range = 1.49); mean Log_{10} TGI (mol/L) = −9.60 (Δ = 1.00, range = 3.04); mean Log_{10} LC_{50} (mol/L) = −9.09 (Δ = 1.51, range = 4.00)); PP2A inhibitor. Ref: E. J. Dumdei, et al, JOC, 1997, 62, 2636 | Matsunaga, S. et al, JOC, 1997, 62, 2640 | S. Matsunaga,et al, JOC, 1997, 62, 9388 | S. Matsunaga, et al, Tet. Lett., 1997, 38, 3763 | A. E. Fagerholm, et al, Mar. Drugs, 2010, 8, 122



660 Calyculinamide B

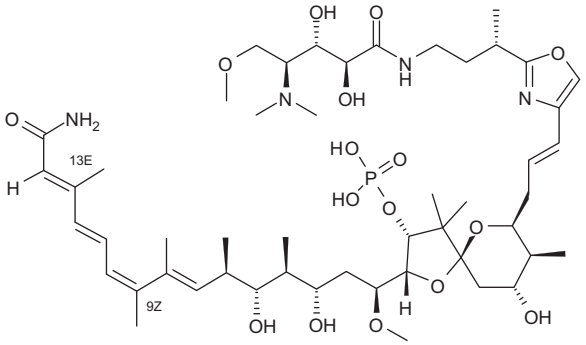
Type: Phospholipids. $C_{50}H_{83}N_4O_{16}P$ Amorph. solid, $[\alpha]_D^{20}$ = −27° (*c* = 0.145, EtOH). Source: Sponge *Lamellomorpha strongylata* (New Zealand). Pharm: Cytotoxic (NCI's *in vitro* 60 cell line screening system, mean Log_{10} GI_{50} (mol/L) = −10.14 (Δ = 0.46, range = 1.49); mean Log_{10} TGI (mol/L) = −9.60 (Δ = 1.00, range = 3.04); mean Log_{10} LC_{50} (mol/L) = −9.09 (Δ = 1.51, range = 4.00)); PP inhibitor. Ref: E. J. Dumdei, et al, JOC, 1997, 62, 2636 | Matsunaga, S. et al, JOC, 1997, 62, 2640 | A. E. Fagerholm, et al, Mar. Drugs, 2010, 8, 122



661 Calyculinamide F

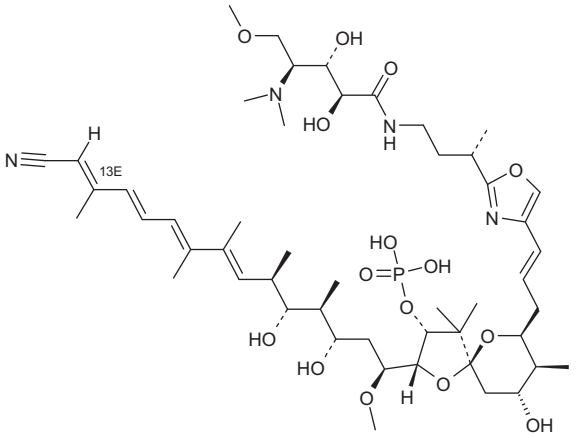
Type: Phospholipids. $C_{50}H_{83}N_4O_{16}P$ Amorph. solid, $[\alpha]_D^{20}$ = −23° (*c* = 0.01, MeOH). Source: Lithistid sponge *Discodermia calyx*. Pharm: PP inhibitor. Ref:

E. J. Dumdei, et al, JOC, 1997, 62, 2636 | S. Matsunaga, et al, JOC, 1997, 62, 2640 | A. E. Fagerholm, et al, Mar. Drugs, 2010, 8, 122



662 Calyculin B

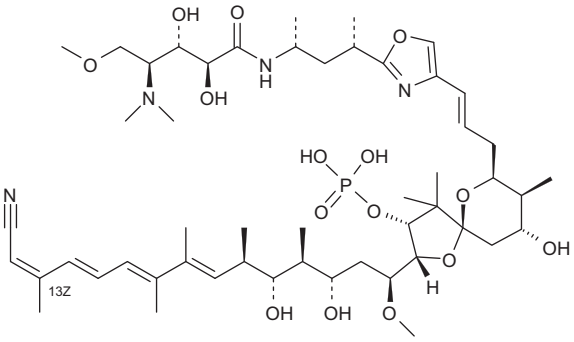
Type: Phospholipids. $C_{50}H_{81}N_4O_{15}P$ Amorph., $[\alpha]_D$ = −61° (*c* = 0.05, EtOH). Source: Lithistid sponge *Discodermia calyx*, sponge *Lamellomorpha strongylata*. Pharm: Serine-threonine phosphatase inhibitor; cell growth inhibitor (starfish *Asterina pectinifera*, IC_{50} = 0.02 μg/mL, sea urchin *Hemicentrotus pulcherrimus* eggs, IC_{50} = 0.01 μg/mL); cytotoxic (L_{1210}, IC_{50} = 0.00088 μg/mL). Ref: Y. Kato, et al, JACS, 1986, 108, 2780 | Y. Kato, et al, 1988, 53, 3930 | B. Smith III, et al, JOC, 1998, 63, 7596 | A. K. Ogawa, et al, JACS, 1998, 120, 12435 | A. B. Smith III, et al, JACS, 1999, 121, 10478 | A. E. Fagerholm, et al, Mar. Drugs, 2010, 8, 122



663 Calyculin C

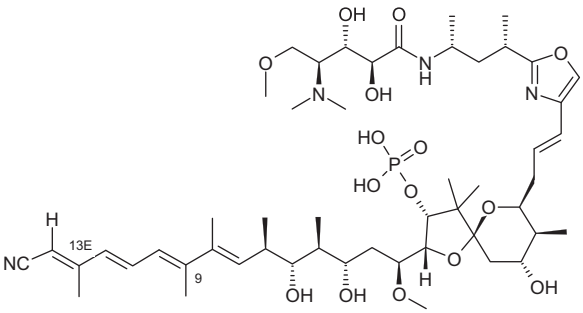
Type: Phospholipids. $C_{51}H_{83}N_4O_{15}P$ Amorph., $[\alpha]_D$ = −65° (*c* = 0.05, EtOH). Source: Lithistid sponge *Discodermia calyx*. Pharm: Cytotoxic (L_{1210}); smooth muscle contractor; PP1 Inhibitor (IC_{50} = 0.6 nmol/L); PP2A Inhibitor

(IC_{50} = 2.8 nmol/L). Ref: Y. Kato, et al, JACS, 1986, 108, 2780 | Y. Kato, et al, JOC, 1988, 53, 3930 | B. Smith III, et al, JOC, 1998, 63, 7596 | A. K. Ogawa, et al, JACS, 1998, 120, 12435 | A. E. Fagerholm, et al, Mar. Drugs, 2010, 8, 122



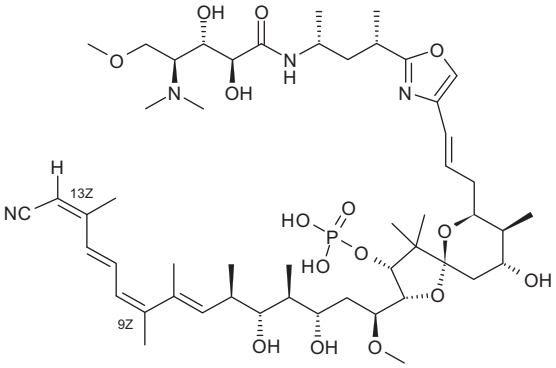
664 Calyculin D

Type: Phospholipids. $C_{51}H_{83}N_4O_{15}P$ Amorph., $[\alpha]_D$ = −41° (*c* = 0.05, EtOH). Source: Lithistid sponge *Discodermia calyx*. Pharm: Antineoplastic; smooth muscle contractor; protein phosphatases inhibitor. Ref: Y. Kato, et al, JOC, 1988, 53, 3930 | A. E. Fagerholm, et al, Mar. Drugs, 2010, 8, 122



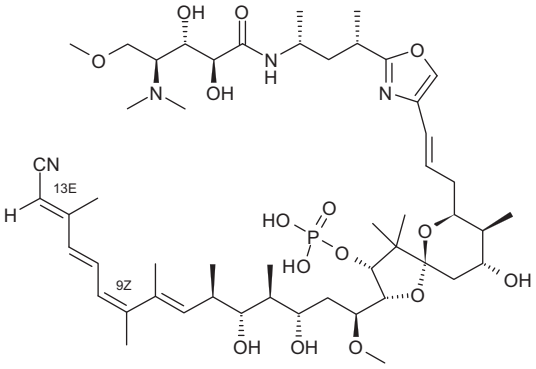
665 Calyculin G

Type: Phospholipids. $C_{51}H_{83}N_4O_{15}P$ $[\alpha]_D^{23}$ = −81° (*c* = 0.1, EtOH). Source: Lithistid sponge *Discodermia calyx*. Pharm: Smooth muscle contractor; protein phosphatases inhibitor. Ref: S. Matsunaga, et al, Tetrahedron, 1991, 47, 2999 | A. E. Fagerholm, et al, Mar. Drugs, 2010, 8, 122



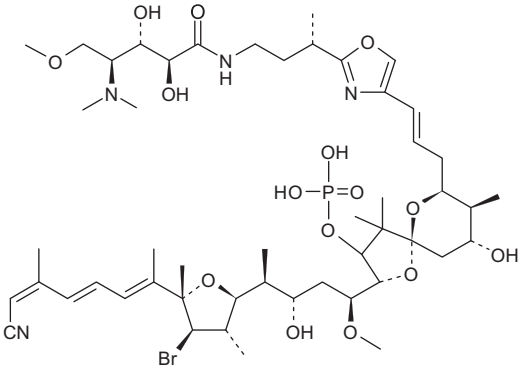
666 Calyculin H

Type: Phospholipids. $C_{51}H_{83}N_4O_{15}P$ $[\alpha]_D^{23}$ = −36° (*c* = 0.05, EtOH). Source: Lithistid sponge *Discodermia calyx*. Pharm: Smooth muscle contractor; protein phosphatases inhibitor. Ref: S. Matsunaga, et al, Tetrahedron, 1991, 47, 2999 | A. E. Fagerholm, et al, Mar. Drugs, 2010, 8, 122



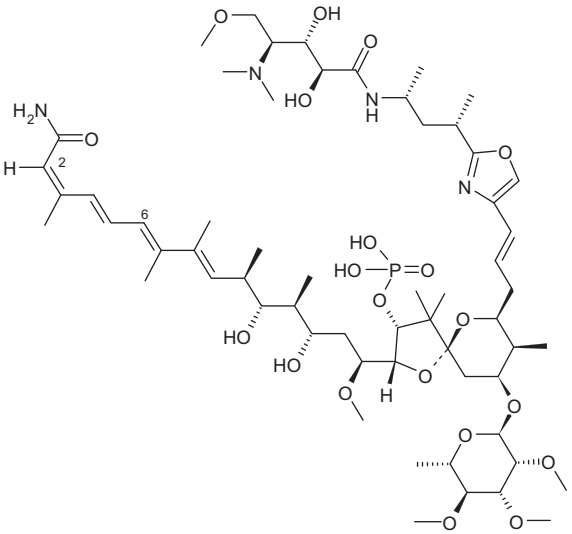
667 Calyculin J

Type: Phospholipids. $C_{50}H_{80}BrN_4O_{15}P$ Yellow solid, $[\alpha]_D^{20}$ = −10° (*c* = 0.08, MeOH). Source: Lithistid sponge *Discodermia calyx* (Japan waters). Pharm: PP inhibitor. Ref: S. Matsunaga,et al, JOC, 1997, 62, 9388 | S. Matsunaga, et al, Tet. Lett., 1997, 38, 3763



668 Clavosine A

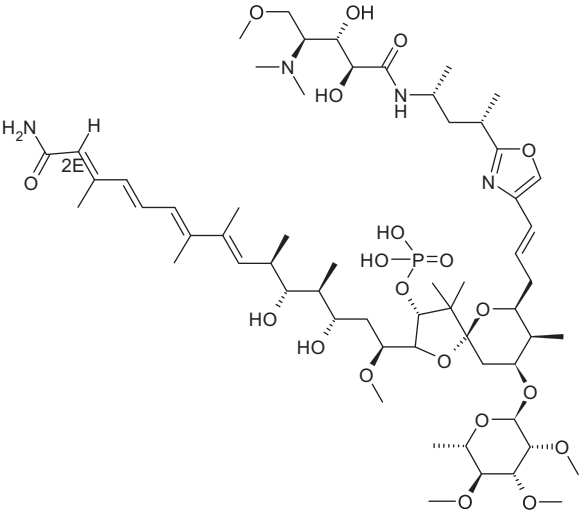
Type: Phospholipids. $C_{60}H_{101}N_4O_{20}P$ Powder, $[\alpha]_D = -5.0°$ ($c = 0.36$, CH_2Cl_2). Source: Sponge *Myriastra clavosa* (Chuuk State, Federated States of Micronesia). Pharm: Cytotoxic (NCI's screening panel of 60 tumor cell lines, very potent, mean Log_{10} GI_{50} (mol/L) = −10.90 (Δ = 0.01, range = 0.34); mean Log_{10} TGI (mol/L) = −10.52 (Δ = 0.39, range = 4.00)); mean Log_{10} LC_{50} (mol/L) = −9.80 (Δ = 1.10, range = 4.00); protein phosphatases inhibitor (native protein phosphatase-1 PP-1c from rabbit skeletal muscle, IC_{50} = 0.25 nmol/L; hmn recombinant PP-1c*y* from *Escherichia coli*, IC_{50} = 0.5 nmol/L; catalytic subunit of PP2A (PP-2Ac) from bovine heart, IC_{50} = 0.6 nmol/L). Ref: X. Fu, et al, JOC, 1998, 63, 7957



669 Clavosine B

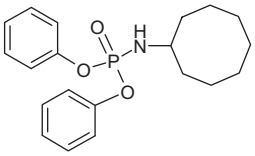
Type: Phospholipids. $C_{60}H_{101}N_4O_{20}P$ Powder, $[\alpha]_D = -3.2°$ ($c = 0.62$, CH_2Cl_2). Source: Sponge *Myriastra clavosa* (Chuuk State, Federated States of Micronesia). Pharm:

Cytotoxic (NCI's screening panel of 60 tumor cell lines, very potent, mean Log_{10} GI_{50} (mol/L) = −10.79 (Δ = 0.11, range = 2.64); mean Log_{10} TGI (mol/L) = −10.28 (Δ = 0.62, range = 4.00)); mean Log_{10} LC_{50} (mol/L) = −9.28 (Δ = 1.62, range = 4.00)); protein phosphatases inhibitor (native protein phosphatase-1 PP-1c from rabbit skeletal muscle, IC_{50} = 13 nmol/L; hmn recombinant PP-1c*γ* from *Escherichia coli*, IC_{50} = 1.0 nmol/L; catalytic subunit of PP2A (PP-2Ac) from bovine heart, IC_{50} = 1.2 nmol/L). Ref: X. Fu, et al, JOC, 1998, 63, 7957



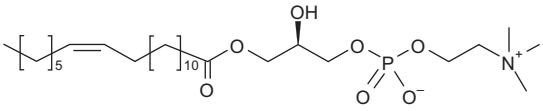
670 Diphenyl-cyclooctylphosphoramidate

PB-1 Type: Phospholipids. $C_{20}H_{26}NO_3P$ Source: Dinoflagellate *Ptychodiscus brevis* [Syn. *Gymnodinium breve*]. Pharm: Toxin. Ref: M. DiNovi, et al, Tet. Lett., 1983, 24, 855



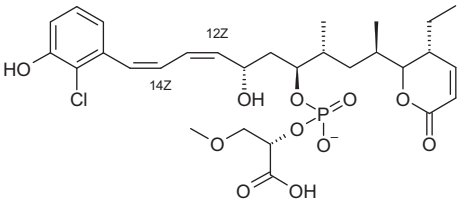
671 1-*O*-(13'*Z*-Eicosaenoyl)-sn-glycero-3-phosphocholine

Type: Phospholipids. $C_{28}H_{56}NO_7P$ Amorph. solid. Source: Sponge *Spirastrella abata* (Korea waters). Pharm: Cholesterol biosynthesis inhibitor (IC_{50} = 21 μg/mL). Ref: B. A. Shin, et al, JNP, 1999, 62, 1554



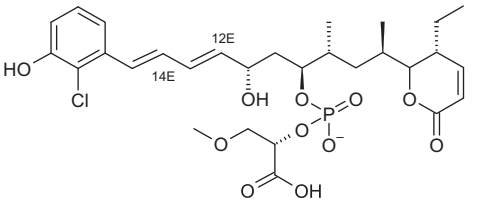
672 Franklinolide A

Type: Phospholipids. $C_{29}H_{39}ClO_{11}P^{1-}$ Source: Sponges *Geodia* sp. and *Halichondria* sp. (complex, Great Australian Bight). Pharm: Cytotoxic. Ref: H. Zhang, et al, Angew. Chem., Int. Ed., 2010, 49, 9904



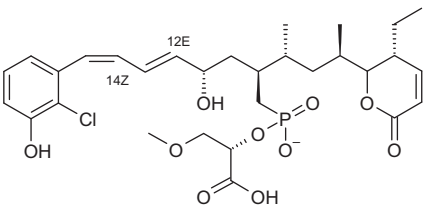
673 Franklinolide B

Type: Phospholipids. $C_{29}H_{39}ClO_{11}P^{1-}$ Source: Sponges *Geodia* sp. and *Halichondria* sp. (complex, Great Australian Bight). Pharm: Cytotoxic. Ref: H. Zhang, et al, Angew. Chem., Int. Ed., 2010, 49, 9904



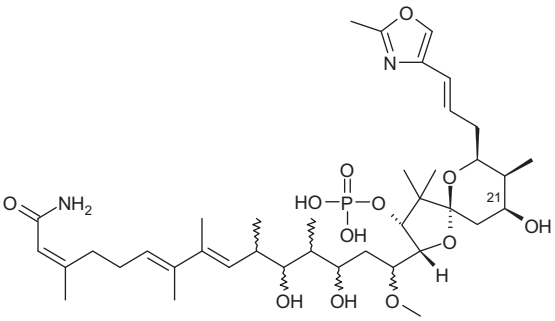
674 Franklinolide C

Type: Phospholipids. $C_{29}H_{39}ClO_{11}P^{1-}$ Source: Sponges *Geodia* sp. and *Halichondria* sp. (complex, Great Australian Bight). Pharm: Cytotoxic. Ref: H. Zhang, et al, Angew. Chem., Int. Ed., 2010, 49, 9904



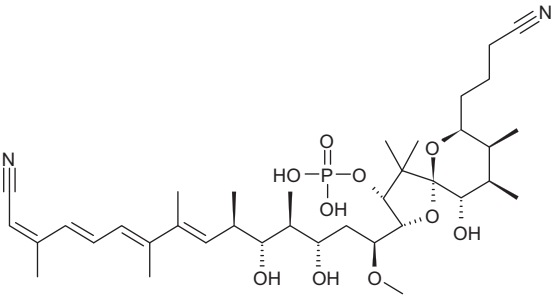
675 Geometricin A

Type: Phospholipids. $C_{39}H_{63}N_2O_{12}P$ Amorph. solid, $[\alpha]_D^{23} = -36.3°$ (c = 0.29, MeOH). Source: Sponge *Luffariella geometrica*. Pharm: Cytotoxic (HM02, GI_{50} = 1.7 µg/mL; HepG2, GI_{50} = 2.8 µg/mL); antialgal (50 µg level, IZD = 5 mm). Ref: S. Kehraus, et al, JNP, 2002, 65, 1056



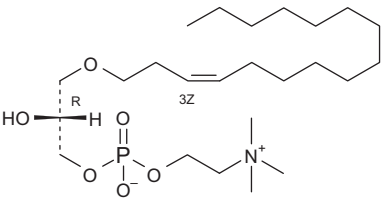
676 Hemicalyculin

Type: Phospholipids. $C_{37}H_{59}N_2O_{10}P$ Source: Lithistid sponge *Discodermia calyx* (off Sikine-jima I., Japan). Pharm: PP1 inhibitor (IC_{50} = 14.2 nmol/L); PP2A inhibitor (IC_{50} = 1.0 nmol/L). Ref: P. L. Winder, et al, Mar. Drugs, 2011, 9, 2644 (rev)



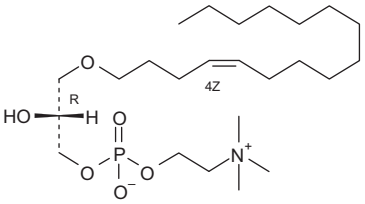
677 1-(3*Z*-Hexadecenyl)glycero-3-phosphocholine

Type: Phospholipids. $C_{24}H_{50}NO_6P$ Source: Sponge *Spirastrella abata* (Korean waters). Pharm: Cholesterol biosynthesis inhibitor. Ref: B. A. Shin, et al, JNP, 1999, 62, 1554 | N. Alam, et al, JNP, 2001, 64, 533



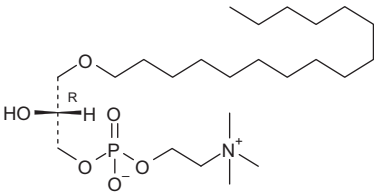
678 1-(4*Z*-Hexadecenyl)glycero-3-phosphocholine

Type: Phospholipids. $C_{24}H_{50}NO_6P$ Source: Sponge *Spirastrella abata* (Korean waters). Pharm: Cholesterol biosynthesis inhibitor. Ref: B. A. Shin, et al, JNP, 1999, 62, 1554 | N. Alam, et al, JNP, 2001, 64, 533



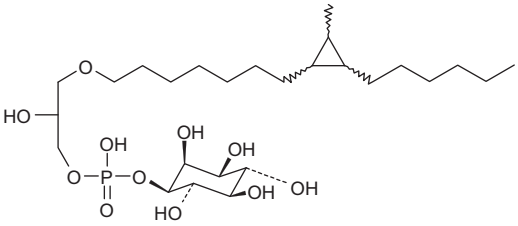
679 1-Hexadecylglycero-3-phosphocholine

Type: Phospholipids. $C_{24}H_{52}NO_6P$ Powder, mp 250 °C (dec), $[\alpha]_D^{25}$ = −6.09° (*c* = 1.04, $CHCl_3$/MeOH). Source: Sponges *Spirastrella abata* and *Crella incrustans* (Australia), hydroid *Solanderia secunda*. Pharm: Antifoulant (ascidian *Clavelina moluccensis* larvae); inhibits ascidian, barnacle, bryozoan and algal settling. Ref: N. Fusetani, et al, Comp. Biochem. Physiol., B: Comp. Biochem., 1986, 83, 511 | A. J. Butler, et al, J. Chem. Ecol., 1996, 22, 2041 | B. A. Shin, et al, JNP, 1999, 62, 1554 | N. Alam, et al, JNP, 2001, 64, 533



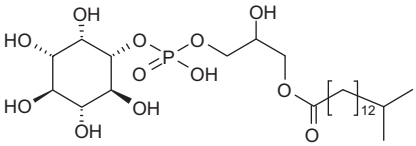
680 1-[7-(2-Hexyl-3-methylcyclopropyl)heptyl]lysoplasmanylinositol

Lysoplasmanylinositol 1 Type: Phospholipids. $C_{26}H_{51}O_{11}P$ Solid, $[\alpha]_D^{20}$ = −10° (*c* = 0.03, MeOH). Source: Lithistid sponge *Theonella swinhoei* (off Hachijo-jima Island, Japan). Pharm: Antimicrobial. Ref: S. Matsunaga, et al, JNP, 2001, 64, 816 | P. L. Winder, et al, Mar. Drugs, 2011, 9, 2644 (rev)



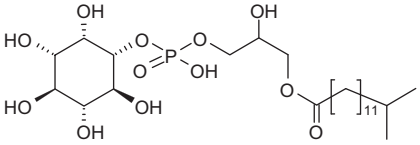
681 Lysophosphatidyl inositol JMB99-709A

Type: Phospholipids. $C_{25}H_{49}O_{12}P$ Source: Marine-derived streptomycete *Streptomyces* sp. M428 (from marine sediment). Pharm: Antifungal. Ref: K. W. Cho, et al, J. Microbiol. Biotechnol., 1999, 9, 709



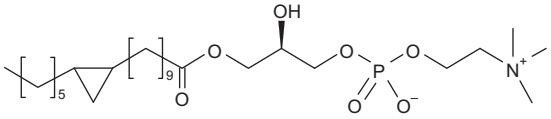
682 Lysophosphatidyl inositol JMB99-709B

Type: Phospholipids. $C_{24}H_{47}O_{12}P$ Source: Marine-derived streptomycete *Streptomyces* sp. M428 (from marine sediment). Pharm: Antifungal. Ref: K. W. Cho, et al, J. Microbiol. Biotechnol., 1999, 9, 709



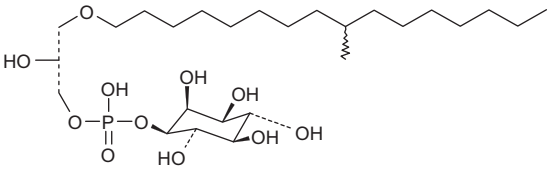
683 1-*O*-(*cis*-11′,12′-Methylene)-octadecanoylglycero-3-phosphocholine

Type: Phospholipids. $C_{27}H_{54}NO_7P$ Amorph. solid. Source: Sponge *Spirastrella abata* (Korea waters). Pharm: Cholesterol biosynthesis inhibitor (IC_{50} = 60 μg/mL). Ref: B. A. Shin, et al, JNP, 1999, 62, 1554



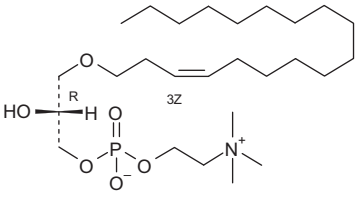
684 1-(9-Methylhexadecyl)lysoplasmanylinositol

Lysoplasmanylinositol 2 Type: Phospholipids. $C_{26}H_{53}O_{11}P$ Solid, $[\alpha]_D^{20}$ = −8.9° (*c* = 0.03, MeOH). Source: Lithistid sponge *Theonella swinhoei* (off Hachijo-jima Island, Japan). Pharm: Antibacterial (*Escherichia coli*, 50 μg/disk, IZD = 12 mm). Ref: S. Matsunaga, et al, JNP, 2001, 64, 816 | P. L. Winder, et al, Mar. Drugs, 2011, 9, 2644 (rev)



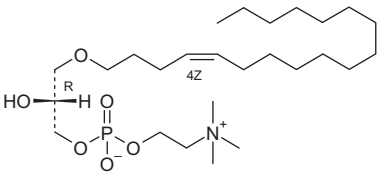
685 1-*O*-(3′*Z*-Octadecenyl)glycero-3-phosphocholine

Type: Phospholipids. $C_{26}H_{54}NO_6P$ Amorph. solid. Source: Sponge *Spirastrella abata* (Korea waters). Pharm: Cholesterol biosynthesis inhibitor (IC_{50} = 174 μg/mL). Ref: B. A. Shin, et al, JNP, 1999, 62, 1554 | N. Alam, et al, JNP, 2001, 64, 533



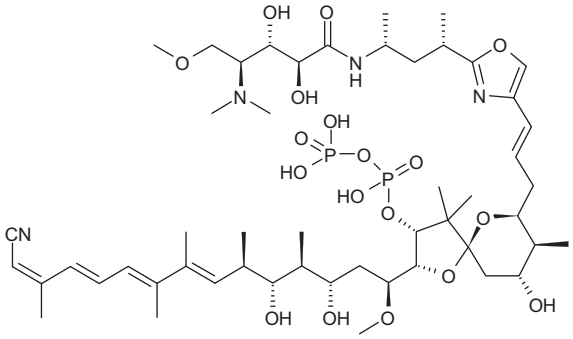
686 1-*O*-(4′*Z*-Octadecenyl)glycero-3-phosphocholine

Type: Phospholipids. $C_{26}H_{54}NO_6P$ Amorph. solid. Source: Sponge *Spirastrella abata* (Korea waters). Pharm: Cholesterol biosynthesis inhibitor (IC_{50} = 121 μg/mL). Ref: B. A. Shin, et al, JNP, 1999, 62, 1554 | N. Alam, et al, JNP, 2001, 64, 533



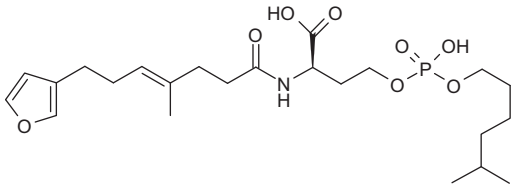
687 Phosphocalyculin C

Type: Phospholipids. $C_{51}H_{84}N_4O_{18}P_2$ Source: Lithistid sponge *Discodermia calyx*, Pharm: Cytotoxic (P_{388}, although potent, IC_{50} = 36 nmol/L, 5000 times less toxic than calyculin C). Ref: Y. Egami, et al, Bioorg. Med. Chem. Lett., 2014, 24, 5150



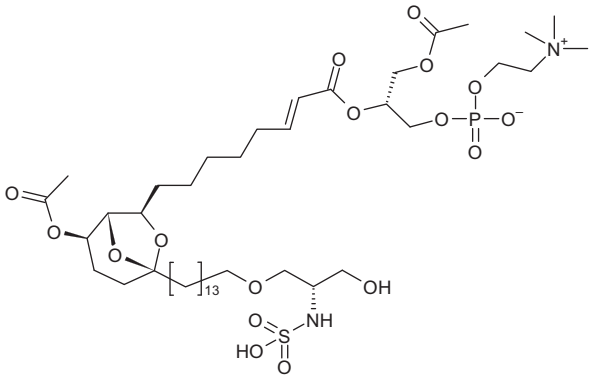
688 Pokepola ester

Type: Phospholipids. $C_{23}H_{38}NO_8P$ Oil, $[\alpha]_D = -4.5°$ (c = 0.5, MeOH). Source: Sponge *Spongia oceania* (Maul, Hawaiian Is.). Pharm: Anti-HIV. Ref: R. S. Kalidindi, et al, Tet. Lett., 1994, 35, 5579



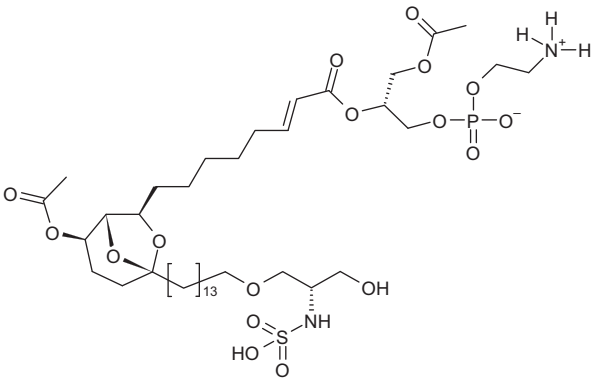
689 Siladenoserinol A

Type: Phospholipids. $C_{43}H_{79}N_2O_{17}PS$ Source: An unidentified ascidian (family Didemnidae, North Sulawesi, Indonesia). Pharm: Inhibits interaction of tumour suppressor p53 with Hdm2 (potentially leading to reactivation of p53 and induction of apoptosis in cancer cells). Ref: Y. Nakamura, et al, Org. Lett., 2013, 15, 322



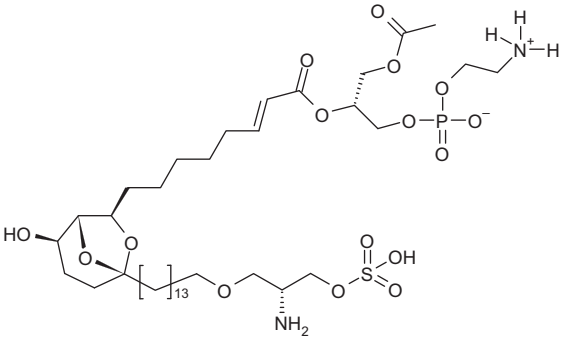
690 Siladenoserinol B

Type: Phospholipids. $C_{40}H_{73}N_2O_{17}PS$ Source: An unidentified ascidian (family Didemnidae, North Sulawesi, Indonesia). Pharm: Inhibits interaction of tumour suppressor p53 with Hdm2 (potentially leading to reactivation of p53 and induction of apoptosis in cancer cells). Ref: Y. Nakamura, et al, Org. Lett., 2013, 15, 322



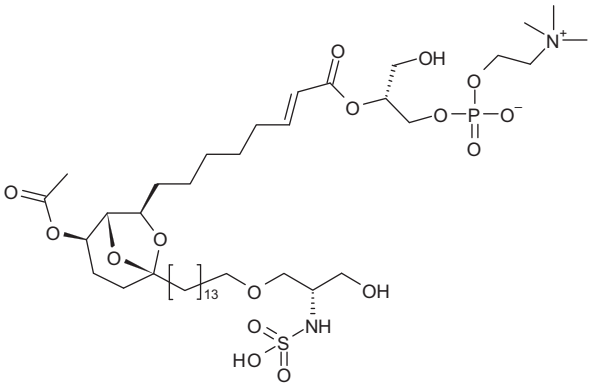
691 Siladenoserinol C

Type: Phospholipids. $C_{38}H_{71}N_2O_{16}PS$ Source: An unidentified ascidian (family Didemnidae, North Sulawesi, Indonesia). Pharm: Inhibits interaction of tumour suppressor p53 with Hdm2 (potentially leading to reactivation of p53 and induction of apoptosis in cancer cells). Ref: Y. Nakamura, et al, Org. Lett., 2013, 15, 322



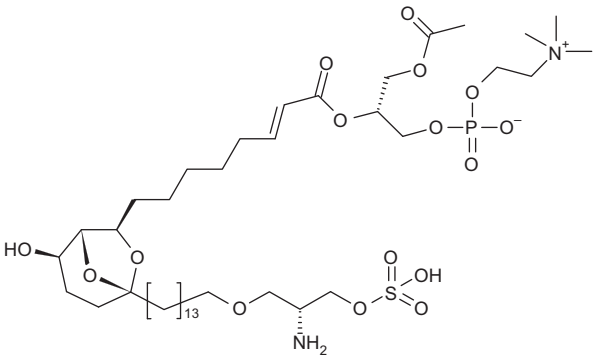
692 Siladenoserinol D

Type: Phospholipids. $C_{41}H_{77}N_2O_{16}PS$ Source: An unidentified ascidian (family Didemnidae, North Sulawesi, Indonesia). Pharm: Inhibits interaction of tumour suppressor p53 with Hdm2 (potentially leading to reactivation of p53 and induction of apoptosis in cancer cells). Ref: Y. Nakamura, et al, Org. Lett., 2013, 15, 322



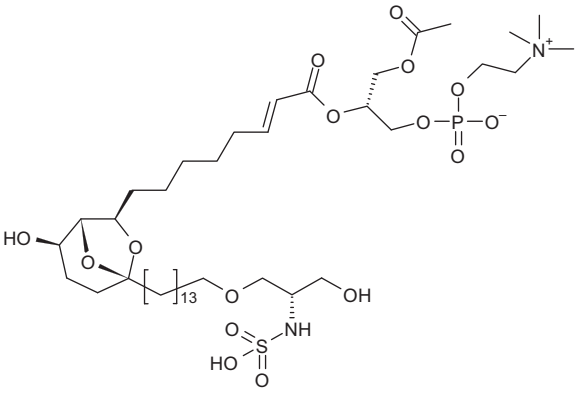
693 Siladenoserinol E

Type: Phospholipids. $C_{41}H_{77}N_2O_{16}PS$ Source: An unidentified ascidian (family Didemnidae, North Sulawesi, Indonesia). Pharm: Inhibits interaction of tumour suppressor p53 with Hdm2 (potentially leading to reactivation of p53 and induction of apoptosis in cancer cells). Ref: Y. Nakamura, et al, Org. Lett., 2013, 15, 322



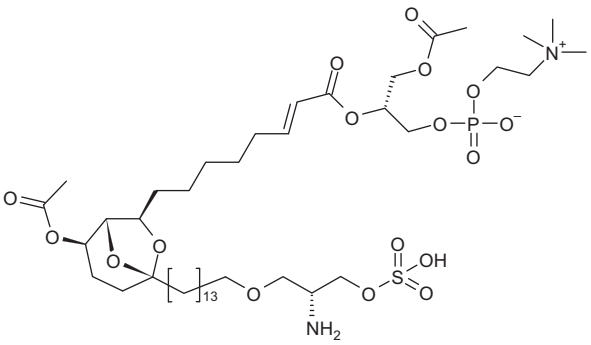
694 Siladenoserinol F

Type: Phospholipids. $C_{41}H_{77}N_2O_{16}PS$ Source: An unidentified ascidian (family Didemnidae, North Sulawesi, Indonesia). Pharm: Inhibits interaction of tumour suppressor p53 with Hdm2 (potentially leading to reactivation of p53 and induction of apoptosis in cancer cells). Ref: Y. Nakamura, et al, Org. Lett., 2013, 15, 322



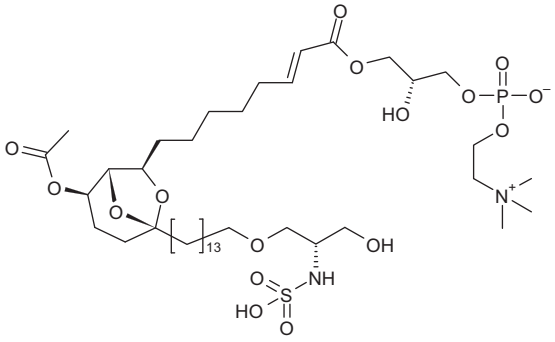
695 Siladenoserinol G

Type: Phospholipids. $C_{43}H_{79}N_2O_{17}PS$ Source: An unidentified ascidian (family Didemnidae, North Sulawesi, Indonesia). Pharm: Inhibits interaction of tumour suppressor p53 with Hdm2 (potentially leading to reactivation of p53 and induction of apoptosis in cancer cells). Ref: Y. Nakamura, et al, Org. Lett., 2013, 15, 322



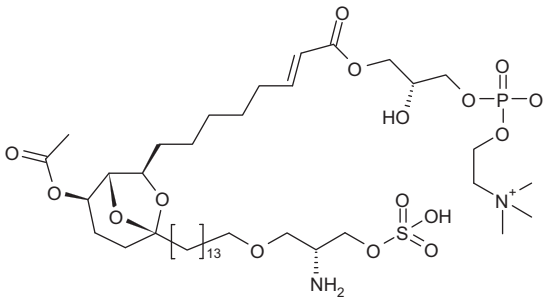
696 Siladenoserinol H

Type: Phospholipids. $C_{41}H_{77}N_2O_{16}PS$ Source: An unidentified ascidian (family Didemnidae, North Sulawesi, Indonesia). Pharm: Inhibits interaction of tumour suppressor p53 with Hdm2 (potentially leading to reactivation of p53 and induction of apoptosis in cancer cells). Ref: Y. Nakamura, et al, Org. Lett., 2013, 15, 322



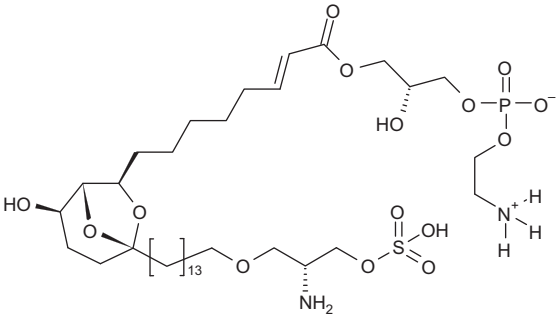
697 Siladenoserinol I

Type: Phospholipids. $C_{41}H_{77}N_2O_{16}PS$ Source: An unidentified ascidian (family Didemnidae, North Sulawesi, Indonesia). Pharm: Inhibits interaction of tumour suppressor p53 with Hdm2 (potentially leading to reactivation of p53 and induction of apoptosis in cancer cells). Ref: Y. Nakamura, et al, Org. Lett., 2013, 15, 322



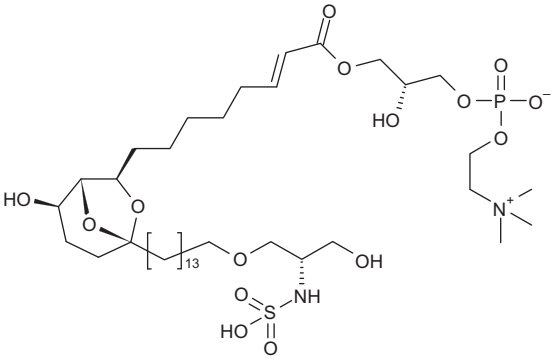
698 Siladenoserinol J

Type: Phospholipids. $C_{36}H_{69}N_2O_{15}PS$ Source: An unidentified ascidian (family Didemnidae, North Sulawesi, Indonesia). Pharm: Inhibits interaction of tumour suppressor p53 with Hdm2 (potentially leading to reactivation of p53 and induction of apoptosis in cancer cells). Ref: Y. Nakamura, et al, Org. Lett., 2013, 15, 322



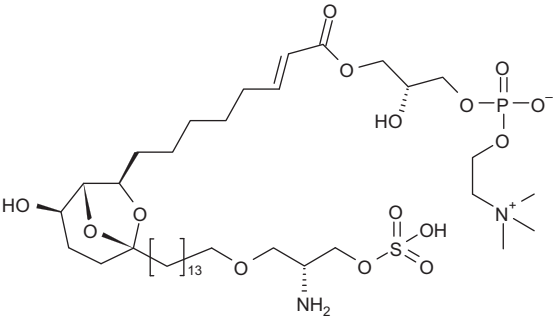
699 Siladenoserinol K

Type: Phospholipids. $C_{39}H_{75}N_2O_{15}PS$ Source: An unidentified ascidian (family Didemnidae, North Sulawesi, Indonesia). Pharm: Inhibits interaction of tumour suppressor p53 with Hdm2 (potentially leading to reactivation of p53 and induction of apoptosis in cancer cells). Ref: Y. Nakamura, et al, Org. Lett., 2013, 15, 322



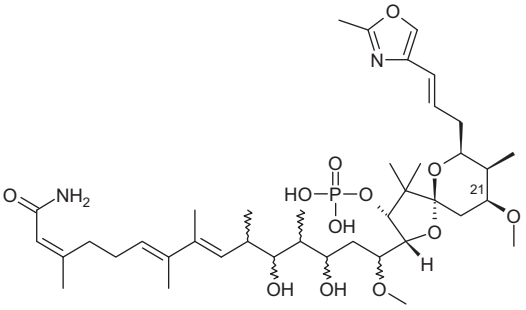
700 Siladenoserinol L

Type: Phospholipids. $C_{39}H_{75}N_2O_{15}PS$ Source: An unidentified ascidian (family Didemnidae, North Sulawesi, Indonesia). Pharm: Inhibits interaction of tumour suppressor p53 with Hdm2 (potentially leading to reactivation of p53 and induction of apoptosis in cancer cells). Ref: Y. Nakamura, et al, Org. Lett., 2013, 15, 322



701 Swinhoeiamide A

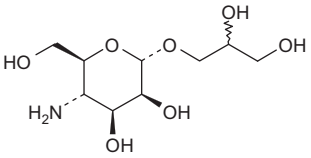
Type: Phospholipids. $C_{40}H_{65}N_2O_{12}P$ Powder, $[\alpha]_D^{20}$ = –21.6° (*c* = 0.35, EtOH). Source: Lithistid sponge *Theonella swinhoei* (coast of Karkar I., Papua New Guinea). Pharm: Insecticide (neonate larvae of insect *Spodoptera littoralis*, chronic feeding bioassay, ED_{50} = 2.11 ppm, LD_{50} = 2.98 ppm); antifungal (yeast *Candida albicans*, MIC = 1.2 µg/mL; *Aspergillus fumigatus,* MIC = 1.0 µg/mL); cytotoxic (dose-dependent, various undisclosed cell lines and tissues, IC_{50} = 20–90 ng/mL, cell proliferation inhibitor). Ref: K. G. Steube, et al, Anticancer Res., 1998, 18, 129 | R. A. Edrada, et al, JNP, 2002, 65, 1168 | P. L. Winder, et al, Mar. Drugs, 2011, 9, 2644 (rev)



1.12 Glycolipids

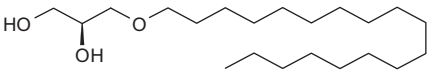
702 1-*O*-(4-Amino-4-deoxy-α-*D*-mannopyranosyl)glycerol

Type: Glycolipids. $C_9H_{19}NO_7$ Source: Red alga *Caloglossa leprieurii*. Pharm: Anthelmintic. Ref: X. -H. et al, Acta Sci. Nat. Univ. Sunyatseni, 1997, 36, l 17



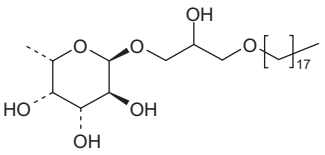
703 Batilol

3-(Octadecyloxy)-1,2-propanediol Type: Glycolipids. $C_{21}H_{44}O_3$ mp 70.5–71.5 °C. Source: Sponges *Desmapsamma anchorata* and *Mycale mytilorum*,, zoanthid *Palythoa liscia,* soft coral *Sinularia* sp., gorgonian *Plexaura flexuosa*, shark liver oils. Pharm: Radioprotective; LD_{50} (mus, ipr) = 750 mg/kg. Ref: G. Bala Show Reddy, et al, BoMC, 2000, 8, 27



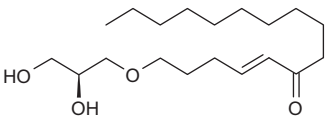
704 Batyl alcohol-3-*O*-α-*L*-fucopyranoside

Type: Glycolipids. $C_{27}H_{54}O_7$ Prisms (MeOH), mp 135–138 °C, $[\alpha]_D^{30}$ = −73° (*c* = 0.1, MeOH). Source: Soft coral *Sinularia* sp. (Rangat I., India). Pharm: Antibacterial (*Bacillus pumilis,* 500 μg/mL). Ref: C. Subrahmanyam, et al, Indi. J. Chem., Sect B, 1999, 38, 1388



705 Ceratodictyol A

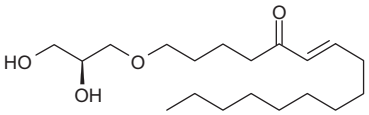
Type: Glycolipids. $C_{19}H_{36}O_4$ Oil, $[\alpha]_D^{23}$ = −33° (*c* = 0.01, MeOH). Source: Red alga *Ceratodictyon spongiosum* and sponge *Haliclona cymaeformis* (assemblage). Pharm: Cytotoxic (HeLa, IC_{50} = 67 μmol/L). Ref: T. Akiyama, et al, JNP, 2009, 72, 1552



706 Ceratodictyol B

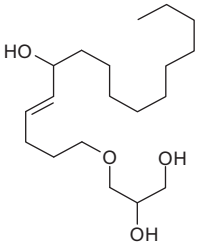
Type: Glycolipids. $C_{19}H_{36}O_4$ Oil, $[\alpha]_D^{23}$ = −27° (*c* = 0.02, MeOH). Source: Red alga *Ceratodictyon spongiosum* and sponge *Haliclona cymaeformis* (assemblage).

Pharm: Cytotoxic (HeLa, IC_{50} = 67 μmol/L). Ref: T. Akiyama, et al, JNP, 2009, 72, 1552



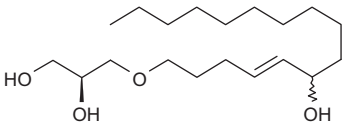
707 Ceratodictyol C

Type: Glycolipids. $C_{19}H_{38}O_4$ Epimeric mixture with Ceratodictyol D, oil, $[\alpha]_D^{24}$ = –27° (*c* = 0.01, MeOH). Source: Red alga *Ceratodictyon spongiosum* and sponge *Haliclona cymaeformis* (assemblage). Pharm: Cytotoxic (mixture with Ceratodictyol D, HeLa, IC_{50} = 67 μmol/L). Ref: T. Akiyama, et al, JNP, 2009, 72, 1552



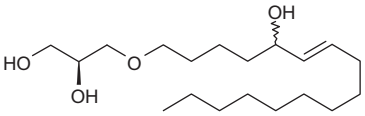
708 Ceratodictyol D

Ceratodictyol C 6′-epimer Type: Glycolipids. $C_{19}H_{38}O_4$ Epimeric mixture with Ceratodictyol C, oil, $[\alpha]_D^{24}$ = –27° (*c* = 0.01, MeOH). Source: Red alga *Ceratodictyon spongiosum* and sponge *Haliclona cymaeformis* (assemblage). Pharm: Cytotoxic (mixture with Ceratodictyol C, HeLa, IC_{50} = 67 μmol/L). Ref: T. Akiyama, et al, JNP, 2009, 72, 1552



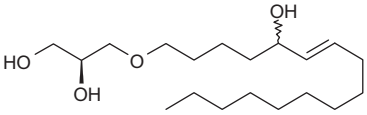
709 Ceratodictyol E

Type: Glycolipids. $C_{19}H_{38}O_4$ Epimeric mixture with Ceratodictyol F, oil, $[\alpha]_D^{24}$ = –26° (*c* = 0.01, MeOH). Source: Red alga *Ceratodictyon spongiosum* and sponge *Haliclona cymaeformis* (assemblage). Pharm: Cytotoxic (mixture with Ceratodictyol F, HeLa, IC_{50} = 67 μmol/L). Ref: T. Akiyama, et al, JNP, 2009, 72, 1552



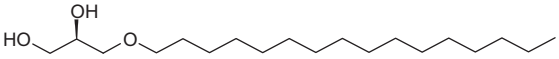
710 Ceratodictyol F

Type: Glycolipids. $C_{19}H_{38}O_4$ Epimeric mixture with Ceratodictyol E, oil, $[\alpha]_D^{24} = -26°$ (c = 0.01, MeOH). Source: Red alga *Ceratodictyon spongiosum* and sponge *Haliclona cymaeformis* (assemblage). Pharm: Cytotoxic (mixture with Ceratodictyol E, HeLa, IC_{50} = 67 μmol/L). Ref: T. Akiyama, et al, JNP, 2009, 72, 1552



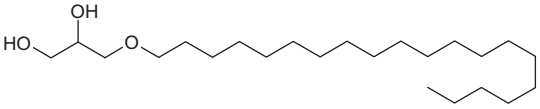
711 (*R*)-Chimyl alcohol

Type: Glycolipids. $C_{19}H_{40}O_3$ mp 64.5–65.5 °C. Source: Nudibranch *Tritoniella belli* (Antarctic) and stolonifer *Clavularia frankliniana* (co-occurring). Pharm: Antifeedant (omnivorous starfish *Odontaster validus*). Ref: J. B. McClintock, et al, J. Chem. Ecol., 1994, 20, 3361



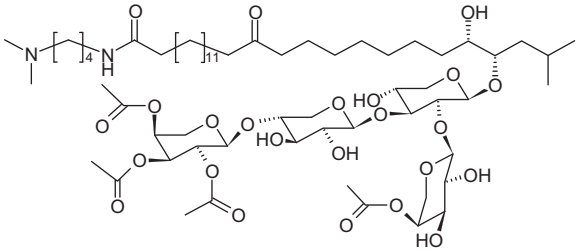
712 3-Eicosyloxy-1,2-propanediol

Type: Glycolipids. $C_{23}H_{48}O_3$ Source: Nudibranch *Tritoniella belli* (Antarctic) and stolonifer *Clavularia frankliniana* (co-occurring). Pharm: Antifeedant (omnivorous starfish *Odontaster validus*). Ref: J. B. McClintock, et al, J. Chem. Ecol., 1994, 20, 3361



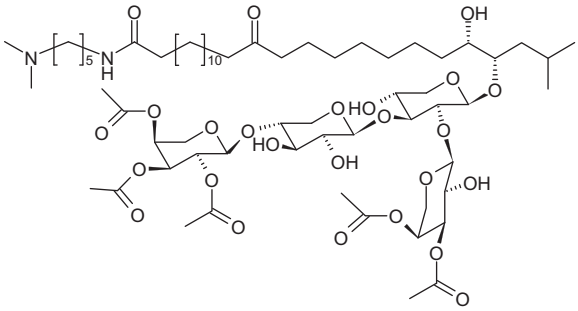
713 Erylusamine B

Type: Glycolipids. $C_{62}H_{108}N_2O_{24}$ Gum, $[\alpha]_D^{20} = -5.5°$ (c = 0.2, MeOH). Source: Sponge *Erylus placenta* (Japan waters). Pharm: IL-6 receptor antagonist (inhibits binding of IL-6 to its receptor, IC_{50} = 66 μg/mL); cytokinin. Ref: N. Fusetani, et al, Tet. Lett., 1993, 34, 4067 | N. Sata, et al, Tetrahedron, 1994, 50, 1105



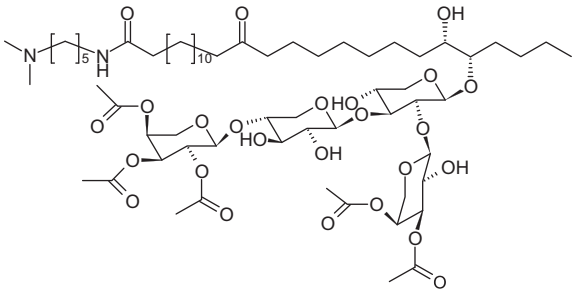
714 Erylusamine C

Type: Glycolipids. $C_{64}H_{110}N_2O_{25}$ Colorless oil, $[\alpha]_D^{20}$ = −9.6° (c = 0.3, MeOH). Source: Sponge *Erylus placenta* (Japan waters). Pharm: IL-6 receptor antagonist (inhibits binding of IL-6 to its receptor, IC_{50} = 33 μg/mL). Ref: N. Sata, et al, Tetrahedron, 1994, 50, 1105



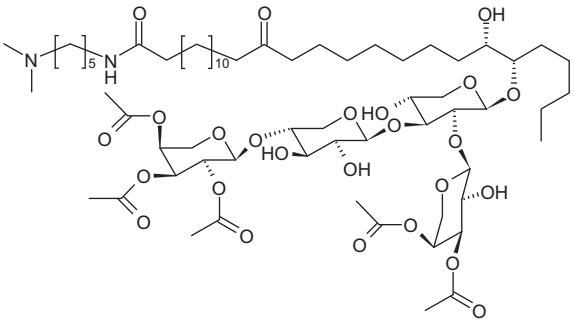
715 Erylusamine D

Type: Glycolipids. $C_{64}H_{110}N_2O_{25}$ Colorless oil, $[\alpha]_D^{20}$ = −6.0° (c = 0.1, MeOH). Source: Sponge *Erylus placenta* (Japan waters). Pharm: IL-6 receptor antagonist (inhibits binding of IL-6 to its receptor, IC_{50} = 37 μg/mL). Ref: N. Sata, et al, Tetrahedron, 1994, 50, 1105



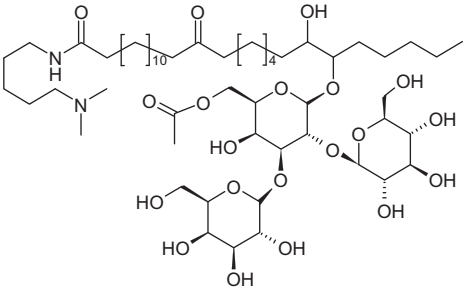
716 Erylusamine E

Type: Glycolipids. $C_{65}H_{112}N_2O_{25}$ Colorless oil, $[\alpha]_D^{20} = -8.0°$ (c = 0.2, MeOH). Source: Sponge *Erylus placenta* (Japan waters). Pharm: IL-6 receptor antagonist (inhibits binding of IL-6 to its receptor, IC_{50} = 17 μg/mL). Ref: N. Sata, et al, Tetrahedron, 1994, 50, 1105



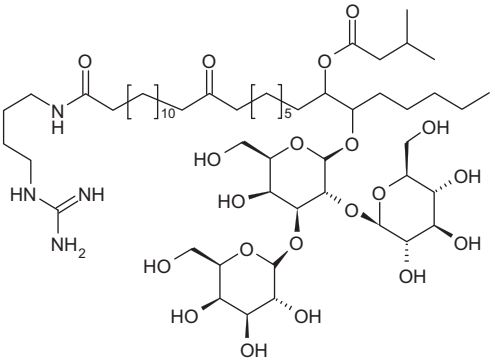
717 Erylusamine TA

Type: Glycolipids. $C_{54}H_{100}N_2O_{20}$ Oil, $[\alpha]_D^{25} = +28°$ (c = 2.9, MeOH). Source: Sponge Erylus cf. lendenfeldi (Red Sea). Pharm: Cytotoxic. Ref: R. Goobes, et al, Tetrahehron, 1996, 52, 7921



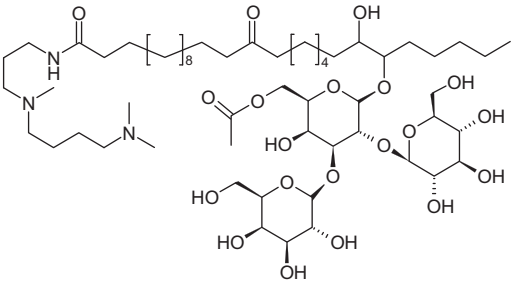
718 Erylusidine

Type: Glycolipids. $C_{56}H_{104}N_4O_{20}$ Oil, $[\alpha]_D^{25} = -4.1°$ (c = 4.7, MeOH). Source: Sponge *Erylus* cf. *lendenfeldi* (Red Sea). Pharm: Cytotoxic. Ref: R. Goobes, et al, Tetrahehron, 1996, 52, 7921



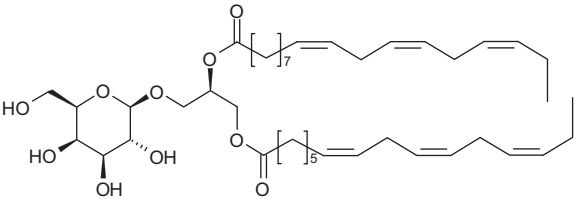
719 Erylusine

Type: Glycolipids. $C_{57}H_{107}N_3O_{20}$ Oil, $[\alpha]_D^{25}$ = +1.9° (c = 4.3, MeOH). Source: Sponge *Erylus* cf. *lendenfeldi* (Red Sea). Pharm: Cytotoxic. Ref: R. Goobes, et al, Tetrahehron, 1996, 52, 7921



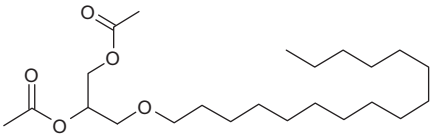
720 Glycerol-1-(7*Z*,10*Z*,13*Z*-hexadecatrienoate), 2-(9*Z*,12*Z*,15*Z*-octadecatrienoate)-(2*R*)-3-*O*-*β*-*D*-Galactopyranoside

Type: Glycolipids. $C_{43}H_{70}O_{10}$ Oil, $[\alpha]_D^{25}$ = −2.8° (c = 0.2, $CHCl_3$). Source: Green alga *Caulerpa taxifolia* (Mediterranean Sea). Pharm: Cytotoxic. Ref: I. Mancini, et al, Helv. Chim. Acta, 1998, 81, 1681



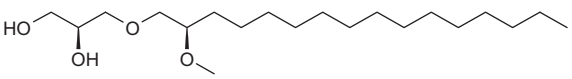
721 Glycerol 1-hexadecyl ether diacetate

Type: Glycolipids. $C_{23}H_{44}O_5$ $[\alpha]_D^{20}$ = −12.8° (*c* = 0.2, hexane). Source: Sea hare *Aplysia kurodai*. Pharm: Laxative. Ref: T. Miyamoto, et al, Annalen, 1988, 585



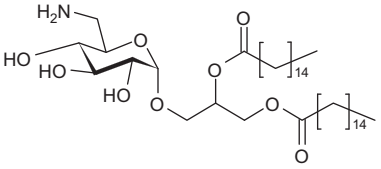
722 Glycerol 1-(2*R*-methoxyhexadecyl) ether

Type: Glycolipids. $C_{20}H_{42}O_4$ mp 39.5 °C, mp 44.2–44.7 °C (dimorph.), $[\alpha]_D^{20} = -3.3°$ (c = 5, THF). Source: Brachiopod olecranon-mussel *Gryphus vitreu*, shark liver oil. Pharm: Cytotoxic. Ref: M. D'Ambrosio, et al, Experientia, 1996, 52, 624



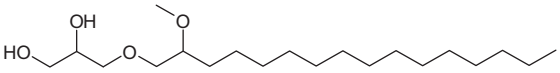
723 Ishigoside

Type: Glycolipids. $C_{41}H_{79}NO_9$ Source: Brown alga *Ishige okamurae* (Busan, R. O. Korea). Pharm: Antioxidant (free-radical scavenger, evaluated by ESR technique). Ref: Y. Zou, et al, Biotechnol. Bioprocess Eng., 2009, 14, 20



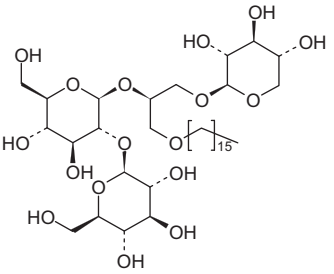
724 1-*O*-(2-Methoxyhexadecyl)glycerol

Type: Glycolipids. $C_{20}H_{42}O_4$ Source: Nudibranch *Tritoniella belli* (Antarctic) and stolonifer *Clavularia frankliniana* (co-occurring). Pharm: Antifeedant (omnivorous starfish *Odontaster validus*). Ref: J. B. McClintock, et al, J. Chem. Ecol., 1994, 20, 3361



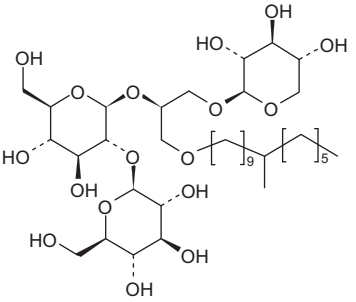
725 Myrmekioside A

Type: Glycolipids. $C_{36}H_{68}O_{17}$ Amorph. solid, $[\alpha]_D = -19.8°$ (c = 0.50, MeOH). Source: Sponge *Myrmekioderma* sp. (Japan waters). Pharm: Reverses phenotype of melanoma H-ras transformed NIH3T3 cells (5 μg/mL). Ref: S. Aoki, et al, Tetrahedron, 1999, 55, 14865



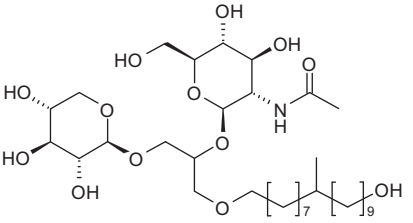
726 Myrmekioside B

Type: Glycolipids. $C_{37}H_{70}O_{17}$ Amorph. solid, $[\alpha]_D = -19.5°$ (c = 0.50, MeOH). Source: Sponge *Myrmekioderma* sp. (Japan waters). Pharm: Reverses phenotype of melanoma H-ras transformed NIH3T3 cells (5 μg/mL). Ref: S. Aoki, et al, Tetrahedron, 1999, 55, 14865



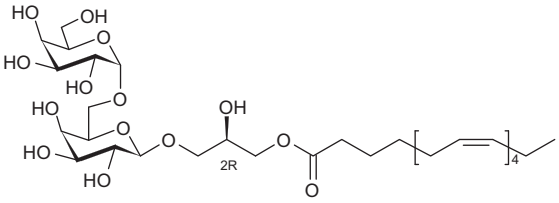
727 Myrmekioside E

Type: Glycolipids. $C_{35}H_{67}NO_{13}$ Source: Sponge *Myrmekioderma dendyi* (Epi I., Vanuatu). Pharm: Cytotoxic (lung tumour cells, moderate). Ref: F. Farokhi, et al, Eur. J. Med. Chem., 2012, 49, 406



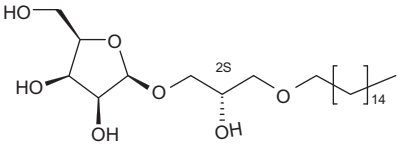
728 Sarcoglycoside A

Type: Glycolipids. $C_{33}H_{54}O_{14}$ Amorph. powder, $[\alpha]_D^{22} = +20.8°$ (c = 0.3, MeOH). Source: Soft coral *Sarcophyton infundibuliforme* (South China waters Sea). Pharm: Toxic (*Artemia salina*). Ref: L. Li, et al, Helv. Chim. Acta, 2009, 92, 1495



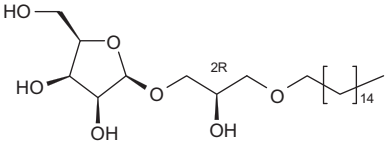
729 Sarcoglycoside B

Type: Glycolipids. $C_{24}H_{48}O_7$ Amorph. powder, $[\alpha]_D^{25}$ = −41.2° (*c* = 0.5, $CHCl_3$). Source: Soft coral *Sarcophyton infundibuliforme* (South China waters Sea). Pharm: Toxic (*Artemia salina*). Ref: L. Li, et al, Helv. Chim. Acta, 2009, 92, 1495



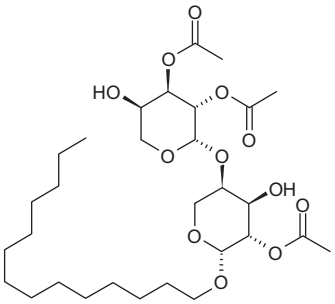
730 Sarcoglycoside C

Type: Glycolipids. $C_{24}H_{48}O_7$ Amorph. powder, $[\alpha]_D^{25}$ = −58.5° (*c* = 0.5, $CHCl_3$). Source: Soft coral *Sarcophyton infundibuliforme* (South China waters Sea). Pharm: Toxic (*Artemia salina*). Ref: L. Li, et al, Helv. Chim. Acta, 2009, 92, 1495



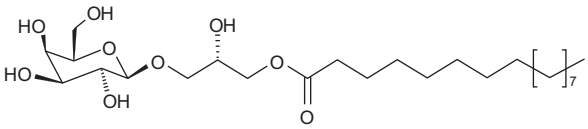
731 Sinularioside

Type: Glycolipids. $C_{30}H_{52}O_{12}$ Source: Soft coral *Sinularia* sp. (Manado, North Sulawesi, Indonesia). Pharm: NO release inhibitor (LPS-stimulated macrophages). Ref: M. Y. Putra, et al, BoMCL, 2012, 22, 2723 | M. Y. Putra, et al, Tet. Lett., 2012, 53, 3937



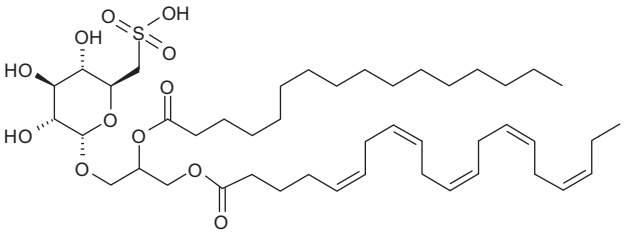
732 Spongilipid

Type: Glycolipids. $C_{25}H_{48}O_9$ Amorph. powder, mp 119–121 °C, $[\alpha]_D^{31}$ = +9.2° (*c* = 0.8, MeOH). Source: Sponge *Spongia* cf. *hispida* (Singapore). Pharm: Antibacterial (inhibits fecal opportunist *Enterococcus faecalis*, MIC = 25–50 µg/disk). Ref: G. R. Pettit, et al, Can. J. Chem., 1997, 75, 920



733 (6-Sulfoquinovopyranosyl)-(1→3′)-1′-(5,8,11,14,17-eicosapentaenoyl)-2′-hexadecanoylglycerol

Type: Glycolipids. $C_{45}H_{76}O_{12}S$ Amorph. solid, $[\alpha]_D$ = +57° (c = 0.1, MeOH). Source: Red alga *Gigartina tenella* (Japan waters). Pharm: DNA polymerases inhibitor (eukaryotic); HIV-1 reverse transcriptase I inhibitor. Ref: K. Ohta, et al, CPB, 1998, 46, 684

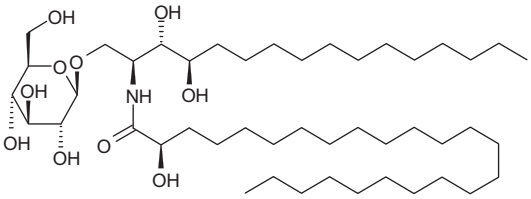


1.13 Sphingolipids

734 Acanthacerebroside A

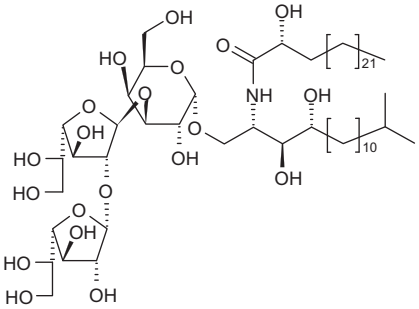
Type: Sphingolipids. $C_{46}H_{91}NO_{10}$ Needles +3H_2O (MeOH), mp 209–210 °C, $[\alpha]_D$ = +2.4° (*c* = 0.81, propanol). Source: Starfish *Acanthaster planci*. Pharm: Cytotoxic;

immunostimulant; neuritogenic; cell growth inhibitor. Ref: Y. Kawano, et al, Annalen, 1988, 19 | S. Sugiyama, et al, Annalen, 1988, 619; 1990, 1063 | R. Higuchi, et al, Liebigs Ann. Chem., 1990, 659 | N. Chida, et al, Bull. Chem. Soc. Jpn., 1998, 71, 259



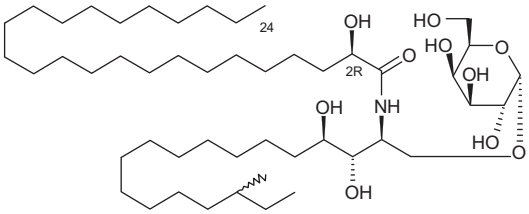
735 Agelagalastatin

Type: Sphingolipids. $C_{60}H_{115}NO_{20}$ Amorph. powder, $[\alpha]_D$ = +59° (*c* = 0.65, $CHCl_3$) (m = 10 or 11, n = 21 or 20). Source: Sponge *Agelas* sp. (Papua New Guinea). Pharm: Cytotoxic (NCI-H460, GI_{50} = 0.77 μg/mL, OVCAR-3, GI_{50} = 2.8 μg/mL). Ref: G. R. Pettit, et al, Chem. Comm., 1999, 915



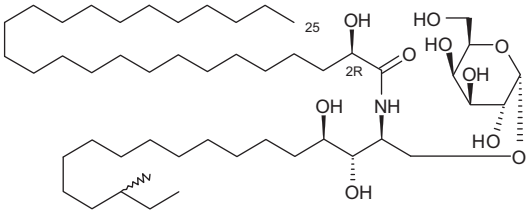
736 Agelasphin 11

N-(2*R*-Hydroxytetracosanoyl)-(2*S*,3*S*,4*R*,16*ξ*)-2-amino-16-methyl-1,3,4-octadecanetriol 1-*O*-α-*D*-galactopyranoside Type: Sphingolipids. $C_{49}H_{97}NO_{10}$ mp 189.5–190.5 °C, $[\alpha]_D^{24}$ = +51.9° (*c* = 1, Py). Source: Sponge *Agelas mauritianus* (Okinawa). Pharm: Antineoplastic (*in vivo*, B16, *T/C* = 160%–190%, high activity); cytotoxic (*in vitro*, B16, 20 μg/mL, weak and no activity); immunostimulant. Ref: T. Natori, et al, Tet. Lett., 1993, 34, 5591 | T. Natori, et al, Tetrahedron, 1994, 50, 2771 | Z. Motoki, et al, BoMCL, 1995, 5, 705 | E. Kobayashi, et al, Biol. Pharm. Bull., 1996, 19, 350



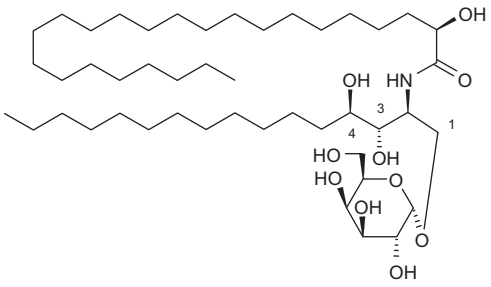
737 Agelasphin 13

N-(2*R*-Hydroxypentacosanoyl)-(2*S*,3*S*,4*R*,16*ξ*)-2-amino-16-methyl-1,3,4-octadecanetriol 1-*O*-α-*D*-galactopyranoside Type: Sphingolipids. $C_{50}H_{99}NO_{10}$ mp 215.5–218.0 °C, $[\alpha]_D^{24}$ = +48.8° (*c* = 0.5, Py). Source: Sponge *Agelas mauritianus* (Okinawa). Pharm: Antineoplastic (*in vivo*, B16, *T/C* = 160%–190%, high activity); cytotoxic (*in vitro*, B16, 20 μg/mL, weak and no activity); immunostimulant. Ref: T. Natori, et al, Tet. Lett., 1993, 34, 5591 | T. Natori, et al, Tetrahedron, 1994, 50, 2771 | Z. Motoki, et al, BoMCL, 1995, 5, 705



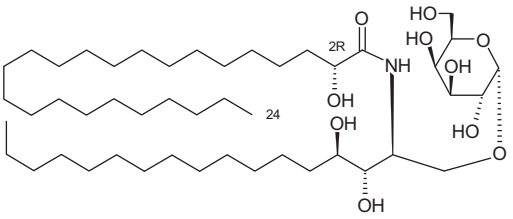
738 Agelasphin 7A

N-(2*R*-Hydroxytetracosanoyl)-(2*S*,3*S*,4*R*)-2-amino-1,3,4-hexadecanetriol 1-*O*-α-*D*-galactopyranoside Type: Sphingolipids. $C_{46}H_{91}NO_{10}$ mp 193.5–195.0 °C, $[\alpha]_D^{24}$ = +52.3° (*c* = 0.10, Pyridine). Source: Sponge *Agelas mauritianus* (Okinawa). Pharm: Antineoplastic (*in vivo*, B16, *T/C* = 160%–190%, high activity); cytotoxic (*in vitro*, B16, 20 μg/mL, weak and no activity). Ref: T. Natori, et al, Tet. Lett., 1993, 34, 5591 | T. Natori, et al, Tetrahedron, 1994, 50, 2771



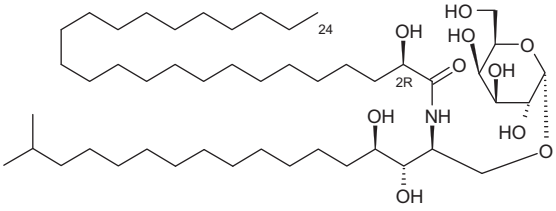
739 Agelasphin 9A

N-(2*R*-Hydroxytetracosanoyl)-(2*S*,3*S*,4*R*)-2-amino-1,3,4-heptadecanetriol 1-*O*-α-*D*-galactopyranoside Type: Sphingolipids. $C_{47}H_{93}NO_{10}$ mp 201.0–203.5 °C, $[\alpha]_D^{24}$ = +49.9° (*c* = 0.10, Py). Source: Sponge *Agelas mauritianus* (Okinawa). Pharm: Antineoplastic (*in vivo*, B16, *T/C* = 160%–190%, high activity); cytotoxic (*in vitro*, B16, 20 μg/mL, weak and no activity); immunostimulant. Ref: T. Natori, et al, Tet. Lett., 1993, 34, 5591 | T. Natori, et al, Tetrahedron, 1994, 50, 2771



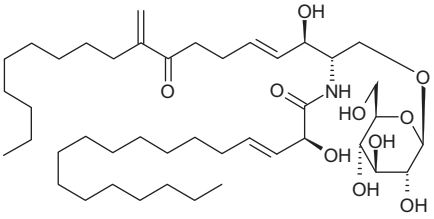
740 Agelasphin 9B

N-(2*R*-Hydroxytetracosanoyl)-(2*S*,3*S*,4*R*)-2-amino-16-methyl-1,3,4-heptadecanetriol 1-*O*-α-*D*-galactopyranoside Type: Sphingolipids. $C_{48}H_{95}NO_{10}$ mp 211.0–212.0 °C, $[\alpha]_D^{24}$ = +55.0° (*c* = 0.10, Py). Source: Sponge *Agelas mauritianus* (Okinawa). Pharm: Antineoplastic (*in vivo*, B16, *T/C* = 160%–190%, high activity); cytotoxic (*in vitro*, B16, 20 μg/mL, weak and no activity); immunostimulant. Ref: T. Natori, et al, Tet. Lett., 1993, 34, 5591 | K. Akimoto, et al, Tet. Lett., 1993, 34, 5593 | T. Natori, et al, Tetrahedron, 1994, 50, 2771



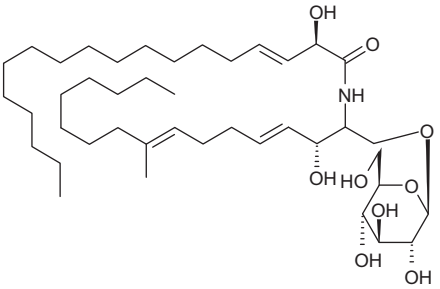
741 Alternaroside A

Type: Sphingolipids. $C_{43}H_{77}NO_{10}$ Amorph. powder, $[\alpha]_D^{20}$ = –11° (*c* = 0.6, MeOH). Source: Marine-derived fungus *Alternaria raphani* THW-18 (halotolerant, from sediment, Chinese sea salt field). Pharm: Antibacterial (*Escherichia coli* and *Bacillus subtilis*, very weak); antifungal (yeast *Candida albicans*, very weak). Ref: W. L. Wang, et al, JNP, 2009, 72, 1695



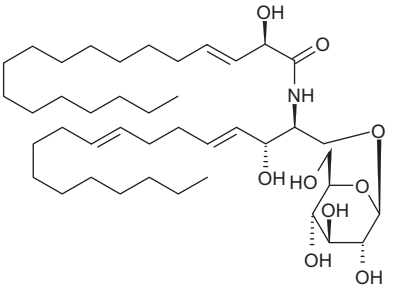
742 Alternaroside B

Type: Sphingolipids. $C_{42}H_{77}NO_9$ Amorph. powder, $[\alpha]_D^{20}$ = −9° (*c* = 0.1, MeOH). Source: Marine-derived fungus *Alternaria raphani* THW-18 (halotolerant, from sediment, Chinese sea salt field). Pharm: Antibacterial (*Escherichia coli* and *Bacillus subtilis*, very weak); antifungal (yeast *Candida albicans*, very weak). Ref: W. L. Wang, et al, JNP, 2009, 72, 1695



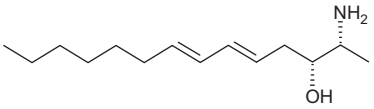
743 Alternaroside C

Type: Sphingolipids. $C_{42}H_{77}NO_9$ Amorph. powder, $[\alpha]_D^{20}$ = −4° (*c* = 0.1, MeOH). Source: Marine-derived fungus *Alternaria raphani* THW-18 (halotolerant, from sediment, Chinese sea salt field). Pharm: Antibacterial (*Escherichia coli* and *Bacillus subtilis*, very weak); antifungal (yeast *Candida albicans*, very weak). Ref: W. L. Wang, et al, JNP, 2009, 72, 1695



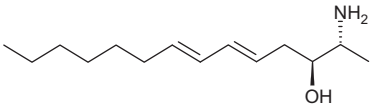
744 (2*R*,3*R*)-Aminotetradeca-5,7-dien-3-ol

Type: Sphingolipids. $C_{14}H_{27}NO$ Source: Sponge *Xestospongia* sp. Pharm: Antifungal. Ref: N. K. Gulavita, et al, JOC, 1989, 54, 366 | N. Langlois, et al, Tet. Lett., 2001, 42, 5709 | L. Garrido, et al, Tetrahedron, 2001, 57, 4579



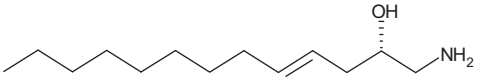
745 (2*R*,3*S*)-Aminotetradeca-5,7-dien-3-ol

Type: Sphingolipids. $C_{14}H_{27}NO$ Source: Sponge *Xestospongia* sp. Pharm: Antifungal. Ref: N. K. Gulavita, et al, JOC, 1989, 54, 366 | N. Langlois, et al, Tet. Lett., 2001, 42, 5709 | L. Garrido, et al, Tetrahedron, 2001, 57, 4579



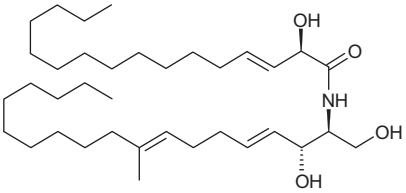
746 (2*S*,4*E*)-1-Amino-4-tridecen-2-ol

Type: Sphingolipids. $C_{13}H_{27}NO$ Source: Ascidian *Pseudodistoma* sp. (South Africa). Pharm: Antimicrobial. Ref: G. J. Hooper, et al, Nat. Prod. Lett., 1995, 6, 31



747 Asperamide A

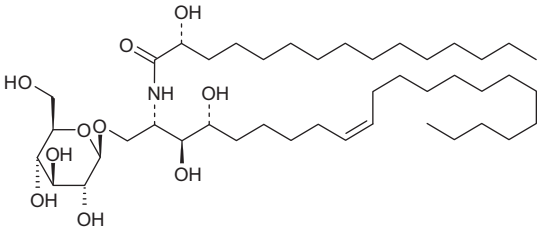
Type: Sphingolipids. $C_{37}H_{69}NO_4$ Amorph. powder, mp 64–66 °C, $[\alpha]_D$ = −5.6° (*c* = 0.6, $CHCl_3$). Source: Marine-derived fungus *Aspergillus niger* EN-13 from brown alga *Colpomenia sinuosa* (China waters waters). Pharm: Antifungal (*Candida albicans*, moderate). Ref: Y. Zhang, et al, Lipids, 2007, 42, 759



748 Astrocerebroside A

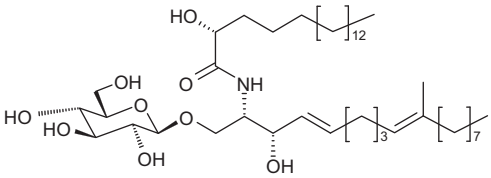
Type: Sphingolipids. $C_{43}H_{83}NO_{10}$ Needles +1H_2O (MeOH), mp 189–192 °C, $[\alpha]_D^{25}$ = +10.3° (*c* = 1, 1-propanol). Source: Starfish *Astropecten latespinosus* ($CHCl_3$/MeOH extract). Pharm: Cytotoxic; immunostimulant; neuritogenic; cell growth inhibitor. Ref:

Y. Kawano, et al, Liebigs Ann. Chem., 1988, 19 | R. Higuchi, et al, Liebigs Ann. Chem., 1990, 659 | N. Chida, et al, Bull. Chem. Soc. Jpn., 1998, 71, 259



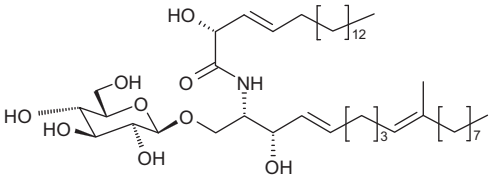
749 Avuside A

Flavuside A Type: Sphingolipids. $C_{43}H_{81}NO_9$ Source: Marine-derived fungus *Aspergillus flavus* from green alga *Codium fragile* (GeoMun I., Yeosu, R. O. Korea). Pharm: Antibacterial (*Staphylococcus aureus* and MRSA, weak). Ref: G. Yang,et al, CPB, 2011, 59, 1174



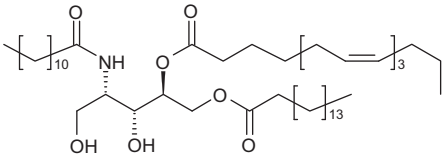
750 Avuside B

Flavuside B Type: Sphingolipids. $C_{43}H_{79}NO_9$ Source: Marine-derived fungus *Aspergillus flavus* from green alga *Codium fragile* (GeoMun I., Yeosu, R. O. Korea). Pharm: Antibacterial (*Staphylococcus aureus* and MRSA, weak). Ref: G. Yang,et al, CPB, 2011, 59, 1174



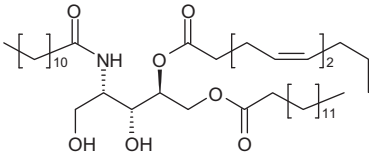
751 Bathymodiolamide A

Type: Sphingolipids. $C_{49}H_{89}NO_7$ $[\alpha]_D^{24}$ = +10.8° (*c* = 0.08, MeOH). Source: Mussel *Bathymodiolus thermophilus* (depth of 1700 m, near hydrothermal vents on the Mid-Atlantic Ridge). Pharm: Cytotoxic (apoptosis induction assay, HeLa, IC_{50} = 0.4 μmol/L; MCF7, IC_{50} = 0.1 μmol/L). Ref: E. H. Andrianasolo, et al, JNP, 2011, 74, 842



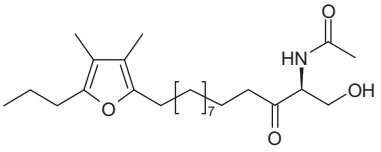
752 Bathymodiolamide B

Type: Sphingolipids. $C_{42}H_{77}NO_7$ $[\alpha]_D^{24}$ = +10.9° (*c* = 0.08, MeOH). Source: Mussel *Bathymodiolus thermophilus* (depth of 1700 m, near hydrothermal vents on the Mid-Atlantic Ridge). Pharm: Cytotoxic (apoptosis induction assay, HeLa, IC_{50} = 0.5 μmol/L; MCF7, IC_{50} = 0.2 μmol/L). Ref: E. H. Andrianasolo, et al, JNP, 2011, 74, 842



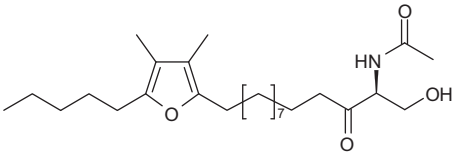
753 Calicogorgin A

Type: Sphingolipids. $C_{24}H_{41}NO_4$ Optically active viscous oil, $[\alpha]_D^{22}$ = +7.2° (*c* = 0.25, $CHCl_3$). Source: Gorgonian *Calicogorgia* sp. (Japan waters). Pharm: Toxic (repels prosobranch *Drupella fragum*). Ref: M. Ochi, et al, Tet. Lett., 1992, 33, 7531



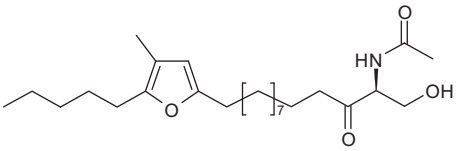
754 Calicogorgin B

Type: Sphingolipids. $C_{26}H_{45}NO_4$ Colorless oil, $[\alpha]_D^{21}$ = +7.6° (*c* = 0.05, $CHCl_3$). Source: Gorgonian *Calicogorgia* sp. (Japan waters). Toxic (repels prosobranch *Drupella fragum*). Ref: M. Ochi, et al, Tet. Lett., 1992, 33, 7531



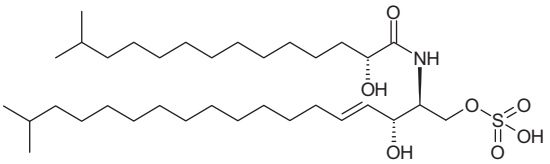
755 Calicogorgin C

Type: Sphingolipids. $C_{25}H_{43}NO_4$ Colorless oil, $[\alpha]_D^{22}$ = +5.0° (*c* = 0.24, $CHCl_3$). Source: Gorgonian *Calicogorgia* sp. (Japan waters). Pharm: Toxic (repels prosobranch *Drupella fragum*). Ref: M. Ochi, et al, Tet. Lett., 1992, 33, 7531



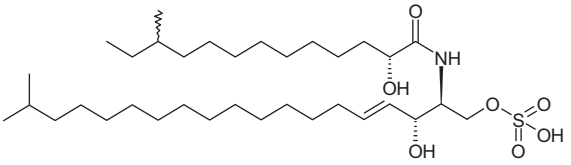
756 Calyceramide A

Type: Sphingolipids. $C_{34}H_{67}NO_7S$ Solid (Na salt), $[\alpha]_D^{20}$ = +24.8° (*c* = 0.1, MeOH) (Na salt). Source: Lithistid sponge *Discodermia calyx* (off Sikine-jima I., Japan). Pharm: Neuraminidase inhibitor (IC_{50} = 0.63 μmol/L). Ref: Y. Nakao, et al, Tetrahedron, 2001, 57, 3013 | P. L. Winder, et al, Mar. Drugs, 2011, 9, 2644 (rev)



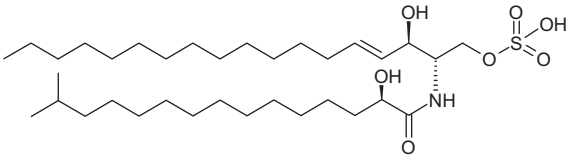
757 Calyceramide B

Type: Sphingolipids. $C_{34}H_{67}NO_7S$ Solid (Na salt), $[\alpha]_D^{20}$ = +14.5° (*c* = 0.1, MeOH) (Na salt). Source: Lithistid sponge *Discodermia calyx* (off Sikine-jima I., Japan). Pharm: Neuraminidase inhibitor (IC_{50} = 0.32 μmol/L). Ref: Y. Nakao, et al, Tetrahedron, 2001, 57, 3013 | P. L. Winder, et al, Mar. Drugs, 2011, 9, 2644 (rev)



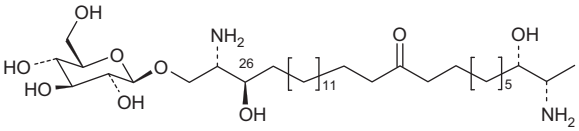
758 Calyceramide C

Type: Sphingolipids. $C_{34}H_{67}NO_7S$ Solid (Na salt), $[\alpha]_D^{20}$ = +16.9° (*c* = 0.1, MeOH) (Na salt). Source: Lithistid sponge *Discodermia calyx* (off Sikine-jima I., Japan). Pharm: Neuraminidase inhibitor (IC_{50} = 1.3 μmol/L). Ref: Y. Nakao, et al, Tetrahedron, 2001, 57, 3013 | P. L. Winder, et al, Mar. Drugs, 2011, 9, 2644 (rev)



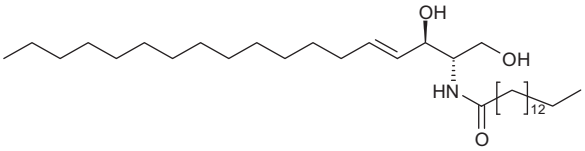
759 Calyxoside

Type: Sphingolipids. $C_{34}H_{68}N_2O_9$ Colorless gel-like substance, $[\alpha]_D^{25}$ = −15.8° (*c* = 0.312, MeOH). Source: Sponge *Caly*x sp. (Sulawesi, Indonesia). Pharm: DNA-damaging agent (RS322 yeast strain, IC_{12} = 36 μg/mL, RS321 yeast strain IC_{12} = 62 μg/mL, RS188N yeast strain IC_{12} > 1000 μg/mL, not act as a topoisomerase I or II inhibitor); cytotoxic (mammalian cell lines: HFF, IC_{50} = 20 μg/mL, MRC-5, IC_{50} = 20 μg/mL, SW480, IC_{50} = 5.0 μg/mL, HT29, IC_{50} = 10 μg/mL, Saos-2, IC_{50} = 5.0 μg/mL, DLD-1, IC_{50} = 5.0 μg/mL, H460, IC_{50} = 3.0 μg/mL; relatively weak cytotoxicity without any strong selectivity). Ref: B. N. Zhou, et al, Tetrahedron, 2001, 57, 9549



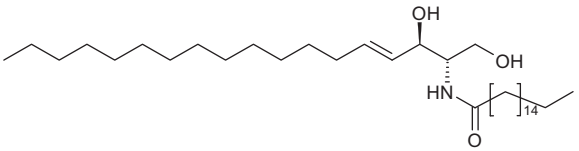
760 Caulerpicin A

N-Pentadecanoyl-(2*S*,3*R*,4*E*)-2-amino-4-octadecene-1,3-diol Type: Sphingolipids. $C_{33}H_{65}NO_3$ Source: Green alga *Caulerpa racemosa*. Pharm: Toxin. Ref: M. Mahendran, et al, Phytochemistry, 1979, 18, 1885



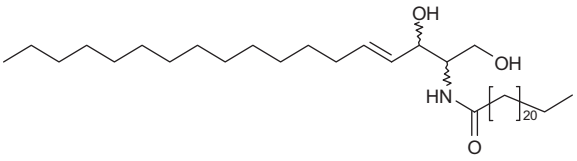
761 Caulerpicin B

N-Heptadecanoyl-(2*S*,3*R*,4*E*)-2-amino-4-octadecene-1,3-diol Type: Sphingolipids. $C_{35}H_{69}NO_3$ Cryst. Source: Green alga *Caulerpa racemosa*. Pharm: Toxin. Ref: M. Mahendran, et al, Phytochemistry, 1979, 18, 1885



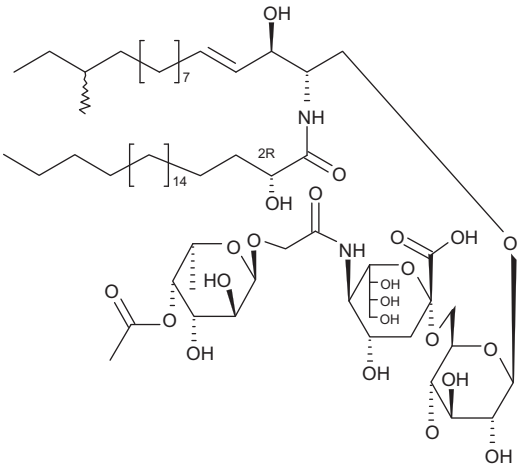
762 Caulerpicin C

N-Tricosanoyl-(2ξ,3ξ,4*E*)-2-amino-4-octadecene-1,3-diol Type: Sphingolipids. $C_{41}H_{81}NO_3$ Amorph. powder (Me_2CO), mp 95–96 °C. Source: Green algae *Caulerpa racemosa* and *Caulerpa sertularioides*. Pharm: Toxin. Ref: M. Mahendran, et al, Phytochemistry, 1979, 18, 1885 | S. -H. Xu, et al, Chin. Chem. Lett., 1997, 8, 419



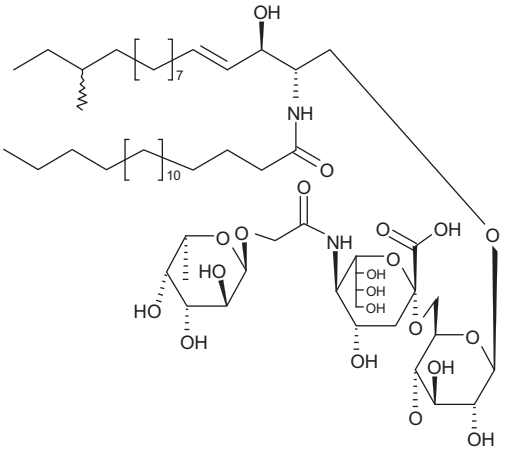
763 CEG 3

(2*S*,3*R*,4*E*,14ξ)-N^2-(2'*R*-Hydroxydocosanoyl)-2-imino-14-methyl-4-hexadecene-1,3-diol 1-*O*-[*N*-(4-*O*-acetyl-α-*L*-fucopyranosyloxy)acetyl-α-*D*-neuraminopyranosyl-(2→6)-*β*-*D*-glucopyranoside] Type: Sphingolipids. $C_{64}H_{116}N_2O_{23}$ Amorph. powder. Source: Sea cucumber *Cucumaria echinata*. Pharm: Neuritogenic activity (rat pheochromocytoma cell line PC-12 in presence of NGF, most potent). Ref: F. Kisa, et al, CPB, 2006, 54, 982



764 CEG 4

(2*S*,3*R*,4*E*,14ξ)-N^2-Octadecanoyl-2-imino-14-methyl-4-hexadecene-1,3-diol 1-*O*-[*N*-(α-*L*-fucopyranosyloxy)acetyl-α-*D*-neuraminopyranosyl-(2→6)-*β*-*D*-glucopyranoside] Type: Sphingolipids. $C_{58}H_{106}N_2O_{21}$ Amorph. powder. Source: Sea cucumber *Cucumaria echinata*. Pharm: Neuritogenic activity (rat pheochromocytoma cell line PC-12 in presence of NGF). Ref: F. Kisa, et al, CPB, 2006, 54, 982



765 CEG 5

(2*S*,3*S*,4*R*,14*ξ*)-N^2-(2'*R*-Hydroxydocosanoyl)-2-imino-14-methyl-1,3,4-hexadecanetriol 1-*O*-[*N*-(α-*L*-fucopyranosyloxy)acetyl-α-*D*-neuraminopyranosyl-(2→6)-*β*-*D*-glucopyranoside] Type: Sphingolipids. $C_{62}H_{116}N_2O_{23}$ Amorph. powder. Source: Sea cucumber *Cucumaria echinata*. Pharm: Neuritogenic activity (rat pheochromocytoma cell line PC-12 in presence of NGF). Ref: F. Kisa, et al, CPB, 2006, 54, 982

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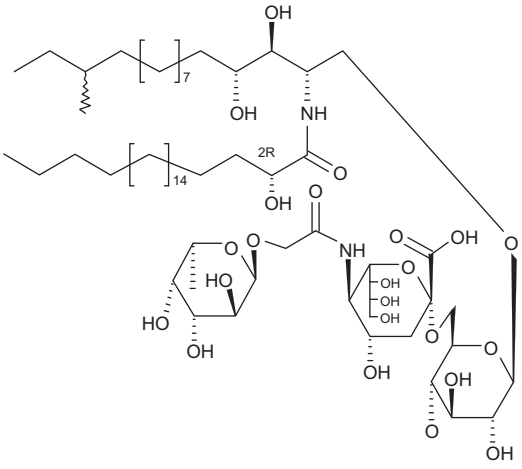
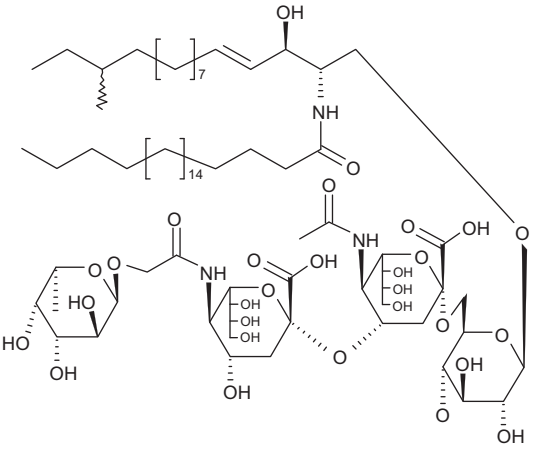


766 CEG 6

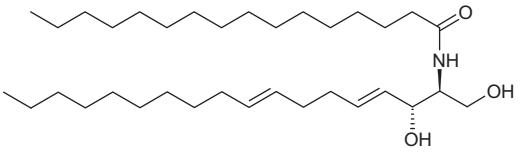
(2*S*,3*R*,4*E*,14*ξ*)-N^2-Docosanoyl-2-imino-14-methyl-4-hexadecene-1,3-diol 1-*O*-[α-*L*-fucopyranosyl-(1→2')-*N*-glycolyl-α-*D*-neuraminopyranosyl-(2→4)-*N*-acetyl-α-*D*-neuraminopyranosyl-(2→6)-*β*-*D*-glucopyranoside] Type: Sphingolipids. $C_{73}H_{131}N_3O_{29}$ Amorph. powder. Source: Sea cucumber *Cucumaria echinata* (major component). Pharm:

Neuritogenic activity (rat pheochromocytoma cell line PC-12 in presence of NGF). Ref: F. Kisa, et al, CPB, 2006, 54, 1293



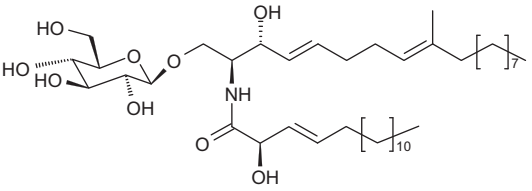
767 Ceramide 1

N-Hexadecanoyl-2-amino-4,8-octadecadiene-1,3-diol Type: Sphingolipids. $C_{34}H_{65}NO_3$ Solid, mp 82–83 °C, $[\alpha]_D^{25}$ = −8° (*c* = 0.5, $CHCl_3$). Source: Green alga *Ulva fasciata* (India waters), gorgonian *Acabaria undulata*. Pharm: Antiviral. Ref: J. Shin, et al, JNP, 1995, 58, 948 | M. Sharma, et al, Bot. Mar., 1996, 39, 213



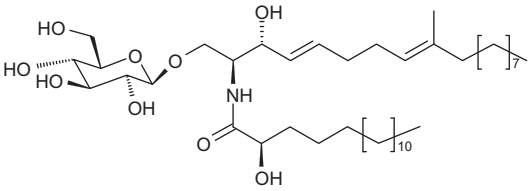
768 Cerebroside A

Type: Sphingolipids. $C_{41}H_{75}NO_9$ Source: Deep-sea fungus *Paecilomyces lilacinus* ZBY-1. Pharm: Cytotoxic (K562, MCF7, HL60 and BGC823 cells, IC_{50} = 22.3–139.0 μmol/L). Ref: X. Cui, et al, J. Int. Pharm. Res., 2013, 40, 177 (in Chinese)



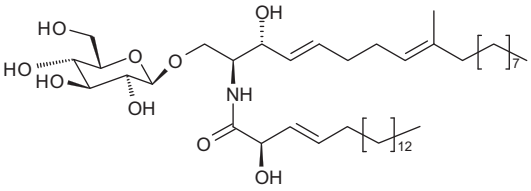
769 Cerebroside B

Type: Sphingolipids. $C_{41}H_{77}NO_9$ Source: Deep-sea fungus *Paecilomyces lilacinus* ZBY-1. Pharm: Cytotoxic (K562, MCF7, HL60 and BGC823 cells, IC_{50} = 22.3–139.0 μmol/L). Ref: X. Cui, et al, J. Int. Pharm. Res., 2013, 40, 177 (in Chinese)



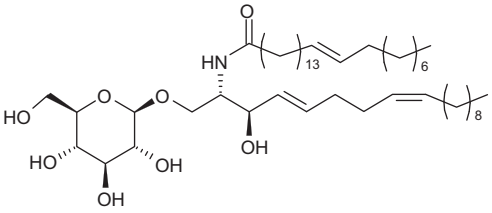
770 Cerebroside C

Type: Sphingolipids. $C_{43}H_{79}NO_9$ Cryst., mp 159–169 °C Source: Marine-derived fungus *Microsphaeropsis olivacea* from an unidentified sponge (Florida), deep-sea fungus *Paecilomyces lilacinus* ZBY-1. Pharm: Cell differentiation inducer; antifungal; cytotoxic (K562, MCF7, HL60 and BGC823 cells, IC_{50} = 22.3–139.0 μmol/L). Ref: M. Keusgen, et al, Biochem. Syst. Ecol., 1996, 24, 465 | X. Cui, et al, J. Int. Pharm. Res., 2013, 40, 177 (in Chinese)



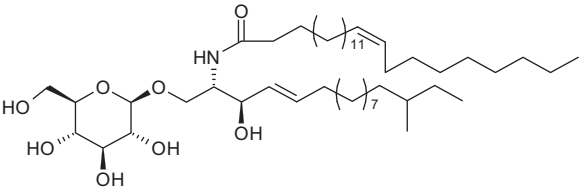
771 Cerebroside CE-1-2

Type: Sphingolipids. $C_{48}H_{89}NO_8$ Amorph. powder, mp 136–137 °C, $[\alpha]_D$ = −1.9° (*c* = 0.33, 1-PrOH). Source: Sea cucumber *Cucumaria echinata* (Japan waters). Pharm: Toxic (lethality to brine shrimp). Ref: K. Yamada, et al, EurJOC, 1998, 371



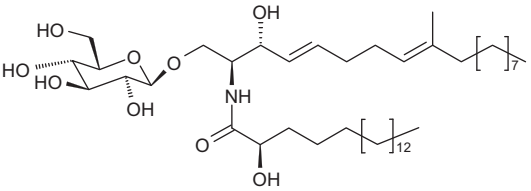
772 Cerebroside CE-1-3

Type: Sphingolipids. $C_{48}H_{91}NO_8$ mp 128–129 °C, $[\alpha]_D$ = −0.4° (*c* = 0.15, 1-PrOH). Source: Sea cucumber *Cucumaria echinata* (Japan waters). Pharm: Toxic (lethality to brine shrimp). Ref: K. Yamada, et al, EurJOC, 1998, 371



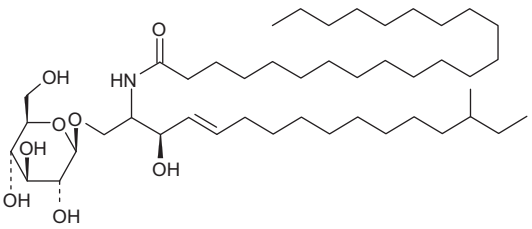
773 Cerebroside D

Type: Sphingolipids. $C_{43}H_{81}NO_9$ Source: Deep-sea fungus *Paecilomyces lilacinus* ZBY-1. Pharm: Cytotoxic (K562, MCF7, HL60 and BGC823 cells, IC_{50} = 22.3–139.0 μmol/L). Ref: X. Cui, et al, J. Int. Pharm. Res., 2013, 40, 177 (in Chinese)



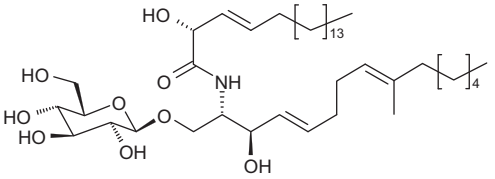
774 Cerebroside PA-0-5

Cerebroside CE-1-1 Type: Sphingolipids. $C_{45}H_{87}NO_8$ Amorph. powder, mp 138–140 °C, mp 135–136 °C, $[\alpha]_D$ = −7.6° (c = 0.89, 1-propanol), $[\alpha]_D$ = −5.2° (*c* = 1.42, 1-PrOH). Source: Sea cucumbers *Pentacta australis* and *Cucumaria echinata* (Japan waters). Pharm: Toxic (brine shrimp). Ref: R. Higuchi, et al, Liebigs Ann. Chem., 1994, 653 | K. Yamada, et al, EurJOC, 1998, 371

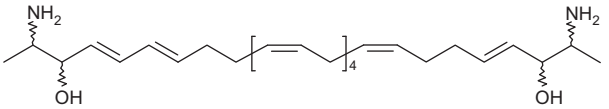


775 Chrysogeside B

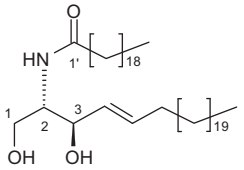
Type: Sphingolipids. $C_{41}H_{75}NO_9$ Source: Mangrove-derived fungus *Penicillium chrysogenum* (halotolerant) from mangrove *Rhizophora stylosa* (roots, Wenchang, Hainan, China waters). Pharm: Antibacterial (*Enterobacter aerogenes*). Ref: X. Peng, et al, JNP, 2011, 74, 1298



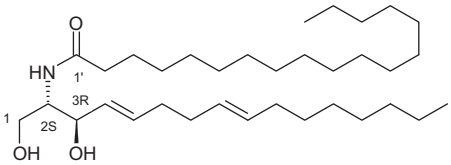
776 2,29-Diamino-4,6,10,13,16,19,22,26-triacontaoctaene-3,28-diol
Type: Sphingolipids. $C_{30}H_{48}N_2O_2$ Source: Calcareous sponge *Leucetta microraphis* (Australia). Pharm: PKC inhibitor (IC_{50} = 98 µmol/L); inhibiting binding of phorbol ester (IC_{50} = 9 µmol/L). Ref: R. H. Willis, et al, Toxicon 1997, 35, 1125 | S. Kehraus, et al, JOC, 2002, 67, 4989 | D. Skropeta, et al, Mar. Drugs, 2011, 9, 2131 (rev)



777 (2*S*,3*R*)-1,3-Dihydroxy-2-docosanoyl-amino-4*E*-hexacocaene
Type: Sphingolipids. $C_{46}H_{91}NO_3$ Source: Soft coral *Sinularia candidula* (Safaga, Egyptian Red Sea). Pharm: Antiviral (most potent anti-H5N1 virus agent). Ref: S. Ahmed, et al, Tet. Lett., 2013, 54, 2377

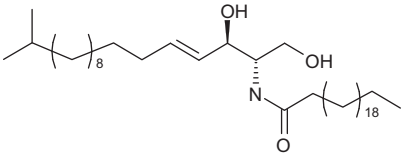


778 (2*S*,3*R*)-1,3-Dihydroxy-2-octadecanoyl-amino-4*E*,8*E*-hexadecadiene
Type: Sphingolipids. $C_{34}H_{65}NO_3$ Cryst. ($CHCl_3$/MeOH), mp 98–100 °C, $[\alpha]_D^{25}$ = +2.8° (*c* = 0.5, $CHCl_3$). Source: Soft corals *Sinularia* sp. (Andaman Is., Indian Ocean) and *Sinularia crassa* (Andaman and Nicobar Is., Indian Ocean). Pharm: Antibacterial (*Escherichia coli*, 50 µg/mL, IZD = 11 mm, 100 µg/mL, IZD = 13 mm, 200 µg/mL, IZD = 16 mm; *Bacillus subtilis*, 50 µg/mL, IZD = 13 mm, 100 µg/mL, IZD = 15 mm, 200 µg/mL, IZD = 18 mm; *Bacillus pumilus*, 50 µg/mL, IZD = 12 mm, 100 µg/mL, IZD = 14 mm, 200 µg/mL, IZD = 16 mm); antifungal (*Pseudomonas aeruginosa*, 50 µg/mL, IZD = 12 mm, 100 µg/mL, IZD = 15 mm, 200 µg/mL, IZD = 17 mm; *Aspergillus niger*, 50 µg/mL, IZD = 12 mm, 100 µg/mL, IZD = 15 mm, 200 µg/mL, IZD = 16 mm; *Rhizopus oryzae*, 50 µg/mL, IZD = 11 mm, 100 µg/mL, IZD = 13 mm, 200 µg/mL, IZD = 15 mm; yeast *Candida albicans*, 50 µg/mL, IZD = 8 mm, 100 µg/mL, IZD = 10 mm, 200 µg/mL, IZD = 11 mm). Ref: V. Anjaneyulu, et al, Ind. J. Chem., Sect B, 1999, 38, 457 | A.S.Dmitrenok, et al, Russ. Chem. Bull., 2003, 52, 1868



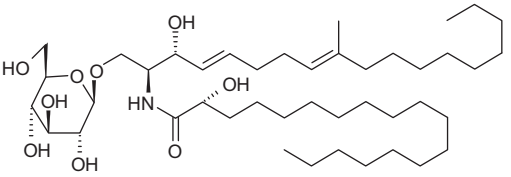
779 *N*-Docosanoyl-*D-erythro*-(2*S*,3*R*)-16-methyl-heptadecasphing-4(*E*)-enine

Type: Sphingolipids. $C_{40}H_{79}NO_3$ Powder, $[\alpha]_D^{25}$ = −6.0° (c = 0.01, $CHCl_3$). Source: Sponge *Haliclona koremella* (Palau, Oceania, Oceania). Pharm: Antifoulant (spores of *Ulva conglobata*); antimicroalgal. Ref: T. Hattori, K. et al, JNP, 1998, 61, 823



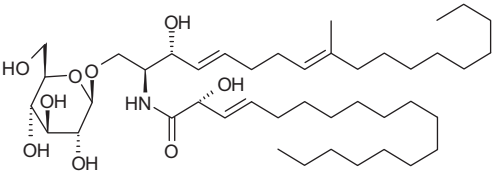
780 Flavicerebroside A

Type: Sphingolipids. $C_{43}H_{81}NO_9$ Source: Marine-derived fungus *Aspergillus flavipes* (mycelium) from sea anemone *Anthopleura xanthogrammica*. Pharm: Cytotoxic (KB). Ref: M. Saleem, et al, NPR, 2007, 24, 1142 (rev)



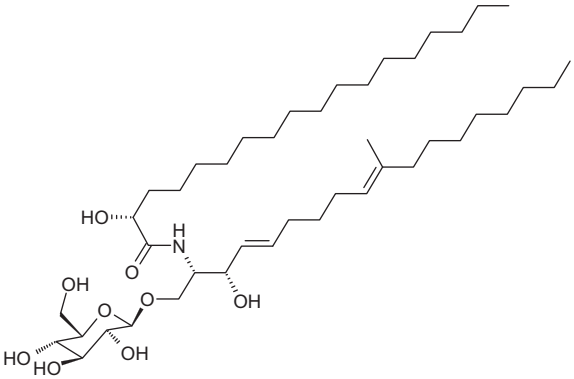
781 Flavicerebroside B

Type: Sphingolipids. $C_{43}H_{79}NO_9$ Source: Marine-derived fungus *Aspergillus flavipes* (mycelium) from sea anemone *Anthopleura xanthogrammica*. Pharm: Cytotoxic (KB). Ref: M. Saleem, et al, NPR, 2007, 24, 1142 (rev)



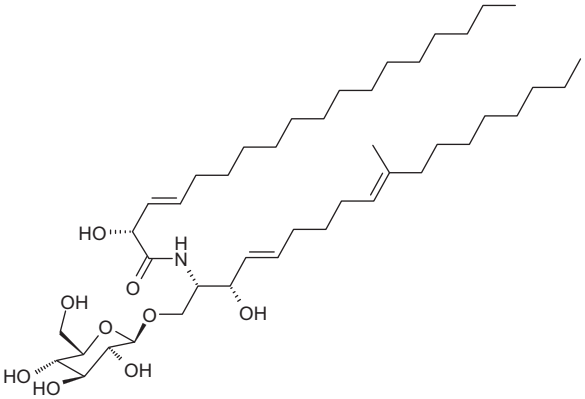
782 Flavuside A

Type: Sphingolipids. $C_{43}H_{81}NO_9$ Source: Marine-derived fungus *Aspergillus flavus*. Pharm: Antibacterial (*Staphylococcus aureus*, MIC = 15.6 μg/mL; MRSA, MIC = 31.2 μg/mL). Ref: G. Yang, et al, CPB, 2011, 59, 1174



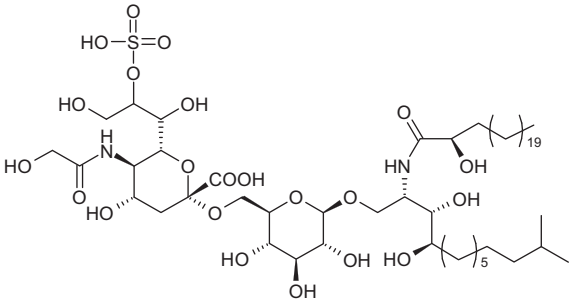
783 Flavuside B

Type: Sphingolipids. $C_{43}H_{79}NO_9$ Source: Marine-derived fungus *Aspergillus flavus*. Pharm: Antibacterial (*Staphylococcus aureus*, MIC = 15.6 μg/mL; MRSA, MIC = 31.2 μg/mL). Ref: G. Yang, et al, CPB, 2011, 59, 1174



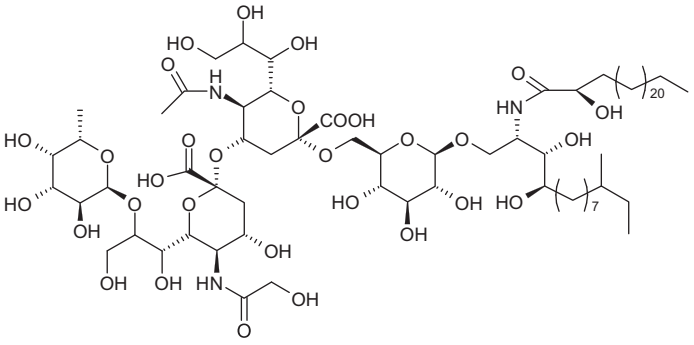
784 Ganglioside CG-1

Type: Sphingolipids. $C_{54}H_{102}N_2O_{22}S$ mp 129–130 °C. Source: Sea cucumber *Cucumaria echinata* (Japan waters). Pharm: Toxic (lethality to brine shrimp); neuritogenic (rat, pheochromocytoma PC-12 cell lines). Ref: K. Yamada, et al, EurJOC, 1998, 371



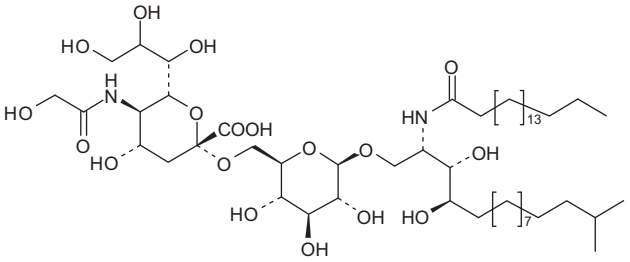
785 Ganglioside HPG-1

Type: Sphingolipids. $C_{74}H_{135}N_3O_{31}$ mp 261–270 °C. Source: Sea cucumber *Holothuria pervicax* (Japan waters). Pharm: Neuritogenic (rat pheochromocytoma cell line PC-12). Ref: K. Yamada, et al, EurJOC, 1998, 2519



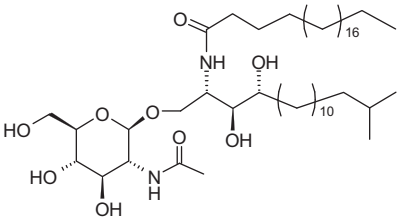
786 Ganglioside SJG-1

Type: Sphingolipids. $C_{52}H_{98}N_2O_{18}$ mp 159–160 °C. Source: Sea cucumber *Stichopus japonicus* (Japan waters). Pharm: Neuritogenic (rat pheochromocytoma cell line PC-12 in 10 μg/mL). Ref: M. Kaneko, et al, EurJOC, 1999, 3171



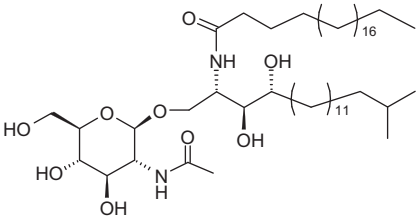
787 Halicylindroside A_1

N-Docosanoyl-(2*S*,3*S*,4*R*)-2-amino-16-methyl-1,3,4-heptadecanetriol 1-*O*-(2-acetamido-2-deoxy-*β*-*D*-glucopyranoside) Type: Sphingolipids. $C_{48}H_{94}N_2O_9$ Solid, $[\alpha]_D^{23}$ = –20.2° (Py). Source: Sponge *Halichondria cylindrata* (Japan waters). Pharm: Antifungal (*Mortierella ramanniana*, 250 μg/disk); cytotoxic (P_{388}, 6.8 μg/mL). Ref: H. Li, et al, Tetrahedron, 1995, 51, 2773



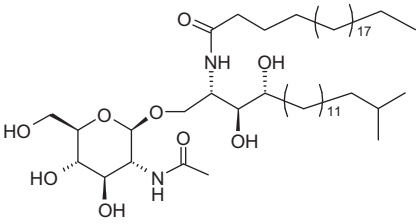
788 Halicylindroside A_2

Type: Sphingolipids. $C_{49}H_{96}N_2O_9$ Solid, $[\alpha]_D^{23}$ = –21.1° (Py). Source: Sponge *Halichondria cylindrata* (Japan waters). Pharm: Antifungal (*Mortierella ramanniana*, 250 μg/disk); cytotoxic (P_{388}, 6.8 μg/mL). Ref: H. Li, et al, Tetrahedron, 1995, 51, 2773



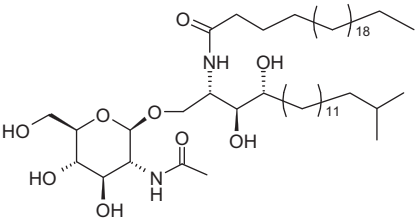
789 Halicylindroside A_3

Type: Sphingolipids. $C_{50}H_{98}N_2O_9$ Solid, $[\alpha]_D^{23}$ = –19.5° (Py). Source: Sponge *Halichondria cylindrata* (Japan waters). Pharm: Antifungal (*Mortierella ramanniana*, 250 μg/disk); cytotoxic (P_{388}, 6.8 μg/mL). Ref: H. Li, et al, Tetrahedron, 1995, 51, 2773



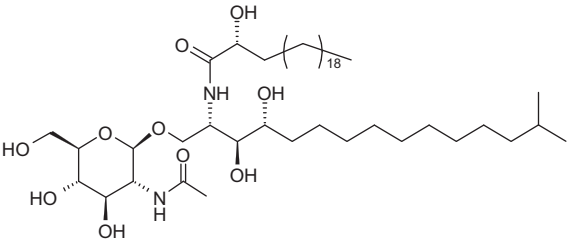
790 Halicylindroside A_4

Type: Sphingolipids. $C_{51}H_{100}N_2O_9$ Solid, $[\alpha]_D^{23}$ = −22.3° (Py). Source: Sponge *Halichondria cylindrata* (Japan waters). Pharm: Antifungal (*Mortierella ramanniana*, 250 μg/disk); cytotoxic (P_{388}, 6.8 μg/mL). Ref: H. Li, et al, Tetrahedron, 1995, 51, 2773



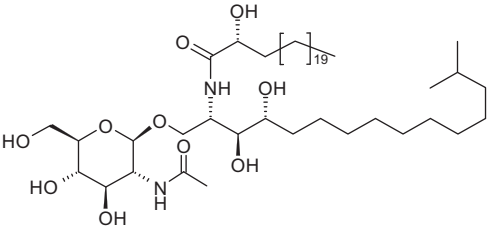
791 Halicylindroside B_1

Type: Sphingolipids. $C_{46}H_{90}N_2O_{10}$ Solid, $[\alpha]_D^{23}$ = −9.2° (Py). Source: Sponge *Halichondria cylindrata* (Japan waters). Pharm: Antifungal (*Mortierella ramanniana*, 250 μg/disk); cytotoxic (P_{388}, 6.8 μg/mL). Ref: H. Li, et al, Tetrahedron, 1995, 51, 2773



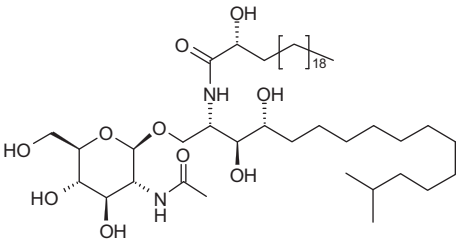
792 Halicylindroside B_2

Type: Sphingolipids. $C_{47}H_{92}N_2O_{10}$ Solid, $[\alpha]_D^{23}$ = −9.0° (Py). Source: Sponge *Halichondria cylindrata* (Japan waters). Pharm: Antifungal (*Mortierella ramanniana*, 250 μg/disk); cytotoxic (P_{388}, 6.8 μg/mL). Ref: H. Li, et al, Tetrahedron, 1995, 51, 2773



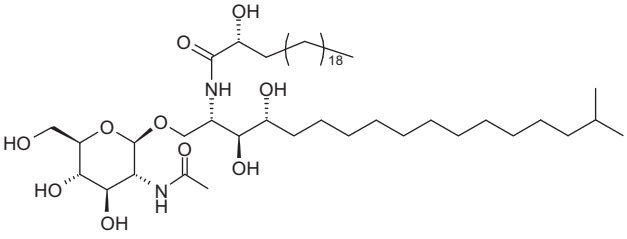
793 Halicylindroside B_3

N-(2*R*-Hydroxydocosanoyl)-(2*S*,3*S*,4*R*)-2-amino-15-methyl-1,3,4-hexadecanetriol 1-*O*-(2-acetamido-2-deoxy-*β*-*D*-glucopyranoside) Type: Sphingolipids. $C_{47}H_{92}N_2O_{10}$ Solid, $[\alpha]_D^{23}$ = −9.7° (Py). Source: Sponge *Halichondria cylindrata* (Japan waters). Pharm: Antifungal (*Mortierella ramanniana,* 250 μg/disk); cytotoxic (P_{388}, 6.8 μg/mL). Ref: H. Li, et al, Tetrahedron, 1995, 51, 2773



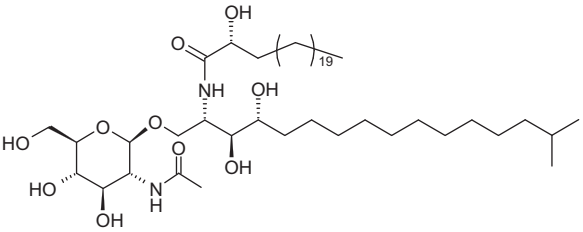
794 Halicylindroside B_4

N-(2*R*-Hydroxydocosanoyl)-(2*S*,3*S*,4*R*)-2-amino-16-methyl-1,3,4-heptadecanetriol 1-*O*-(2-acetamido-2-deoxy-*β*-*D*-glucopyranoside) Type: Sphingolipids. $C_{48}H_{94}N_2O_{10}$ Solid, $[\alpha]_D^{23}$ = −8.5° (Py). Source: Sponge *Halichondria cylindrata* (Japan waters). Pharm: Antifungal (*Mortierella ramanniana,* 250 μg/disk); cytotoxic (P_{388}, 6.8 μg/mL). Ref: H. Li, et al, Tetrahedron, 1995, 51, 2773



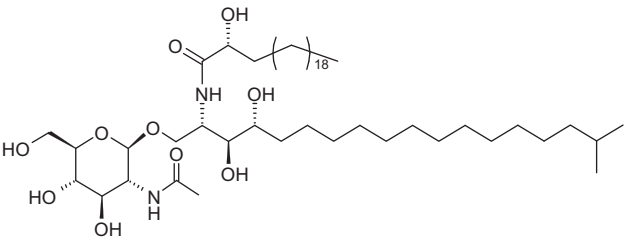
795 Halicylindroside B_5

N-(2*R*-Hydroxytricosanoyl)-(2*S*,3*S*,4*R*)-2-amino-15-methyl-1,3,4-hexadecanetriol 1-*O*-(2-acetamido-2-deoxy-*β*-*D*-glucopyranoside) Type: Sphingolipids. $C_{48}H_{94}N_2O_{10}$ Solid, $[\alpha]_D^{23}$ = −8.6° (Py). Source: Sponge *Halichondria cylindrata* (Japan waters). Pharm: Antifungal (*Mortierella ramanniana,* 250 μg/disk); cytotoxic (P_{388}, 6.8 μg/mL). Ref: H. Li, et al, Tetrahedron, 1995, 51, 2773



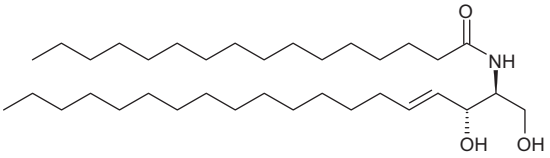
796 Halicylindroside B_6

Type: Sphingolipids. $C_{49}H_{96}N_2O_{10}$ Solid, $[\alpha]_D^{23}$ = −8.3° (Py). Source: Sponge *Halichondria cylindrata* (Japan waters). Pharm: Antifungal (*Mortierella ramanniana*, 250 μg/disk); cytotoxic (P_{388}, 6.8 μg/mL). Ref: H. Li, et al, Tetrahedron, 1995, 51, 2773



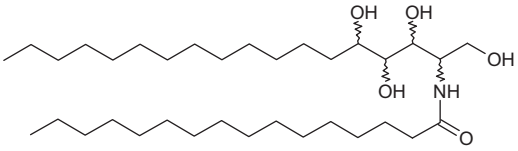
797 *N*-Hexadecanoyl-(2*S*,3*R*,4*E*)-2-amino-4-nonadecene-1,3-diol

Type: Sphingolipids. $C_{35}H_{69}NO_3$ Amorph. powder (hexane/EtOAc), mp 104–105 °C, $[\alpha]_D$ = −6° (*c* = 1.3, $CHCl_3$). Source: Gorgonian *Pseudopterogorgia* sp. (Indian Ocean), soft coral *Cladiella* sp. Pharm: Antibacterial (l mg/mL, gram-positive: *Bacillus pumilis, Bacillus subtilis, Staphylococcus epidermis*, MIC = 100 μg/mL; gram-negative: *Escherichia coli* and *Pseudomonas aeruginosa*). Ref: M. Vanisree, et al, J. Asian Nat. Prod. Res., 2001, 3, 23



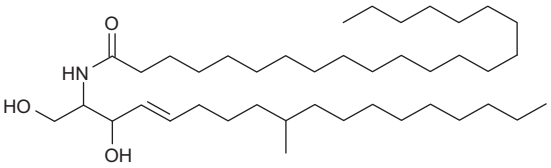
798 (*all-ξ*)-*N*-Hexadecanoyl-2-imino-1,3,4,5-octadecanetetrol

Type: Sphingolipids. $C_{34}H_{69}NO_5$ mp 143–144 °C, $[\alpha]_D$ = +182° (*c* = 0.5, MeOH). Source: Green alga *Ulva fasciata* (India waters). Pharm: Antiviral (mus, *in vivo*, SFV). Ref: H. S. Garg, et al, Tet. Lett., 1992, 33, 1641



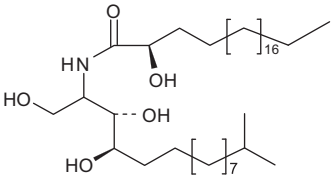
799 *N*-(2-Hydroxydocosanoyl)-2-amino-9-methyl-4-octadecene-1,3-diol

Type: Sphingolipids. $C_{41}H_{81}NO_3$ Source: Sponge *Haliclona* sp. (Jjddah, Saudi Arabia). Pharm: Cytotoxic (normal fibroblast line NIH3T3, IC_{50} = 20 μmol/L; virally transformed form KA3IT, IC_{50} = 10 μmol/L). Ref: S. -E. N. Ayyad, et al, Nat. Prod. Res., 2009, 23, 44.



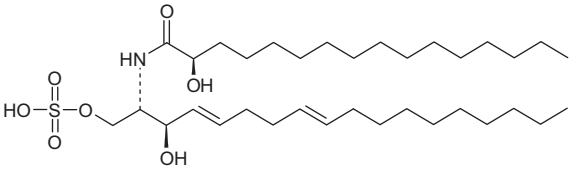
800 *N*-(2*R*-Hydroxydocosanoyl)-2-amino-14-methyl-1,3,4-pentadecanetriol

Type: Sphingolipids. $C_{38}H_{77}NO_5$ Amorph. powder, $[\alpha]_D$ = +9.6° (*c* = 0.05, MeOH). Source: Ascidian *Cystodytes* cf. *dellechiajei* (Tunisia). Pharm: PLA_2 inhibitor. Ref: A. Loukaci, et al, JNP, 2000, 63, 799

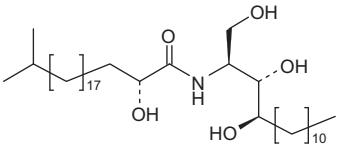


801 *N*-(2*R*-Hydroxyhexadecanoyl)-2-amino-4,8-octadecadiene-1,3-diol 1-*O*-sulfate

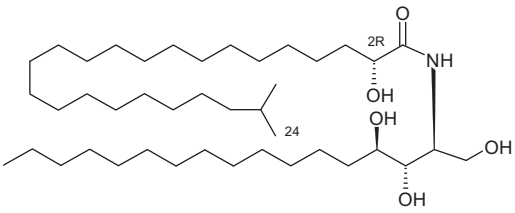
Type: Sphingolipids. $C_{34}H_{65}NO_7S$ $[\alpha]_D$ = +17° (*c* = 0.06, $CHCl_3$). Source: Bryozoan *Watersipora cucullata* (Japan waters). Pharm: DNA topoisomerase I inhibitor. Ref: M. Ojika, et al, Tet. Lett., 1997, 38, 4235



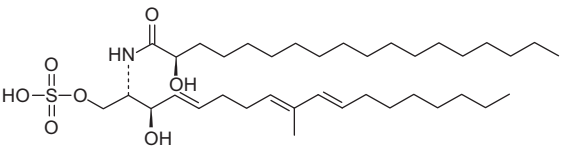
802 *N*-(2*R*-Hydroxy-21-methyldocosanoyl)-2-amino-1,3,4-pentadecanetriol
Type: Sphingolipids. $C_{38}H_{77}NO_5$ Source: Hair crab *Erimacrus isenbeckii*. Pharm: Pheromone. Ref: N. Asai, et al, Tetrahedron, 2000, 56, 9895



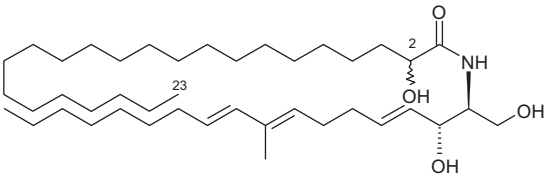
803 *N*-(2*R*-Hydroxy-23-methyltetracosanoyl)-(2*S*,3*S*,4*R*)-2-amino-1,3,4-heptadecanetriol
Type: Sphingolipids. $C_{42}H_{85}NO_5$ Source: Crab *Erimacrus isenbeckii* (sex pheromone). Pharm: Sex pheromone (crab *Erimacrus isenbeckii*). Ref: N. Asai, et al, Tetrahedron, 2000, 56, 9895



804 *N*-(2*R*-Hydroxyoctadecanoyl)-2-amino-9-methyl-4,8,10-octadecatriene-1,3-diol-1-*O*-sulfate
Type: Sphingolipids. $C_{37}H_{69}NO_7S$ $[\alpha]_D^{25}$ = +16° (*c* = 0.05, MeOH). Source: Bryozoan *Watersipora cucullata* (Japan waters). Pharm: DNA topoisomerase I inhibitor. Ref: M. Ojika, et al, Tet. Lett., 1997, 38, 4235

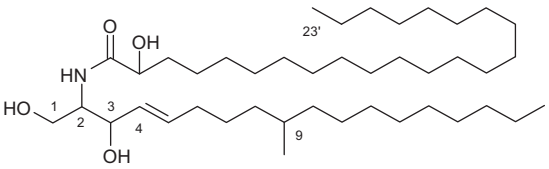


805 *N*-(2ξ-Hydroxytricosanoyl)-2-amino-9-methyl-4,8,10-octadecatriene-1,3-diol
Type: Sphingolipids. $C_{42}H_{79}NO_4$ Colourless oil. Source: Sponge *Haliclona* sp. (Jjddah, Saudi Arabia). Pharm: Cytotoxic (normal fibroblast line NIH3T3, IC_{50} = 18 μmol/L; virally transformed form KA3IT, IC_{50} = 8 μmol/L). Ref: S. -E. N. Ayyad, et al, Nat. Prod. Res., 2009, 23, 44



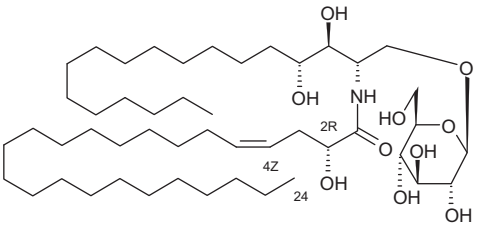
806 *N*-(2-Hydroxytricosanoyl)-2-amino-9-methyl-4-octadecene-1,3-diol

Type: Sphingolipids. $C_{42}H_{83}NO_4$ Colourless oil. Source: Sponge *Haliclona* sp. (Jjddah, Saudi Arabia). Pharm: Cytotoxic (normal fibroblast line NIH3T3, IC_{50} = 18 μmol/L; virally transformed form KA3IT, IC_{50} = 8 μmol/L). Ref: S. -E. N. Ayyad, et al, Nat. Prod. Res., 2009, 23, 44



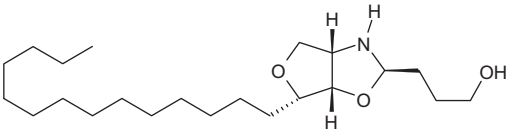
807 Iotroridoside A

N-(2*R*-Hydroxy-4*Z*-tetracosenoyl)-(2*S*,3*S*,4*R*)-2-amino-1,3,4-octadecanetriol 1-*O*-*β*-*D*-glucopyranoside Type: Sphingolipids. $C_{48}H_{93}NO_{10}$ Amorph. solid, $[\alpha]_D^{25}$ = −7.2° (*c* = 0.003, Py). Source: Sponge *Iotrochota* sp. (South China waters Sea near Hainan I., China waters). Pharm: Cytotoxic (L_{1210}, ED_{50} = 0.08 μg/mL). Ref: S. -Z. Deng, et al, Chin. J. Chem., 2001, 19, 362



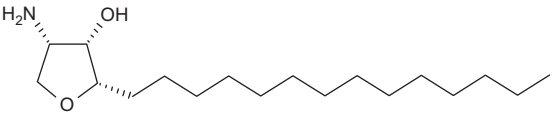
808 Jaspine A

Type: Sphingolipids. $C_{22}H_{43}NO_3$ Amorph. powder. Source: Sponge *Jaspis* sp. Pharm: Cytotoxic (A549, IC_{50} = 0.34 μmol/L). Ref: V. Ledroit, et al, Tet. Lett., 2003, 44, 225



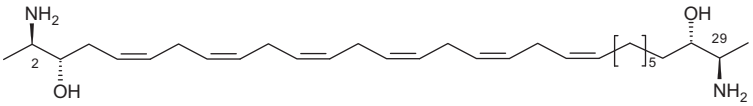
809 Jaspine B

Pachastrissamine Type: Sphingolipids. $C_{18}H_{37}NO_2$ Powder, $[\alpha]_D$ = +7° (*c* = 0.1, $CHCl_3$), $[\alpha]_D$ = +18° (*c* = 0.1, EtOH). Source: Sponges *Jaspis* sp. and *Pachastrissa* sp. Pharm: Cytotoxic (MDA231, HeLa and CNE, strong); sphingomyelin synthase inhibitor (hmn melanoma cells, increasing ceramide levels and thus triggering apoptosis which accounts for compound's reported cytotoxicity). Ref: I. Kuroda, et al, JNP, 2002, 65, 1505 | V. Ledroit, et al, Tet. Lett., 2003, 44, 225 | Y. Salma, et al, Biochem. Pharmacol., 2009, 78, 477



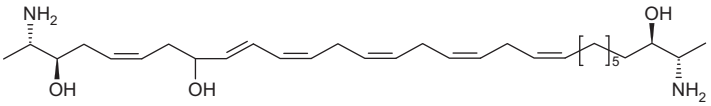
810 Leucettamol A

Type: Sphingolipids. $C_{30}H_{52}N_2O_2$ Pale yellow oil, $[\alpha]_D$ = −3.8° (*c* = 4.4, MeOH). Source: Calcareous sponges *Leucetta microraphis* and *Leucetta* aff. *microraphis*. Pharm: Ubiquitin Ubc13-Uev1a complex inhibitor (potential as anticancer agent, potent); non-electrophilic activator of transient receptor potential (TRP) ion channels; pain modulator (potential). Ref: S. Tsukamoto, et al, BoMCL, 2008, 24, 6319 | D. S. Dalisay, et al, JNP, 2009, 72, 353 | G. Chianese, et al, Mar. Drugs, 2012, 10,2435



811 Leucettamol B

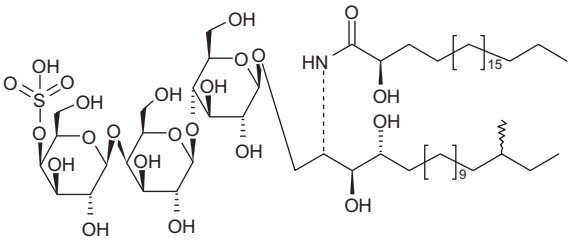
Type: Sphingolipids. $C_{30}H_{52}N_2O_3$ Pale yellow oil. Source: Calcareous sponge *Leucetta microraphis* (Pohnpei I., Federated States of Micronesia). Pharm: Non-electrophilic activator of transient receptor potential (TRP) ion channels; pain modulator (potential); antibacterial (*Bacillus subtilis*). Ref: F. Kong, et al, JOC, 1993, 58, 970 | G. Chianese, et al, Mar. Drugs, 2012, 10, 2435



812 *Luidia maculata* Ganglioside 1

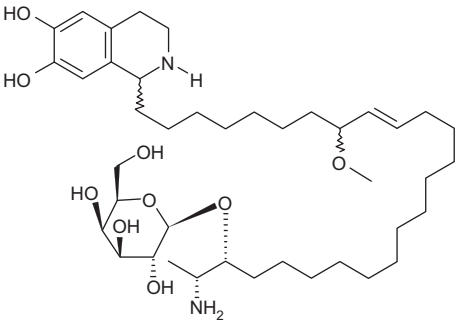
LMG 1 Type: Sphingolipids. $C_{59}H_{113}NO_{23}S$ Amorph. powder. Source: Starfish *Luidia maculata*. Pharm: Exhibits neuritogenic activity; promotes bone formulation. Ref:

S. Kawatake, et al, Liebigs Ann./Recl., 1997, 1797 | CRC Press, DNP on DVD, 2012, version 20.2



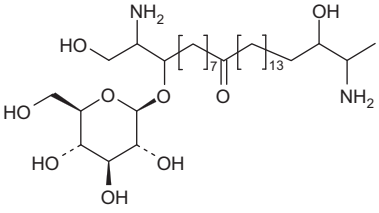
813 Oceanalin A

Type: Sphingolipids. $C_{41}H_{72}N_2O_9$ Amorph. solid, $[\alpha]_D$ = −5.7° (*c* = 0.14, EtOH). Source: Sponge *Oceanapia* sp. Pharm: Antifungal (*Candida glabrata*, MIC = 30 μg/mL). Ref: T. N. Makarieva, et al, Org. Lett., 2005, 7, 2897



814 Oceanapiside

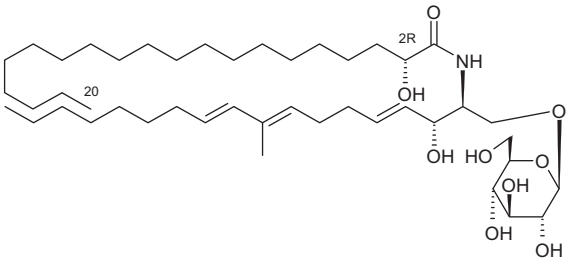
Type: Sphingolipids. $C_{34}H_{68}N_2O_9$ Amorph. solid, $[\alpha]_D$ = −5.5° (*c* = 1.2, MeOH). Source: Sponge *Oceanapia phillipensis* (South Australia). Pharm: Antifungal (*Candida glabrata*, MIC = 10 μg/mL). Ref: G. M. Nicholas, et al, JNP, 1999, 62, 1678



815 Ophidiacerebroside A

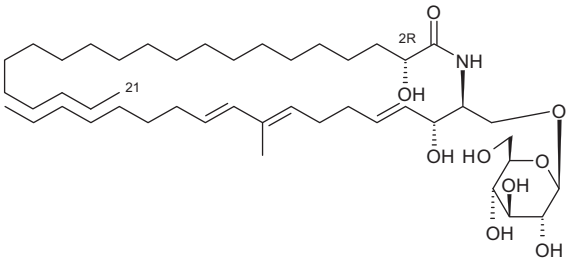
N-(2*R*-Hydroxyeicosanoyl)-(2*S*,3*R*,4*E*,8*E*,10*E*)-2-amino-9-methyl-4,8,10-octadecatriene-1,3-diol 1-*O*-*β*-*D*-glucopyranoside Type: Sphingolipids. $C_{45}H_{83}NO_9$ Colorless. Source:

Starfish *Ophidiaster ophidiamus* (Mediterranean Sea). Pharm: Cytotoxic (L_{1210}, 2 µg/mL, InRt = 92%). Ref: W. Jin, et al, JOC, 1994, 59, 144



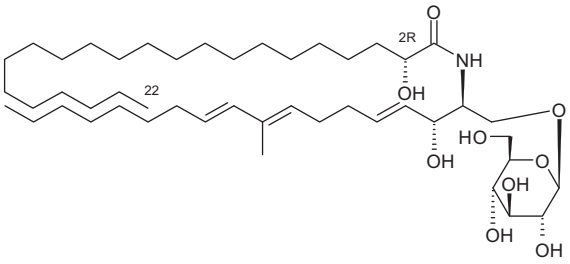
816 Ophidiacerebroside B

N-(2*R*-Hydroxyhenicosanoyl)-(2*S*,3*R*,4*E*,8*E*,10*E*)-2-amino-9-methyl-4,8,10-octadecatriene-1,3-diol 1-*O*-*β*-*D*-glucopyranoside Type: Sphingolipids. $C_{46}H_{85}NO_9$ Colorless. Source: Starfish *Ophidiaster ophidiamus* (Mediterranean Sea). Pharm: Cytotoxic (L_{1210}, 2 µg/mL, InRt = 70%). Ref: W. Jin, et al, JOC, 1994, 59, 144



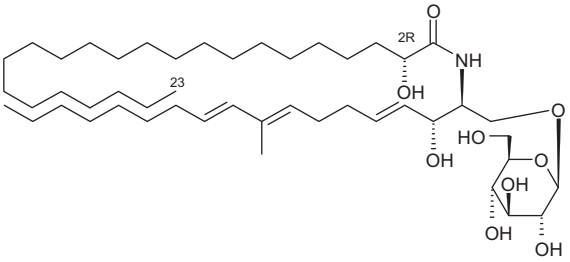
817 Ophidiacerebroside C

Stellaster Cerebroside S-1-3; *N*-(2*R*-Hydroxydocosanoyl)-(2*S*,3*R*,4*E*,8*E*,10*E*)-2-amino-9-methyl-4,8,10-octadecatriene-1,3-diol 1-*O*-*β*-*D*-glucopyranoside Type: Sphingolipids. $C_{47}H_{87}NO_9$ Amorph. powder, mp 103–105 °C, $[\alpha]_D$ = +9.5° (*c* = 0.2, 1-propanol). Source: Starfishes *Ophidiaster ophidiamus* (Mediterranean Sea), *Oreaster reticulatus* and *Stellaster equestris*. Pharm: Cytotoxic (L_{1210}, 2 µg/mL, InRt = 96%). Ref: W. Jin, et al, JOC, 1994, 59, 144 | R. Higuchi, et al, Annalen, 1996, 593



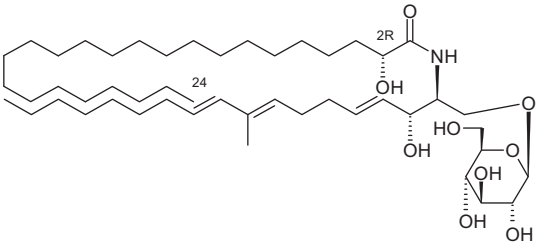
818 Ophidiacerebroside D

Stellaster Cerebroside S-1-4; *N*-(2*R*-Hydroxytricosanoyl)-(2*S*,3*R*,4*E*,8*E*,10*E*)-2-amino-9-methyl-4,8,10-octadecatriene-1,3-diol 1-*O*-*β*-*D*-glucopyranoside Type: Sphingolipids. $C_{48}H_{89}NO_9$ Amorph. powder, mp 109–111 °C, $[\alpha]_D$ = +9.9° (*c* = 0.2, 1-propanol). Source: Starfishes *Ophidiaster ophidiamus* (Mediterranean Sea), *Oreaster reticulatus* and *Stellaster equestris*. Pharm: Cytotoxic (L_{1210}, 2 μg/mL, InRt = 90%). Ref: W. Jin, et al, JOC, 1994, 59, 144 | R. Higuchi, et al, Annalen, 1996, 593



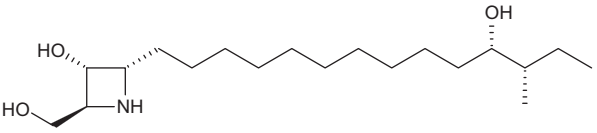
819 Ophidiacerebroside E

Stellaster Cerebroside S-1-5; Agelasphin 10; *N*-(2*R*-Hydroxytetracosanoyl)-(2*S*,3*R*,4*E*,8*E*,10*E*)-2-amino-9-methyl-4,8,10-octadecatriene- 1,3-diol 1-*O*-*β*-*D*-glucopyranoside Type: Sphingolipids. $C_{49}H_{91}NO_9$ Amorph. powder, mp 141–142 °C, mp 98–100 °C, $[\alpha]_D^{24}$ = +3.0° (*c* = 0.10, Py), $[\alpha]_D^{28}$ = −1.6° (*c* = 1.0, 1-propanol), $[\alpha]_D$ = +9.6° (*c* 0.2, propanol); $[\alpha]_D$ = −1.6° (*c* 1, propanol). Source: Sponge *Agelas mauritianus*, starfishes *Ophidiaster ophidiamus* (Mediterr-anean Sea), *Oreaster reticulatus* and *Stellaster equestris*. Pharm: Immunostimulant; cytotoxic (L_{1210}, 2 μg/mL, InRt = 84%). Ref: W. Jin, et al, JOC, 1994, 59, 144 | T. Natori, et al, Tetrahedron, 1994, 50, 2771 | R. Higuchi, et al, Annalen, 1996, 593



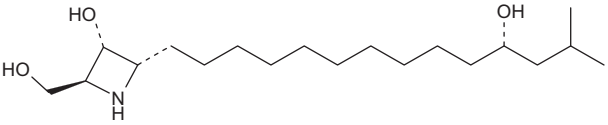
820 Penaresidin A

Type: Sphingolipids. $C_{19}H_{39}NO_3$ Source: Sponge *Penares* sp. (Okinawa). Pharm: PKC inhibitor; actomyosin ATPase inhibitor. Ref: J. Kobayashi, et al, JCS Perkin I, 1991, 1135 | J. Kobayashi, et al, Tet. Lett., 1996, 37, 6775 | D. -G. Liu, et al, Tet. Lett., 1999, 40, 337



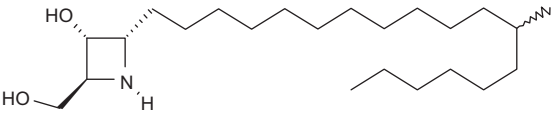
821 Penaresidin B

Type: Sphingolipids. $C_{19}H_{39}NO_3$ Isol. as an inseparable mixture with Penaresidin A. Source: Sponges *Penares* sp. (Okinawa) and *Penares* sp. Pharm: PKC inhibitor; actomyosin ATPase activator. Ref: J. Kobayashi, et al, JCS Perkin I, 1991, 1135 | J. Kobayashi, et al, Tet. Lett., 1996, 37, 6775



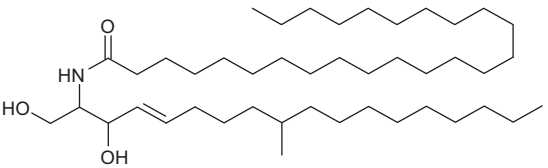
822 Penazetidine A

3-Hydroxy-4-(12-methyloctadecyl)-2-azetidinemethanol Type: Sphingolipids. $C_{23}H_{47}NO_2$ $[\alpha]_D$ = −16.9° (*c* = 0.04, MeOH). Source: Sponge *Penares sollasi* (Indo-Pacific). Pharm: PKC inhibitor (IC_{50} = 1 µmol/L); cytotoxic (A549, HT29, B16-F-10 and P_{388}). Ref: K. A. Alvi, et al, BoMCL, 1994, 4, 2447 | A. Yajima, et al, Liebigs Ann. Chem., 1996, 1083 | D. Skropeta, et al, Mar. Drugs, 2011, 9, 2131 (rev)



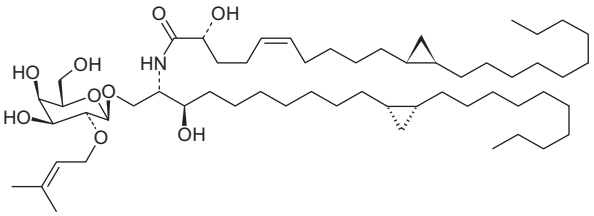
823 *N*-(Pentacosanoyl)-2-amino-9-methyl-4-octadecene-1,3-diol

Type: Sphingolipids. $C_{44}H_{87}NO_3$ Source: Sponge *Haliclona* sp. (Jjddah, Saudi Arabia). Pharm: Cytotoxic (normal fibroblast line NIH3T3, IC_{50} = 20 µmol/L; virally transformed form KA3IT, IC_{50} = 10 µmol/L). Ref: S. -E. N. Ayyad, et al, Nat. Prod. Res., 2009, 23, 44



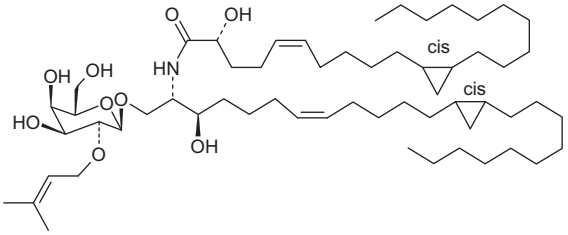
824 Plakoside A

Type: Sphingolipids. $C_{57}H_{105}NO_9$ Amorph. solid, $[\alpha]_D^{25}$ = +7° (*c* = 0.5, MeOH). Source: Sponge *Plakortis simplex* (Bahamas). Pharm: Immunosuppressive (activated T cells, significantly inhibited proliferative response of lymph node cells to 0.5 µg/mL Con A at all doses 0.01–10 µg/mL, $IP_{50} \approx 0.1$ µg/mL). Ref: V. Costantino, et al, JACS, 1997, 119, 12465 | M. Seki, et al, Tet. Lett., 2001, 42, 2357 | M. Seki, et al, EurJOC, 2001, 3797



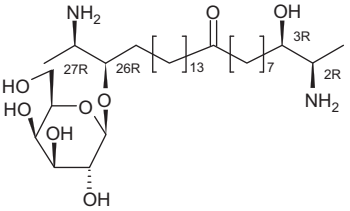
825 Plakoside B

Type: Sphingolipids. $C_{59}H_{107}NO_9$ Amorph. solid, $[\alpha]_D^{25}$ = +7° (*c* = 0.2, MeOH). Source: Sponge *Plakortis simplex* (Bahamas). Pharm: Immunosuppressive (activated T cells, significantly inhibited proliferative response of lymph node cells to 0.5 µg/mL Con A at all doses 0.01–10 µg/mL, $IP_{50} \approx 0.05$ µg/mL). Ref: V. Costantino, et al, JACS, 1997, 119, 12465



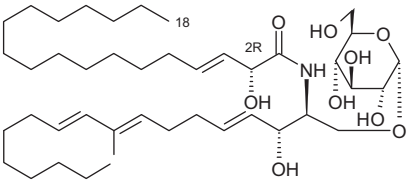
826 Rhizochalin

Type: Sphingolipids. $C_{34}H_{68}N_2O_8$ Cryst. (EtOH/EtOAc), mp 124–126 °C, $[\alpha]_{578.00}$ = −5°. Source: Sponges *Oceanapia ramsayi* and *Rhizochalina incrustata*. Pharm: Antibacterial; cytotoxic. Ref: T. N. Makarieva, et al, Tet. Lett., 1989, 30, 6581 | J. Bensemhoun, et al, Molecules, 2008, 13, 772



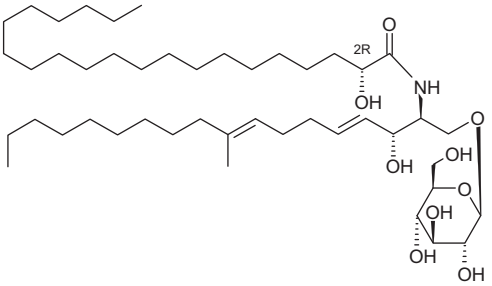
827 Sarcoehrenoside A

N-(2*R*-Hydroxy-3*E*-octadecenoyl)-(2*S*,3*R*,4*E*,8*E*,10*E*)-2-amino-9-methyl-4,8,10-octadecatriene-1,3-diol 1-*O*-α-*D*-glucopyranoside Type: Sphingolipids. $C_{43}H_{77}NO_9$ Amorph. powder, $[\alpha]_D^{23}$ = +77° (*c* = 0.2, MeOH). Source: Soft coral *Sarcophyton ehrenbergi*. Pharm: Anti-inflammatory; reducer of iNOS expression (murine macrophage cell line). Ref: S. -Y. Cheng, et al, JNP, 2009, 72, 465



828 Sarcoehrenoside B

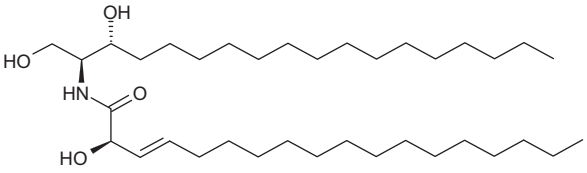
Type: Sphingolipids. $C_{46}H_{87}NO_9$ Amorph. powder, $[\alpha]_D^{23}$ = +51.3° (*c* = 0.3, MeOH). Source: Soft coral *Sarcophyton ehrenbergi* (Dongsha Is., South China waters Sea). Pharm: Reducer of iNOS expression (murine macrophage cell line). Ref: S. -Y. Cheng, et al, JNP, 2009, 72, 465



829 Symbioramide

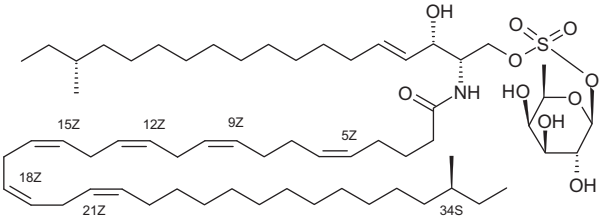
Type: Sphingolipids. $C_{36}H_{71}NO_4$ Cryst., mp 105–107 °C, $[\alpha]_D^{22}$ = +5.8° (*c* = 1, $CHCl_3$). Source: Cyanobacterium *Oscillatoria crythraea* (Queensland), dinoflagellate *Symbiodinium* sp. from an unidentified bivalve. Pharm: Calcium ATPase activator; ion channel activator; toxin (ciguatoxin-like). Ref: C. B. Rao, et al, JACS, 1984, 106, 7983 | J. Kobayashi, et al, Experientia, 1988, 44, 800 | M. Nakagawa, et al, Chem.

Lett., 1990, 1407 | S. T. Hahn, et al, Food Additives and Contaminants, 1992, 9, 351 | K. Mori, et al, Liebigs Ann. Chem., 1994, 41



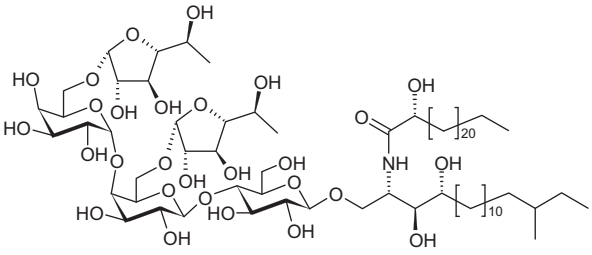
830 Syriacin

N-(34*S*-Methyl-5*Z*,9*Z*,12*Z*,15*Z*,18*Z*,21*Z*-hexatriacontahexaenoyl)-(2*S*,3*S*,4*E*,16*R*)-2-amino-16-methyl-4-octadecene-1,3-diol 1-*O*-*β*-*D*-fucopyranosyloxysulfonoside Type: Sphingolipids. $C_{62}H_{109}NO_{10}S$ Powder, $[\alpha]_D^{23}$ = −18.3° (*c* = 0.04, MeOH). Source: Sponge *Ephydatia syriaca* (freshwater). Pharm: Antifeedant (fish). Ref: T. Rezanza, et al, Tetrahedron, 2006, 62, 5937



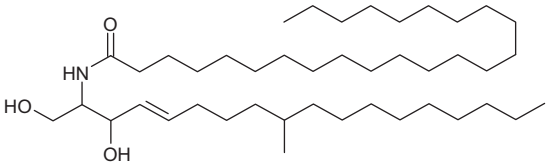
831 Terpioside B

Type: Sphingolipids. $C_{12}H_{25}NO_4$ Colorless amorph. solid. Source: Sponge *Terpios* sp. (Key Largo, Florida). Pharm: LPS-induced NO release inhibitor (potent). Ref: V. Costantino, et al, BoMC, 2010, 18, 5310

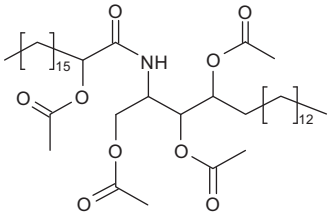


832 *N*-(Tetracosanoyl)-2-amino-9-methyl-4-octadecene-1,3-diol

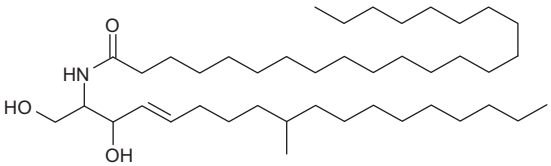
Type: Sphingolipids. $C_{43}H_{85}NO_3$ Source: Sponge *Haliclona* sp. (Jjddah, Saudi Arabia). Pharm: Cytotoxic (normal fibroblast line NIH3T3, IC_{50} = 20 μmol/L; virally transformed form KA3IT, IC_{50} = 10 μmol/L). Ref: S. -E. N. Ayyad, et al, Nat. Prod. Res., 2009, 23, 44



833 (2*S*,3*S*,4*R*)-1,3,4-Triacetoxy-2-[(*R*-2'-acetoxyocatadecanoyl)amino]octadecane
Type: Sphingolipids. $C_{44}H_{81}NO_9$ mp 54–57 °C, $[\alpha]_D^{28}$ = +8° (*c* = 0.1, $CHCl_3$). Source: Soft coral *Sinularia leptoclados* (Southern India). Pharm: Antibacterial (gram-negative bacteria, MIC = 200 μg/mL). Ref: G. B. S. Reddy, et al, CPB, 1999, 47, 1214

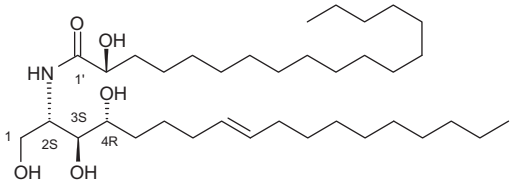


834 *N*-(Tricosanoyl)-2-amino-9-methyl-4-octadecene-1,3-diol
Type: Sphingolipids. $C_{42}H_{83}NO_3$ Source: Sponge *Haliclona* sp. (Jjddah, Saudi Arabia). Pharm: Cytotoxic (normal fibroblast line NIH3T3, IC_{50} = 20 μmol/L; virally transformed form KA3IT, IC_{50} = 10 μmol/L). Ref: S. -E. N. Ayyad, et al, Nat. Prod. Res., 2009, 23, 44



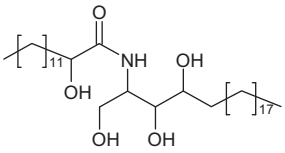
835 (2*S*,3*S*,4*R*)-1,3,4-Trihydroxy-2-(2-(*R*)-hydroxyoctadecanoyl-amino)octadec-8*E*-ene
Type: Sphingolipids. $C_{36}H_{71}NO_5$ Cryst. ($CHCl_3$/MeOH), mp 128–130 °C. Source: Soft coral *Sinularia grandilobata* (Andaman Is., Indian Ocean). Pharm: Antibacterial (*Escherichia coli*, 50 μg/mL, IZD = 11 mm, 100 μg/mL, IZD = 12 mm, 200 μg/mL, IZD = 15 mm; *Bacillus subtilis*, 50 μg/mL, IZD = 12 mm, 100 μg/mL, IZD = 13 mm, 200 μg/mL, IZD = 16 mm; *Bacillus pumilus*, 50 μg/mL, IZD = 11 mm, 100 μg/mL, IZD = 14 mm, 200 μg/mL, IZD = 16 mm); antifungal (*Pseudomonas aeruginosa*, 50 μg/mL, IZD = 11 mm, 100 μg/mL, IZD = 13 mm, 200 μg/mL, IZD = 14 mm; *Aspergillus niger*, 50 μg/mL, IZD = 10 mm, 100 μg/mL, IZD = 13 mm, 200 μg/mL, IZD = 15 mm; *Rhizopus oryzae*, 50 μg/mL, IZD = 10 mm, 100 μg/mL, IZD = 13 mm,

200 μg/mL, IZD = 14 mm; yeast *Candida albicans*, 50 μg/mL, IZD = 11 mm, 100 μg/mL, IZD = 13 mm, 200 μg/mL, IZD = 16 mm). Ref: A. S. Dmitrenok, et al, Russ. Chem. Bull., 2003, 52, 1868



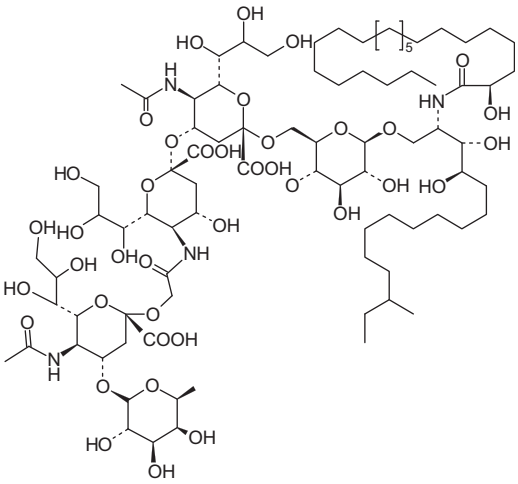
836 (2S,3S,4*R*)-1,3,4-Trihydroxy-2-[(*R*-2'-hydroxytetradecanoyl)amino]tricosane

Type: Sphingolipids. $C_{37}H_{75}NO_5$ Amorph. powder, mp 105–107 °C, $[\alpha]_D^{28}$ = +7.0° (*c* = 0.1, $CHCl_3$). Source: Soft coral *Sinularia leptoclados* (Southern India). Pharm: Antibacterial (gram-negative bacteria, MIC = 200 μg/mL). Ref: G. B. S. Reddy, et al, CPB, 1999, 47, 1214



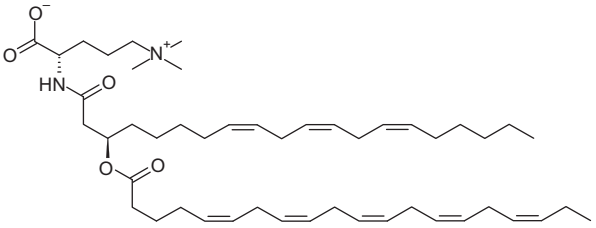
837 Trisialo-ganglioside HPG-1

Type: Sphingolipids. $C_{84}H_{150}N_4O_{39}$ Amorph. powder, mp 261–270 °C. Source: Sea cucumber *Holothuria pervicax* (Japan waters). Pharm: Neuritogenic (rat pheochromocytoma cell line PC-12). Ref: K. Yamada, et al, CPB, 2000, 48, 157



838 Yendolipin

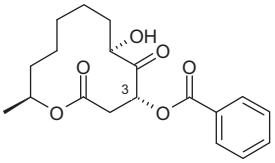
Type: Sphingolipids. $C_{48}H_{78}N_2O_5$ Pale yellow oil, $[\alpha]_D^{25}$ = +6.69° (*c* = 1.0, $CHCl_3$). Source: Red alga *Neodilsea yendoana* (Hokkaido, Japan). Pharm: Inhibits morphogenesis of foliaceous green alga *Monostroma oxyspermum*. Ref: R. Ishida, et al, Chem. Lett., 1994, 2427



1.14 Pandangolide and Sporiolide Cyclic Lactones

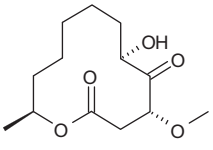
839 Sporiolide A

Type: Pandangolide and sporiolide cyclic lactones. $C_{19}H_{24}O_6$ Amorph. solid, $[\alpha]_D^{25}$ = −14° (*c* = 0.2, MeOH). Source: Marine-derived fungus *Cladosporium* sp. (cultured broth) from brown alga *Actinotrichia fragilis* (Okinawa). Pharm: Cytotoxic (L_{1210}); antifungal (*Cryptococcus neoformans* and *Neurospora crassa*). Ref: H. Shigemori, et al, Mar. Drugs, 2004, 2, 164 | M. Saleem, et al, NPR, 2007, 24, 1142 (rev)



840 Sporiolide B

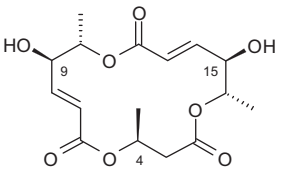
Type: Pandangolide and sporiolide cyclic lactones. $C_{13}H_{22}O_5$ Amorph. solid, $[\alpha]_D^{25}$ = −33° (*c* = 0.3, MeOH). Source: Marine-derived fungus *Cladosporium* sp. (cultured broth) from brown alga *Actinotrichia fragilis* (Okinawa). Pharm: Cytotoxic (L_{1210}). Ref: H. Shigemori, et al, Mar. Drugs, 2004, 2, 164 | M. Saleem, et al, NPR, 2007, 24, 1142 (rev)



1.15 Macrosphelide Cyclic Tri-lactones

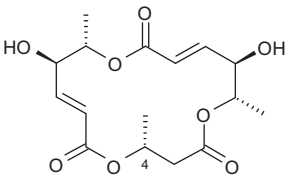
841 Macrosphelide A

Type: Macrosphelide cyclic tri-lactones. $C_{16}H_{22}O_8$ Needles, mp 141–142 °C, $[\alpha]_D^{23}$ = +84.1° (*c* = 0.6, MeOH). Source: Marine-derived fungus *Microsphaeropsis* sp. FO-5050. Pharm: Cell-cell adhesion inhibitor; Antimetastatic agent. Ref: M. Hayashi, et al, J. Antibiot., 1995, 48, 1435 | S. Takamatsu, et al, J. Antibiot., 1996, 49, 95; 1997, 50, 878



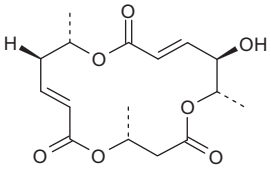
842 Macrosphelide E

Type: Macrosphelide cyclic tri-lactones. $C_{16}H_{22}O_8$ Colorless oil, $[\alpha]_D^{22}$ = +78.5° (*c* = 0.21, EtOH); $[\alpha]_D$ = +56.8° (*c* = 0.46, EtOH). Source: Marine-derived fungus *Periconia byssoides* OUPS-N133 from sea hare *Aplysia kurodai* (gastrointestinal tract). Pharm: Cytotoxic (P_{388}, ED_{50} > 100 μg/mL); inhibits adhesion of HL60 cells to hmn umbilical vein endothelial cells (HUVEC). Ref: A. Numata, et al, Tet. Lett., 1997, 38, 8215 | M. Ono, et al, Tetrahedron: Asymmetry, 2000, 11, 2753 | T. Yamada, et al, JCS Perkin I, 2001, 3046



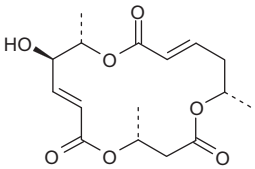
843 Macrosphelide F

Type: Macrosphelide cyclic tri-lactones. $C_{16}H_{22}O_7$ Oil, $[\alpha]_D$ = +23.3° (c = 0.09, MeOH). Source: Marine-derived fungus *Periconia byssoides* OUPS-N133 from sea hare *Aplysia kurodai* (gastrointestinal tract). Pharm: Cytotoxic; inhibits adhesion of HL60 cells to hmn umbilical vein endothelial cells (HUVEC). Ref: A. Numata, et al, Tet. Lett., 1997, 38, 8215 | T. Yamada, et al, JCS Perkin I, 2001, 3046



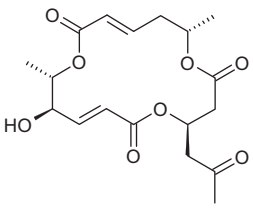
844 Macrosphelide G

Type: Macrosphelide cyclic tri-lactones. $C_{16}H_{22}O_7$ Oil, $[\alpha]_D$ = +66.7° (*c* = 0.5, EtOH). Source: Marine-derived fungus *Periconia byssoides* OUPS-N133 from sea hare *Aplysia kurodai* (gastrointestinal tract). Pharm: Cytotoxic; inhibits adhesion of HL60 cells to hmn umbilical vein endothelial cells (HUVEC). Ref: A. Numata, et al, Tet. Lett., 1997, 38, 8215 | T. Yamada, et al, JCS Perkin I, 2001, 3046



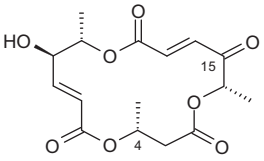
845 Macrosphelide H

Type: Macrosphelide cyclic tri-lactones. $C_{18}H_{24}O_8$ Oil, $[\alpha]_D$ = +41.7° (*c* = 0.22, EtOH). Source: Marine-derived fungus *Periconia byssoides* OUPS-N133 from sea hare *Aplysia kurodai* (gastrointestinal tract). Pharm: Cytotoxic; Immune system activity (cell adhesion inhibitor, inhibits adhesion of HL60 cells to hmn umbilical vein endothelial cells (HUVEC)). Ref: A. Numata, et al, Tet. Lett., 1997, 38, 8215 | T. Yamada, et al, JCS Perkin I, 2001, 3046 | T. Yamada, et al, J. Antibiot., 2002, 55, 147



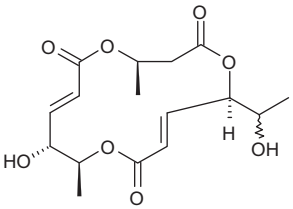
846 Macrosphelide L

Type: Macrosphelide cyclic tri-lactones. $C_{16}H_{20}O_8$ Oil, $[\alpha]_D^{21}$ = −24.2° (*c* = 0.33, EtOH). Source: Marine-derived fungus *Periconia byssoides* OUPS-N133 from sea hare *Aplysia kurodai* (gastrointestinal tract). Pharm: Cell-cell adhesion inhibitor. Ref: T. Yamada, et al, J. Antibiot., 2002, 55, 147



847 Macrosphelide M

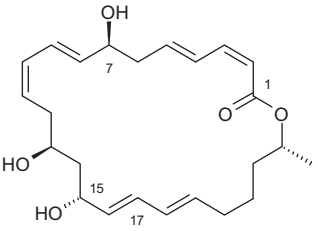
Type: Macrosphelide cyclic tri-lactones. $C_{16}H_{22}O_8$ Pale yellow oil, $[\alpha]_D^{22}$ = +5.5° (*c* = 0.3, EtOH). Source: Marine-derived fungus *Periconia byssoides* OUPS-N133. Pharm: Immune system activity (cell adhesion inhibitor, IC_{50} = 33.2 μmol/L). Ref: T. Yamada, et al, J. Antibiot., 2007, 60, 370



1.16 Macrolactin Cyclic Lactones

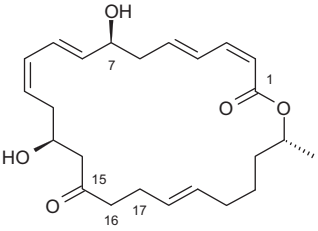
848 Macrolactin A

Type: Macrolactin cyclic lactones. $C_{24}H_{34}O_5$ Plates (EtOAc/2,3,3-trimethylpentane), mp 75–78 °C, $[\alpha]_D$ = −9.6° (*c* = 1.86, MeOH). Source: An unidentified marine bacterium (psychrophilic, cold water, gram-positive, slurry of sterile seawater and sediment, depth of 980 m sediment core, Northern Pacific Ocean). an unidentified marine bacterium (deep water), marine bacterium *Bacillus marinus*. Pharm: Antibacterial (standard agar plate-assay disk methods, *Bacillus subtilis*, 5 μg/disk; *Staphylococcus aureus*, 20 μg/disk); cytotoxic (B16-F-10, IC_{50} = 3.5 μg/mL); cytotoxic (Hep2 and MA-104 carrier cell lines); antiviral (HSV-1, IC_{50} = 5.0 μg/mL; HSV-2, IC_{50} = 8.3 μg/mL); T-lymphoblast cell protectant (against hmn HIV viral replication, 10 μg/mL); neuronal cell protectant. Ref: K. Gustafson, et al, JACS, 1989 111, 7519; 1992, 114, 671 | Y. Kim, et al, Angew. Chem., Int. Ed., 1998, 37, 1261 | C. Jaruchoktaweechai, et al, JNP, 2000, 63, 984 | M. D. Lebar, et al, NPR, 2007, 24, 774 (rev)



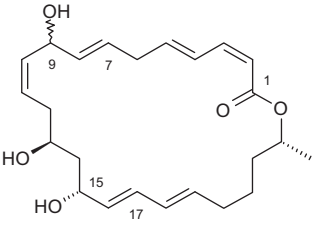
849 Macrolactin F

Type: Macrolactin cyclic lactones. $C_{24}H_{34}O_8$ $[\alpha]_D = -30.1°$ (c = 1.31, MeOH). Source: An unidentified marine bacterium (psychrophilic, cold water, gram-positive, slurry of sterile seawater and sediment, depth of 980 m sediment core, Northern Pacific Ocean). Pharm: Antibacterial. Ref: K. Gustafson, et al, JACS, 1989 111, 7519; 1992, 114, 671 | C. Jaruchoktaweechai, et al, JNP, 2000, 63, 984 | M. D. Lebar, et al, NPR, 2007, 24, 774 (rev)



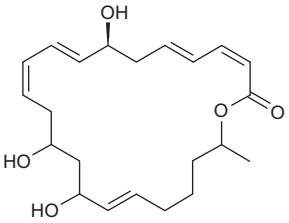
850 Macrolactin G

Type: Macrolactin cyclic lactones. $C_{24}H_{34}O_5$ $[\alpha]_D^{25} = -109.1°$ (c = 0.03, MeOH). Source: Marine-derived bacterium *Bacillus* sp. PP19-H3 from red alga *Schizymenia dubyi*. Pharm: Antimicrobial (selective). Ref: K. Gustafson, et al, JACS, 1989, 111, 7519 | T. Nagao, et al, J. Antibiot., 2001, 54, 333



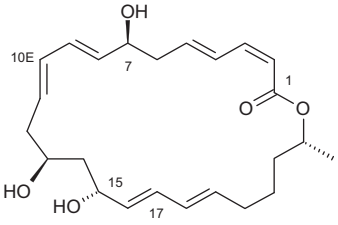
851 Macrolactin H

Type: Macrolactin cyclic lactones. $C_{22}H_{32}O_5$ $[\alpha]_D^{25} = -92.2°$ (c = 0.06, MeOH). Source: Marine-derived bacterium *Bacillus* sp. PP19-H3 (culture broth) from red alga *Schizymenia dubyi*. Pharm: Antimicrobial (selective). Ref: T. Nagao, et al, J. Antibiot., 2001, 54, 333



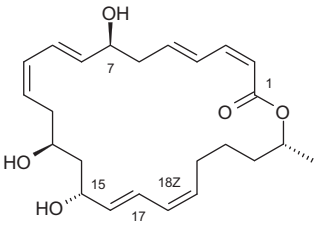
852 Macrolactin I

Type: Macrolactin cyclic lactones. $C_{24}H_{34}O_5$ $[\alpha]_D$ = −137.7° (*c* = 0.17, MeOH). Source: Marine-derived bacterium *Bacillus* sp. PP19-H3 from red alga *Schizymenia dubyi*. Pharm: Antimicrobial (selective). Ref: K. Gustafson, et al, JACS, 1989, 111, 7519 | T. Nagao, et al, J. Antibiot., 2001, 54, 333



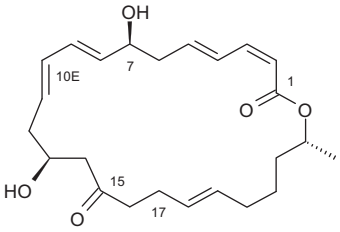
853 Macrolactin J

Type: Macrolactin cyclic lactones. $C_{24}H_{34}O_5$ $[\alpha]_D^{25}$ = −85.5° (*c* = 0.08, MeOH). Source: Marine-derived bacterium *Bacillus* sp. PP19-H3 from red alga *Schizymenia dubyi*. Pharm: Antimicrobial (selective). Ref: K. Gustafson, et al, JACS, 1989, 111, 7519 | T. Nagao, et al, J. Antibiot., 2001, 54, 333



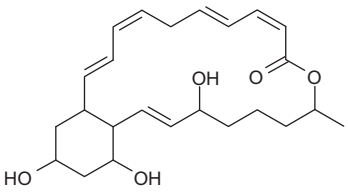
854 Macrolactin K

Type: Macrolactin cyclic lactones. $C_{24}H_{34}O_5$ $[\alpha]_D^{25}$ = −169.8° (*c* = 0.11, MeOH). Source: Marine-derived bacterium *Bacillus* sp. PP19-H3 from red alga *Schizymenia dubyi*. Pharm: Antimicrobial (selective). Ref: K. Gustafson, et al, JACS, 1989, 111, 7519 | T. Nagao, et al, J. Antibiot., 2001, 54, 333



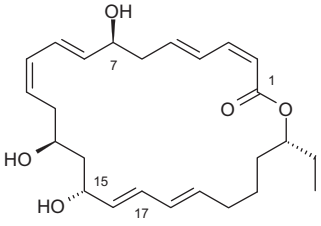
855 Macrolactin L

Type: Macrolactin cyclic lactones. $C_{24}H_{34}O_5$ $[\alpha]_D^{25}$ = −139.5° (*c* = 0.04, MeOH). Source: Marine-derived bacterium *Bacillus* sp. PP19-H3 (culture broth) from red alga *Schizymenia dubyi*. Pharm: Antimicrobial (selective). Ref: T. Nagao, et al, J. Antibiot., 2001, 54, 333



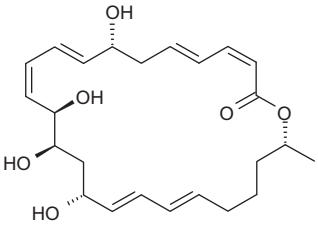
856 Macrolactin M

Type: Macrolactin cyclic lactones. $C_{25}H_{36}O_5$ $[\alpha]_D^{25}$ = −43.2° (*c* = 0.04, MeOH). Source: Marine-derived bacterium *Bacillus* sp. PP19-H3 from red alga *Schizymenia dubyi*. Pharm: Antimicrobial (selective). Ref: K. Gustafson, et al, JACS, 1989, 111, 7519 | Japan. Pat., 1997, 97 301 970; CA, 128, 74381h | T. Nagao, et al, J. Antibiot., 2001, 54, 333



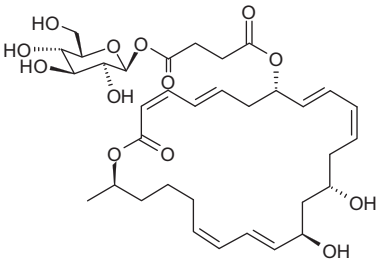
857 Macrolactin V

Type: Macrolactin cyclic lactones. $C_{24}H_{34}O_6$ Source: Marine-derived bacterium *Bacillus amyloliquefaciens* from gorgonian *Junceella juncea* (Sanya, Hainan, China waters). Pharm: Antibacterial (strong). Ref: E. Klarmann, et al, JACS, 1932, 54, 298



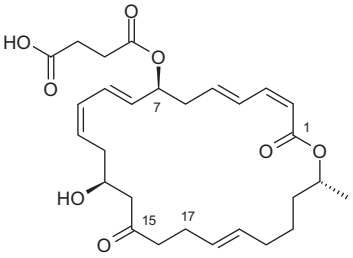
858 Macrolactin W

Type: Macrolactin cyclic lactones. $C_{34}H_{48}O_{13}$ Source: Marine-derived bacterium *Bacillus* sp. (sediment, Ieodo, R. O. Korea). Pharm: Antibacterial (gram-positive and -negative bacteria, potent). Ref: M. A. M. Mondol, et al, BoMCL, 2011, 21, 3832



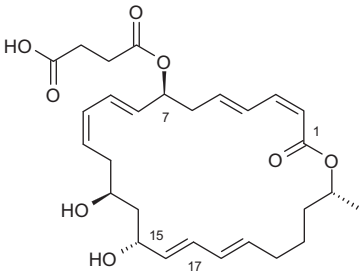
859 7-*O*-Succinoylmacrolactin F

Type: Macrolactin cyclic lactones. $C_{28}H_{38}O_8$ Amorph. solid, $[\alpha]_D^{25} = -24.4°$ (c = 0.5, MeOH). Source: Marine-derived bacterium *Bacillus* sp. Sc026 (from marine sediment). Pharm: Antibacterial (*Bacillus subtilis* and *Staphylococcus aureus*). Ref: C. Jaruchoktaweechai, et al, JNP, 2000, 63, 984



860 7-*O*-Succinylmacrolactin A

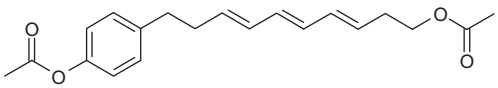
Type: Macrolactin cyclic lactones. $C_{28}H_{38}O_8$ Amorph. solid, $[\alpha]_D^{25} = -9.6°$ (c = 0.18, MeOH). Source: Marine-derived bacterium *Bacillus* sp. Sc026 (from marine sediment). Pharm: Antibacterial (*Bacillus subtilis* and *Staphylococcus aureus*). Ref: C. Jaruchoktaweechai, et al, JNP, 2000, 63, 984



1.17 Long-chain Aromatic Systems

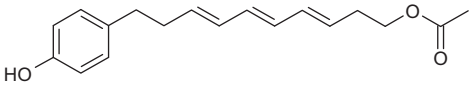
861 1-Acetoxy-4-(10-acetoxy-3,5,7-decatrienyl)benzene

Type: Long-chain aromatic systems. $C_{20}H_{24}O_4$ Source: Cephalaspid *Haminoea callidegenita* (Mediterranean Sea). Pharm: Alarm pheromone (structure and anatomical location strongly support its potential defensive role as alarm pheromone); cytotoxic; antibacterial; DNA strand scission activity. Ref: A. Spinella, et al, Tet. Lett., 1998, 39, 2005 | I. Izzo, et al, Tet. Lett., 2000, 41, 3975



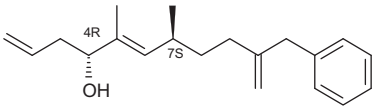
862 4-(10-Acetoxy-3,5,7-decatrienyl)phenol

Type: Long-chain aromatic systems. $C_{18}H_{22}O_3$ Source: Cephalaspid *Haminoea callidegenita* (Mediterranean Sea). Pharm: Alarm pheromone (structure and anatomical location strongly support its potential defensive role as alarm pheromone); cytotoxic; antibacterial; DNA strand scission activity. Ref: A. Spinella, et al, Tet. Lett., 1998, 39, 2005 | I. Izzo, et al, Tet. Lett., 2000, 41, 3975

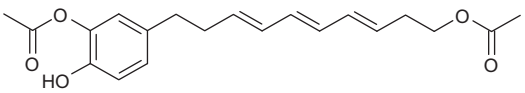


863 (4*R*,7*S*,*E*)-10-Benzyl-5,7-dimethylundeca-1,5,10-trien-4-ol

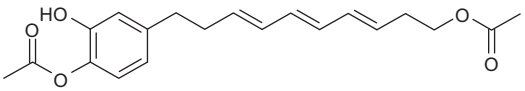
Type: Long-chain aromatic systems. $C_{20}H_{28}O$ Colorless oil. Source: Sponges *Smenospongia aurea*, *Smenospongia cerebriformis*, and *Verongula rigida* (mixture of three sponges, Florida). Pharm: Cytotoxic (HL60 hmn leukemia cells, IC_{50} = 8.1 µmol/L, matches pharmacophore of eribulin through inhibition of microtubule activity). Ref: I. H. Hwang, et al, Tet. Lett., 2013, 54, 3872



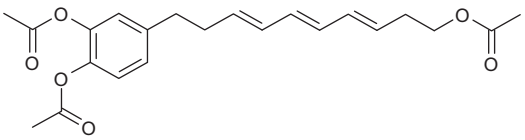
864 10-(3,4-Dihydroxyphenyl)-3,5,7-decatrien-1-ol 1,3′-diacetate
Type: Long-chain aromatic systems. $C_{20}H_{24}O_5$ Source: Cephalaspid *Haminoea callidegenita* (Mediterranean Sea). Pharm: Alarm pheromone (structure and anatomical location strongly support its potential defensive role as alarm pheromone); cytotoxic; antibacterial; DNA strand scission activity. Ref: A. Spinella, et al, Tet. Lett., 1998, 39, 2005 | I. Izzo, et al, Tet. Lett., 2000, 41, 3975



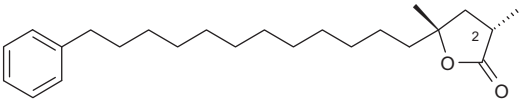
865 10-(3,4-Dihydroxyphenyl)-3,5,7-decatrien-1-ol 1,4′-diacetate
Type: Long-chain aromatic systems. $C_{20}H_{24}O_5$ Source: Cephalaspid *Haminoea callidegenita* (Mediterranean Sea). Pharm: Alarm pheromone (structure and anatomical location strongly support its potential defensive role as alarm pheromone); cytotoxic; antibacterial; DNA strand scission activity. Ref: A. Spinella, et al, Tet. Lett., 1998, 39, 2005 | I. Izzo, et al, Tet. Lett., 2000, 41, 3975



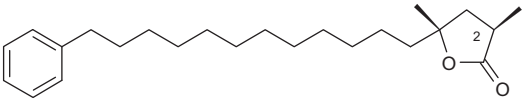
866 10-(3,4-Dihydroxyphenyl)-3,5,7-decatrien-1-ol triacetate
Type: Long-chain aromatic systems. $C_{22}H_{26}O_6$ Source: Cephalaspid *Haminoea callidegenita* (Mediterranean Sea). Pharm: Alarm pheromone (structure and anatomical location strongly support its potential defensive role as alarm pheromone); cytotoxic; antibacterial; DNA strand scission activity. Ref: A. Spinella, et al, Tet. Lett., 1998, 39, 2005 | I. Izzo, et al, Tet. Lett., 2000, 41, 3975



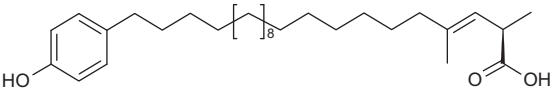
867 (2*S,4*R**)-2,4-Dimethyl-4-hydroxy-16-phenylhexadecanoic acid 1,4-lactone**
Type: Long-chain aromatic systems. $C_{24}H_{38}O_2$ Oil, $[\alpha]_D$ = −7.1° (*c* = 0.13, MeOH). Source: Sponge *Plakortis nigra* (Palau, Oceania, depth of 380 ft). Pharm: Cytotoxic (HCT116, IC_{50} = 14.5 µmol/L). Ref: J. S. Sandler, et al, JNP, 2002, 65, 1258



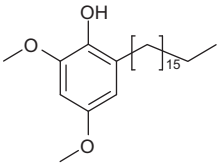
868 (2*R,4*R**)-2,4-Dimethyl-4-hydroxy-16-phenylhexadecanoic acid 1,4-lactone**
Type: Long-chain aromatic systems. $C_{24}H_{38}O_2$ Oil, $[\alpha]_D$ = +19.3° (*c* = 0.05, MeOH). Source: Sponge *Plakortis nigra* (Palau, Oceania, depth of 380 ft). Pharm: Cytotoxic (HCT116, mild). Ref: J. S. Sandler, et al, JNP, 2002, 65, 1258



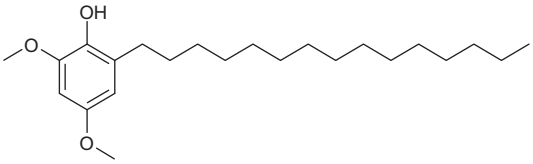
869 Elenic acid
R-2,4-Dimethyl-22-(*p*-hydroxyphenyl)-docos-3(*E*)-enoic acid Type: Long-chain aromatic systems. $C_{30}H_{50}O_3$ Amorph. powder, $[\alpha]_D$ = −27.2° (c = 2.2, $CHCl_3$). Source: Sponges *Plakortis* spp. and *Plakinastrella* sp. (Indonesia). Pharm: Cytotoxic (P_{388}, A549 and MEL28, IC_{50} = 5 μg/mL); topoisomerase II inhibitor (IC_{50} = 0.1 μg/mL). Ref: E. G. Juagdan, et al, Tet. Lett., 1995, 36, 2905 | S. Takanashi, et al, JCS Perkin I, 1998, 1603 | R. C. Hoye, et al, JOC, 1999, 64, 2450



870 Hierridin A
Type: Long-chain aromatic systems. $C_{25}H_{44}O_3$ Cryst. (MeOH), mp 77.7–79.1 °C, mp 74.8–77.3 °C. Source: Cyanobacterium *Phormidium ectocarpi*. Pharm: Antiplasmodial (mixture with Hierridin B, CRPF, IC_{50} = 5.2 μg/mL); antioxidant. Ref: O. Papendorf, et al, Phytochemistry, 1998, 49, 2383

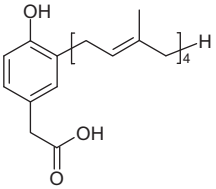


871 Hierridin B
7*H*-Indolo[3,2-*j*]phenanthridine-7,13(12*H*)-dione Type: Long-chain aromatic systems. $C_{23}H_{40}O_3$ Source: Cyanobacterium *Phormidium ectocarpi*. Pharm: Antiplasmodial (mixture with Hierridin A, CRPF, IC_{50} = 5.2 μg/mL). Ref: O. Papendorf, et al, Phytochemistry, 1998, 49, 2383



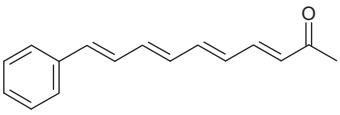
872 2-(4-Hydroxy-3-tetraprenyl)-acetic acid

Type: Long-chain aromatic systems. $C_{28}H_{40}O_3$ Oil. Source: Sponge *Ircinia muscarum*. Pharm: Topoisomerase II inhibitor. Ref: J. P. Baz, et al, JNP, 1996, 59, 960



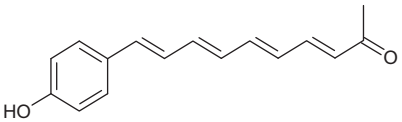
873 Navenone B

Type: Long-chain aromatic systems. $C_{16}H_{16}O$ Cryst. (CH_2Cl_2), mp 125–140 °C. Source: Cephalaspids *Navanax inermis* and *Haminoea navicula*. Pharm: Alarm pheromone. Ref: H. L. Sleeper, et al, JACS, 1977, 99, 2367 | W. Fenical, et al, Pure Appl. Chem., 1979, 51, 1865 | G. Cimino, et al, Experientia, 1991, 47, 61 | A. Spinella, et al, Tetrahedron, 1993, 49, 1307 | D. Soullez, et al, Nat. Prod. Lett., 1994, 4, 203 | R, Alvarez, et al, Tetrahedron: Asymmetry, 1998, 9, 3065 | R. Alvarez, et al, Tetrahedron, 1998, 54, 6793



874 Navenone C

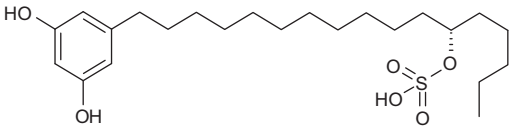
Type: Long-chain aromatic systems. $C_{16}H_{16}O_2$ Source: Cephalaspid *Navanax inermis*. Pharm: Alarm pheromone. Ref: H. L. Sleeper, et al, JACS, 1977, 99, 2367 | D. Soullez, et al, Nat. Prod. Lett., 1994, 4, 203



875 5-(12-Sulfooxyheptadecyl)-1,3-benzenediol

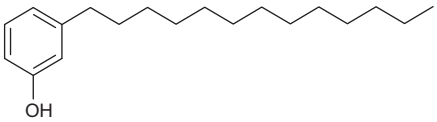
Type: Long-chain aromatic systems. $C_{23}H_{40}O_6S$ Oil. Source: Marine-derived fungus *Zygosporium* sp. KNC52 from an unidentified hard coral (Palau, Oceania, Oceania).

Pharm: FtsZ GTPase inhibitor (IC_{50} = 25 μg/mL, almost completely inhibited FtsZ polymerization at 25 μg/mL, FtsZ is a structural homolog of eukaryotic tubulin and, similar to tubulin, is a GTPase that polymerizes in a GTP-regulated manner); antimycobacterial (*Mycobacterium tuberculosis* MDR-TB, *Mycobacterium bovis* BCG, *Mycobacterium avium*, all MICs = 166 μg/mL); antibacterial (*Pseudomonas aeruginosa* MDRP, MIC = 50 μg/mL, MRSA, MIC = 12.5 μg/mL). Ref: K. Kanoh, et al, J. Antibiot., 2008, 61, 192



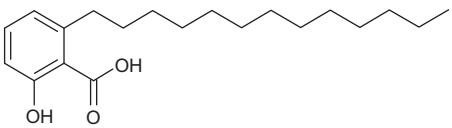
876 3-Tridecylphenol

Type: Long-chain aromatic systems. $C_{19}H_{32}O$ mp 44–45 °C. Source: Brown alga *Caulocystis cephalornithos*. Pharm: Phospholipase Cγ1 inhibitor. Ref: R. Kazlauskas, et al, Aust. J. Chem., 1980, 33, 2097



877 6-Tridecylsalicylic acid

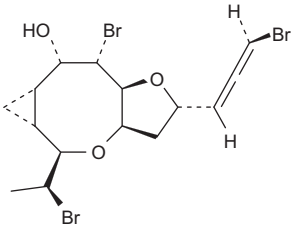
Type: Long-chain aromatic systems. $C_{20}H_{32}O_3$ Plates (hexane), mp 85–86 °C, mp 73–74 °C, Sol. MeOH, C_6H_6; fairly sol. hexane; poorly sol. H_2O. Source: Brown alga *Caulocystis cephalornithos*. Pharm: Anti-inflammatory. Ref: R. Kazlauskas, et al, Aust. J. Chem., 1980, 33, 2097



1.18 Marine Acetogenins

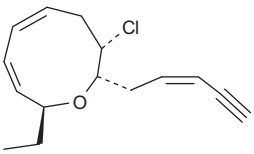
878 Aplyparvunin

Type: Marine acetogenins. $C_{15}H_{19}Br_3O_3$ Rods ($CHCl_3$), mp 138–139 °C, $[\alpha]_D^{22}$ = −131.4° (*c* = 1.5, $CHCl_3$). Source: Sea hare *Aplysia parvula*. Pharm: Ichthyotoxic (mosquito fish); LC_{100} (mosquito fish, 24 hr) = 3 ppm. Ref: T. Miyamoto, et al, Tet. Lett., 1995, 36, 6073



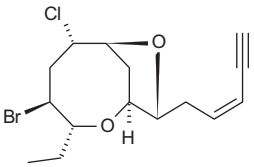
879 Brasilenyne

Type: Marine acetogenins. $C_{15}H_{19}ClO$ Cryst. (pentane), mp 37–38 °C, $[\alpha]_D^{21}$ = +216° (c = 0.017, $CHCl_3$). Source: Sea hare *Aplysia brasiliana*. Pharm: Antifeedant (fish). Ref: R. B. Kinnel, et al, Proc. Natl. Acad. Sci. USA, 1979, 76, 3576



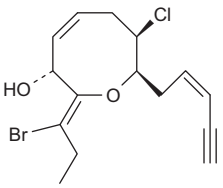
880 (3*Z*)-Chlorofucin

Type: Marine acetogenins. $C_{15}H_{20}BrClO_2$ Oil, $[\alpha]_D^{24}$ = −11.3° (c = 0.6, $CHCl_3$). Source: Red alga *Laurencia pannosa* (Malaysia). Pharm: Antibacterial (*Chromobacterium violaceum*, MIC = 100 µg/disk). Ref: M. Suzuki, et al, JNP, 2001, 64, 597



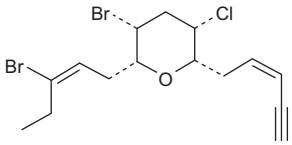
881 Chondriol

Type: Marine acetogenins. $C_{15}H_{18}BrClO_2$ Oil. Source: Red alga *Laurencia yamada*. Pharm: Antibiotic. Ref: W. Fenical, et al, Tet. Lett., 1974, 1507



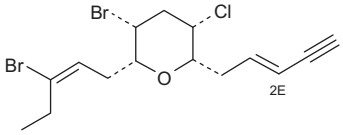
882 *cis*-Dactylyne

Type: Marine acetogenins. $C_{15}H_{19}Br_2ClO$ Cryst., mp 62.2–63.3 °C, $[\alpha]_D^{25}$ = −36° (*c* = 15.2, $CHCl_3$). Source: Sea hare *Aplysia dactylomela*. Pharm: CNS depressant; cytochrome inhibitor. Ref: F. J. McDonard, et al, JOC, 1975, 40, 665 | D. J. Vanderah, et al, JOC, 1976, 41, 3480 | L. Gao, et al, Tet. Lett., 1992, 33, 4349



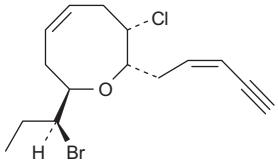
883 Isodactylyne

trans-Dactylyne Type: Marine acetogenins. $C_{15}H_{19}Br_2ClO$ Oil, $[\alpha]_D^{24}$ = −8.06° (c = 7.97, $CHCl_3$). Source: Sea hare *Aplysia dactylomela*. Pharm: Antibiotic. Ref: F. J. McDonald, et al, JOC, 1975, 40, 665 | D. J. Vanderah, et al, JOC, 1976, 41, 3480 | L. Gao, et al, Tet. Lett., 1992, 33, 4349



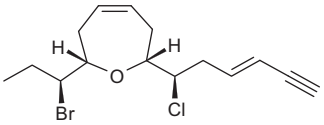
884 *cis*-Isodihydrorhodophytin

Type: Marine acetogenins. $C_{15}H_{20}BrClO$ Oil, $[\alpha]_D^{25}$ = +71.4° (*c* = 0.0042, $CHCl_3$). Source: Red alga *Laurencia pinnatifida*, sea hare *Aplysia brasiliana*. Pharm: Antifeedant (fish, potent). Ref: R. B. Kinnel, et al, Proc. Natl. Acad. Sci. USA, 1979, 76, 3576



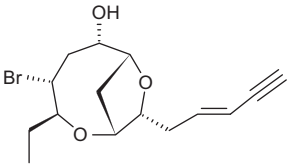
885 Isolaurepinnacin

Type: Marine acetogenins. $C_{15}H_{20}BrClO$ Oil, $[\alpha]_D$ = −6.2° ($CHCl_3$). Source: Red alga *Laurencia pinnata*. Pharm: Insecticide. Ref: A. Fukuzawa, et al, Tet. Lett., 1981,22, 4081 | H. Kotsuki, et al, JOC, 1989, 54, 5153



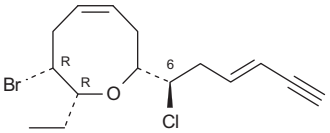
886 Laurefurenyne F

Type: Marine acetogenins. $C_{15}H_{21}BrO_3$ Amorph. solid, $[\alpha]_D^{25}$ = +17° (*c* = 0.1, MeOH). Source: Red alga *Laurencia* sp. Pharm: Cytotoxic (moderate and nonselective, 60 µg/disk, L_{1210}, zone differential = 250; Colon38, zone differential = 450; CFU-GM, zone differential = 400; H116, zone differential = 200; H125, zone differential = 100; hmn CFU-GM, zone differential = 0). Ref: W. M. Abdel-Mageed, et al, Tetrahedron, 2010, 66, 2855



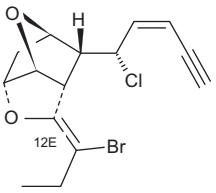
887 Laurepinnacin

Type: Marine acetogenins. $C_{15}H_{20}BrClO$ Oil, $[\alpha]_D$ = −35.3° ($CHCl_3$). Source: Red alga *Laurencia pinnata*. Pharm: Insecticide. Ref: A. Fukuzawa, et al, Tet. Lett., 1981,22, 4081



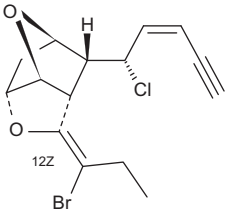
888 (12*E*)-Lembyne A

Type: Marine acetogenins. $C_{15}H_{16}BrClO_2$ Oil, $[\alpha]_D^{24}$ = +42° (*c* = 0.02, $CHCl_3$). Source: Red alga *Laurencia mariannensis* (Okinawa). Pharm: Antibacterial (paper disc diffusion assay, *Alcaligenes aquamarinus*, *Azomonas agilis*, *Erwinia amylovora* and *Escherichia coli*, MIC = 20–30 µg/disc). Ref: C. S. Vairappan, et al, Phytochemistry, 2001, 58, 517



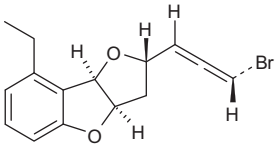
889 (12*Z*)-Lembyne A

Type: Marine acetogenins. $C_{15}H_{16}BrClO_2$ mp 95–96 °C, $[\alpha]_D^{24}$ = +197.6° (*c* = 0.70, $CHCl_3$). Source: Red alga *Laurencia* sp. (Malaysia waters). Pharm: Antibacterial (paper disc diffusion assay, all marine bacteria collected in Malaysian waters, 90 µg/disc: *Clostridium cellobioparum* IZD = 12–18 mm, *Chromobacterium violaceum* IZD = 7–12 mm, *Flavobacterium helmiphilum* IZD = 7–12 mm, *Proteus mirabilis* IZD = 7–12 mm, *Vibrio parahaemolyticus* IZD = 7–12 mm, MIC = 20–60 µg/disc; 90 µg/disc inactive for *Clostridium fallax, Clostridium novyi, Clostridium sordellii, Enterobacter aerogenes, Shigella flexneri, Vibrio cholerae* and *Vibrio vulnificus*). Ref: C. S. Vairappan, et al, Phytochemistry, 2001, 58, 291



890 Panacene

Type: Marine acetogenins. $C_{15}H_{15}BrO_2$ Oil, $[\alpha]_D^{21}$ = +382°. Source: Sea hare *Aplysia brasiliana*. Pharm: Antifeedant (fish); analgesic; tranquilliser. Ref: R. Kinnel, et al, Tet. Lett., 1977, 3913 | K. S. Feldman, et al, JACS, 1982, 104, 4011 | K. S. Feldman, Tet. Lett., 1982, 23, 3031



Index 1 Compound Name and Synonym Index

This index lists in alphabetical order all active compound's 1,064 entry names including both 890 key names and 174 synonym names contained in the bodies of compound entries. A equal sign (=) and compound code number (from 1 to 890) follow the name immediately for locating the compound in the *"Handbook of Active Marine Natural Products Volume 6"* book. Following symbols are ineffective in ordering: *D-*, *L-*, *dl, R-*, *S-*, *E-*, *Z-*, *O-*, *N-*, *C-*, *H-, cis-*, *trans-*, *ent-*, *epi-, meso-*, *erythro-*, *threo-*, *sec-, seco-*[§], *m-*, *o-*, *p-*, *n-*, *α-, β-, γ-, δ-, ε-, κ-, ξ-, ψ-, ω-*, (+), (–), (±) etc., and: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, {,}, [,], (,), ,, ;, , *, ', '', '''', →, etc. ([§]note: In the books regular "seco-" is effective in ordering as "nor-".)

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Index 2 Compound Molecular Formula Index

The Molecular Formula Index of Volume 6 lists the molecular formulae of all 890 active isolated compounds from marine organisms given in the **HAMNP Volume 6** in Hill convention order. Under a bold formula, all related compound names following code numbers are listed in the code number order too.

Index 3 Compound Organism Source Index

This index lists in alphabetical order all 433 marine organism in Latin names in **HAMNP Volume 6**, following a code sequence of related active compounds. When one hopes to know the English type name of any marine organism, please see an entry of a related compound in the code sequence. For example, if one hopes to know the English common type name of "*Haliclona* sp.", from entry 39 of this index, one will know that the *Haliclona* sp. is a sponge.

Index 4 Compound Sampling Geographic Locality Index

In this index, all geographic locations in **HAMNP Volume 6** have been devided as 16 large areas:

1 **CHINA**
2 **JAPAN**
3 **KOREA WATERS**
4 **R. O. KOREA**
5 **ASIA**
6 **AUSTRALIA**
7 **OCEANIA**
8 **EUROPE**
9 **AFRICA**
10 **USA**
11 **NORTH AMERICA**
12 **CARIBBEAN SEA**
13 **SOUTH AMERICA**
14 **PACIFIC OCEAN**
15 **ATLANTIC OCEAN**
16 **ANTARCTIC/ARCTIC**

For all 137 compound sampling geographic locations, each of them has put into one large area, and then within the area, all related geographic places are listed in alphabetical order with the detail information in the texts of the "Handbook of Active Marine Natural Products Volume 6" and a number code sequence of the related compounds follows the detail information immediately. There are 604 related compounds with geographic information in HAMNP Volume 6.

Index 5 Compound Pharmacological Activity Index

In this index, a set of very formatted pharmacological activity codes have been used, specially for all types of cancer cells, please see **"List of Cancer Cells Codes"**. A special note is that the word "Cytotoxic" means ***in vitro*** anticancer activities, while the word "Antineoplastic" means ***in vivo*** anticancer activities.

(The End of HAMNP Volume 6)