Supplementary Materials S1: Detail information of individual fungal meroterpenoids newly discovered in 2009-2019

The Chemistry and Biology of Fungal Meroterpenoids (2009-2019)

Minghua Jiang [1,3,†], Zhenger Wu [1,†], Lan Liu [1,2,3*] and Senhua Chen [1,2,3,*]

1. School of Marine Sciences, Sun Yat-sen University, Guangzhou 510006, China. jiangmh23@mail2.sysu.edu.cn (M.J.); wuzher@mail2.sysu.edu.cn (Z.W.)
2. Southern Laboratory of Ocean Science and Engineering (Guangdong, Zhuhai), Zhuhai 519000, China.
3. South China Sea Bio-Resource Exploitation and Utilization Collaborative Innovation Center, Guangzhou 510006, China.

† These authors contributed equally to this work.

* Correspondence: cesllan@mail.sysu.edu.cn (L.L.); chensenh@mail.sysu.edu.cn (S.C.); Tel.: +86-020-84725459

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1. Introduction

In the main Review document, only the chemical structures of a selection of highlighted fungal meroterpenoids are shown, the information of the new compounds is mainly introduced according to their characteristics, and some other useful information is not reported. Hence, the related detailed information of the compounds is available for viewing, along with abbreviations, compound names, taxonomic origins: fungi (some include their locations), biological activities, and other information in this Supplementary Materials (**S1**). Moreover, all chemical structures are listed in **S2** (**All chemical structures of fungal meroterpenoids newly discovered in 2009-2019**). The taxonomy of the fungus genus is based on the website: https://www.uniprot.org/taxonomy/. The title of each section was sorted by order of the Review (Compound category and source of fungi) with the numbers of corresponding compounds in brackets). The first line contains the **reference number** and complete information of **article reference with a title** for the reader's easy reference, followed by the **isolated fungus strain**, **source/habitat of fungus** (some include their Location) in the second line. The following indented line(s) provide information about each compound referred to in the Review for that publication. This information is provided in the following order, again separated by // (***** is inserted where there are no data): **Compound number** corresponding to the main Review, **Status** (**N** for a new compound; **NP** for a new natural product; **R** for a revision (structure, stereochemistry, stereochemical assignment etc.), **Compound name**, **Biological activity (Bioactivity category**/the **level** of activity **vs. method** of corresponding activity**)** and **Other explanatory information**.

2. Abbreviations

In the **Biological activity** and **Other information** sections the following abbreviations have been used:

*	not reported	KB-3-1	human cervix carcinoma cell
11*β*–HSD1 /2	11*β*–hydroxysteroid dehydrogenase 1/2	Ki	inhibitory constant
22Rv1	prostate cancer cell	L5178Y	murine cancer
A. camphorate	*Antrodia camphorate*	LD50	median lethal dose
A. flavus	*Aspergillus flavus*	LLC	murine lung cancer
A. fragariae	*Aphelenchoides fragariae*	LPS	lipopolysaccharide
A. hydrophilia	*Aeromonas hydrophilia*	LT	lethality-toxicity
A. niger	*Aspergillus niger*	*M. luteus*	*Micrococcus luteus*
A. salina.	*Artemia salina*	*M. robertsii*	*Metarhizium robertsii*
A375-C5/P	human melanoma cell	*M. smegmatis*	*Mycobacterium smegmatis*
A431	human epidermoid carcinoma cell	*M. tuberculosis*	*Mycobacterium tuberculosis*
A549	human lung cancer cell	MAPK	mitogen-activated protein kinase
AA	anti-allergenic	MCF-7	breast cancer/breast adenocarcinoma
AB	antibacterial	MCP-1	monocyte chemotactic protein 1
abs. config.	absolute configuration	MDA−MB−231	human breast cancer cell
ACAT-2	cholesterol acyltransferase-2	MG-63	Osteosarcoma cell
AchE	acetylcholine esterease	MIC	minimum inhibitory concentration
AD	Alzheimer's disease	microb.	microbial/microbe
AF	antifungal	MOA	mechanism of action
AI	anti-inflammatory	mod.	moderate
AM	antimicrobial	MRSA	methicillin resistant *Staphlococcus aureus*
antifoul.	antifouling	MSTO211H	human mesothelioma
antimal.	antimalarial	mTOR	mammalian target of rapamycin
antitryps.	antitrypanosomal	N	new compound
AO	antioxidant	*N. crassa*	*Neurospora crassa*
AV	antiviral	NAC	N–acetyl–L–cysteine

A*β*	beta-amyloid
B. amphitrite	*Balanus amphitrite*
B. cereus	*Bacillus cereus*
B. subtilis	*Bacillus subtilis*
B16/B16F10	mouse melanoma cell
BACE 1	β-site amyloid precursor protein cleaving enzyme 1
bact.	bacteria/bacterium
BC1	human breast cancer cells
BDNF	brain-derived neurotrophic factor
BGC	biosynthetic gene cluster
BGC-823	gastric adenocarcinoma cell
BRD4	bromodomain-containing protein 4
BuChE	butyrylcholinesterase
BV2	microglia cells
BXF 1218 L	bladder cancer cell
C. albicans	*Candida albicans*
C. higginsianum	*Colletotrichum higginsianum*
C. michiganense	*Clavibacter michiganense*
C. miyabeanus	*Cochliobolus miyabeanus*
CBR	cannabinoid receptor
CE	cholesteryl ester
CM	cell migration
Con.A	concanavalin A
COX–2	cyclooxygenase-2
CT26	colon carcinoma line
cytotox.	cytotoxicity/cytotoxic
D2HG	D-2-hydroxyglutarate
Daoy	Medulloblastoma cell
DDR1	discoidin domain receptor 1
DFT	density functional theory
DPPH	2,2-diphenyl-1-picrylhydrazyl
DU145	prostate cancer cell
E. coli	*Escherichia coli*
E. faecalis	*Enterococcus faecalis*
EC50	concentration for 50% of maximal effect
ECD	electronic circular dichroism
ECM	extracellular matrix
ED50	median effective dose
enzyme inhib.	enzyme inhibition
ESBL	extended–spectrum β–lactamase
F. Verticillioides	*Fusarium verticillioides*
G. saubinetii	*Gibberella saubinetii*
GI50	the 50% growth-inhibitory concentration
GITC	2,3,4,6-Tetra-O-acetyl-β-D-glucopyranosyl isothiocyanate
GPCR	G protein-coupled receptor
NACM	NAC methyl ester
NADH	nicotinamide adenine dinucleotide
NCI-H460	non-small cell lung cancer
ND	not detected
Neuro-2a	murine neuroblastoma
NFRD	NADH–fumarate reductase
NF-*κ*B	Nuclear Factor-*κ*B
NGF	nerve growth factor
NMCL	normal mammalian cell line
NO	nitrous oxide
NRPS	nonribosomal peptide synthase
NSC	neural stem cell
OVCAR-3/8	human ovarian cancers
P. aeruginosa	*Pseudomonas aeruginosa*
P. elyakovii	*Pseudoalteromonas elyakovii*
P. falciparum	*Plasmodium falciparum*
P. fluorescens	*Pseudomonas fluorescens*
P. irgensii	*Polaribacter irgensii*
P. parasitica	*Phytophthora parasitica*
P. viticola	*Plasmopara viticola*
p.c.	positive control
P21WAF	cell cycle inhibitor
P388	murine leukemia cell
PBP2a	penicillin-binding protein 2a
PC12	rat pheochromocytoma cells
PC3/3M	human prostate carcinoma/cancer cell
PD	Parkinson's Disease
PGE2	prostaglandin E2
PGR	progesterone receptor
PKC-*β*	Protein kinase C-*β*
PKS	polyketide synthase
PPAR–*γ*	peroxidase proliferator–-activated receptor
PRV	pseudorabies virus
PTP1B	protein-tyrosine phosphatase 1B
PXR	pregnane X receptor
pY705Stat3	intracellular phosphor-tyrosine Stat3
QR	quinone reductase
R. litoralis	Roseobacter litoralis
RANKL	receptor activator of nuclear factor-*κ*B ligand
RAW264.7	mouse peritoneal macrophages
rel. config.	relative configuration
RMC	rat glomerular mesangial cells
ROS	reactive oxygen species
RT-PCR	reverse–transcription PCR
S. aureus	*Staphlococcus aureus*

GSK 3b	glycogen synthase kinase 3b	*S. cerevisiae*	*Saccharomyces cerevisiae*
H. aquamarina	*Halomonas aquamarina*	*S. epidermidis*	*Staphylococcus epidermidis*
H. erinaceum	*Hericium erinaceum*	*S. frugiperda*	*Spodoptera frugiperda*
H1299	human non-small cell lung carcinoma	*S. pneumoniae*	*Streptococcus pneumoniae*
H460	non-small cell lung tumour cell	*S. putrefaciens*	*Shewanella putrefaciens*
HaCaT	preneoplastic cell line	*S. typhi*	*Salmonella typhi*
HCT116	colorectal carcinoma cell	SAHA	suberoylanilide hydroxamic acid
HCV	Hepatitis C virus	SAR	structure activity relationship
HDAC1	histone deacetylase 1	SHP-1	Src Homology Region 2 Domain-Containing PTP-1
HeLa	cervical cancer cell	SK–MEL–28	human malignant melanoma
HepG2	liver carcinoma	Smad3	small mothers against decapentaplegic 3
HIV	Human immunodeficiency virus	SMMC–7721	hepatocellular carcinoma cell
HL-60	acute leukemia	SW–480	colon cancer cell
HLE	human leukocyte elastase	*T. brucei*	*Trypanosoma brucei*
HMG–CoA	3-Hydroxy-3-methylglutaryl-coenzyme A reductase	*T. mentagrophytes*	*Trichophyton mentagrophytes*
Hs683	Oligodendroglioma cell	T24 cells	bladder cancer
HSD	11β–hydroxysteroid dehydrogenases	TAO	trypanosome alternative oxidase
HSV-1	Herpes simplex virus type 1	TB	tuberculosis
IA	inactive	TCL	tumour cell line
IC50	50%inhibiting concentration	TCPTP	T–cell PTP
IDH1	isocitrate dehydrogenase 1	TGF–β1	transforming Growth Factor –β1
IDO	indoleamine 2,3-dioxygenase	THP–1 cells	pro-monocytic leukemia cell line
IFN–*γ*	interferon–*γ*	TLR3	toll-like receptor 3
IL-1*β/6*	interleukin-1*β/6*	TNF–*α*	tumor necrosis factor–*α*
IMPDH	inosine-5'-monophosphate dehydrogenase	TRAIL	TNF-related apoptosis-inducing ligand
inhib.	inhibitor/inhibition/inhibitory	TRP	transient receptor potential
iNOS	inducible nitric oxide synthesis	TTCC	T-type voltage-gated calcium channels
ISTC	the silicon target confirmation	*V. alginolyticus*	*Vibrio alginolyticus*
JAK3	Janus kinase 3	*V. dahlia*	*Verticillium dahliae*
K. pneumoniae	*Klebsiella pneumoniae*	*V. harveyi*	*Vibrio harveyi*

3. Triketide–terpenoids (98, 1-98)

3.1 *Aspergillus* sp. (30)

1. Kwon, J.; Seo, Y. H.; Lee, J. E.; Seo, E. K.; Li, S.; Guo, Y.; Hong, S. B.; Park, S. Y.; Lee, D., Spiroindole Alkaloids and Spiroditerpenoids from *Aspergillus* duricaulis and Their Potential Neuroprotective Effects. *J Nat Prod* **2015,** 78, (11), 2572-9.

- Ascomycota *Aspergillus duricaulis* KACC 41137 // *

  1 // N // brevione L // others/IA vs neuroprotective effect (A*β*-induced toxicity and A*β* aggregation)

  2 // N // brevione M // others/potent vs neuroprotective effect (A*β*-induced toxicity)

2. Yurchenko, A. N.; Trinh, P. T. H.; Girich Ivanets, E. V.; Smetanina, O. F.; Rasin, A. B.; Popov, R. S.; Dyshlovoy, S. A.; von Amsberg, G.; Menchinskaya, E. S.; Thanh Van, T. T.; Afiyatullov, S. S., Biologically Active Metabolites from the Marine Sediment-Derived Fungus *Aspergillus* flocculosus. *Mar Drugs* **2019,** 17, (10), 579-590.

- Ascomycota *Aspergillus flocculosus* // marine sediment, Nha Trang Bay, South China Sea

  3 // N // 12–*epi*–aspertetranone D // others/weak-mod. vs anti-metastatic activ. (22Rv1); cytotox./IA vs 2 TCLs

3. Wang, J.; Wei, X.; Qin, X.; Tian, X.; Liao, L.; Li, K.; Zhou, X.; Yang, X.; Wang, F.; Zhang, T.; Tu, Z.; Chen, B.; Liu, Y., Antiviral Merosesquiterpenoids Produced by the Antarctic Fungus *Aspergillus* ochraceopetaliformis SCSIO 05702. *J Nat Prod* **2016,** 79, (1), 59-65.

- Ascomycota *Aspergillus ochraceopetaliformis* SCSIO 05702 // soil sample, the Great Wall station

  4 // N // ochraceopone A // AV/weak-mod. vs 2 viruses; cytotox./IA vs 8 TCLs; AB/IA vs 3 bact.

  5 // N // ochraceopone B // AV/IA vs 2 viruses; cytotox./IA vs 8 TCLs; AB/IA vs 3 bact.

  6 // N // ochraceopone C // AV/IA vs 2 viruses; cytotox./IA vs 8 TCLs; AB/IA vs 3 bact.

  7 // N // ochraceopone D // AV/IA vs 2 viruses; cytotox./IA vs 8 TCLs; AB/IA vs 3 bact.

  8 // N // ochraceopone E // AV/IA vs 2 viruses; cytotox./IA vs 8 TCLs; AB/IA vs 3 bact.

4. Shin, H. J.; Choi, B. K.; Trinh, P. T. H.; Lee, H. S.; Kang, J. S.; Van, T. T. T.; Lee, H. S.; Lee, J. S.; Lee, Y. J.; Lee, J., Suppression of RANKL-Induced Osteoclastogenesis by the Metabolites from the Marine Fungus *Aspergillus* flocculosus Isolated from a Sponge Stylissa sp. *Mar Drugs* **2018,** 16, (1), 14-22.

- Ascomycota *Aspergillus flocculosus* 01NT.1.1.5 // marine sponge *Stylissa* sp.

  9 // N // ochraceopone F // cytotox./IA vs 6 TCLs

5. Prompanya, C.; Dethoup, T.; Bessa, L. J.; Pinto, M. M.; Gales, L.; Costa, P. M.; Silva, A. M.; Kijjoa, A., New isocoumarin derivatives and meroterpenoids from the marine sponge-associated fungus *Aspergillus* similanensis sp. nov. KUFA 0013. *Mar Drugs* **2014,** 12, (10), 5160-73.

6. Prompanya, C.; Fernandes, C.; Cravo, S.; Pinto, M. M.; Dethoup, T.; Silva, A. M.; Kijjoa, A., A new cyclic hexapeptide and a new isocoumarin derivative from the marine sponge-associated fungus *Aspergillus* similanensis KUFA 0013. *Mar Drugs* **2015,** 13, (3), 1432-50.

- Ascomycota *Aspergillus similanensis* sp. nov. KUFA 0013 // marine sponge *Rhabdermia* sp.

  10 // N // chevalone E // AB/potent vs 1 bact. (synergism with oxacillin); AF/IA vs 1 fungus // ref. 5

  11 // NP // pyripyropene S // AB/IA vs 6 bact.; AF/IA vs 1 fungus // ref. 5

  12 // N // imilanpyrone C // ND // ref. 6

  13 // N // pyripyropene T // AB/IA vs 6 bact; AF/IA vs 1 fungus; cytotox./IA vs 3 TCLs // ref. 6

7. Wang, Y.; Qi, S.; Zhan, Y.; Zhang, N.; Wu, A. A.; Gui, F.; Guo, K.; Yang, Y.; Cao, S.; Hu, Z.; Zheng, Z.; Song, S.; Xu, Q.; Shen, Y.; Deng, X., Aspertetranones A-D, Putative Meroterpenoids from the Marine Algal-Associated Fungus *Aspergillus* sp. ZL0-1b14. *J Nat Prod* **2015,** 78, (10), 2405-10.

- Ascomycota *Aspergillus* sp. ZL0–1b14 // marine green alga *Enteromorpha* sp.

  14 // N // aspertetranone A // AI/weak-mod. vs (IL–6 and IL–1*β*)

  15 // N // aspertetranone B // AI/IA vs (IL–6 and IL–1*β*)

16 // N // aspertetranone C // AI/IA vs (IL–6 and IL–1β)

17 // N // aspertetranone D // AI/weak-mod. vs (IL–6 and IL–1β)

8. Liaw, C. C.; Yang, Y. L.; Lin, C. K.; Lee, J. C.; Liao, W. Y.; Shen, C. N.; Sheu, J. H.; Wu, S. H., New Meroterpenoids from *Aspergillus* terreus with Inhibition of Cyclooxygenase-2 Expression. *Org Lett* **2015,** 17, (10), 2330-3.

- Ascomycota *Aspergillus terreus* // hot spring zone, Yang-Ming Mountain

18 // N // yaminterritrem A // ND

19 // N // yaminterritrem B // AI/potent vs COX–2

9. Nong, X. H.; Wang, Y. F.; Zhang, X. Y.; Zhou, M. P.; Xu, X. Y.; Qi, S. H., Territrem and butyrolactone derivatives from a marine-derived fungus *Aspergillus* terreus. *Mar Drugs* **2014,** 12, (12), 6113-24.

- Ascomycota *Aspergillus terreus* SCSGAF0162 // gorgonian corals *Echinogorgia aurantiaca*, South China Sea

20 // N // territrem D // enzyme inhib./potent vs AChE; others/weak-mod. vs antifouling activ. (barnacle *Balanus amphitrite* larvae); AV/IA vs 1 virus

21 // N // territrem E // enzyme inhib./potent vs AChE; others/IA vs antifouling activ. (barnacle *Balanus amphitrite* larvae); AV/IA vs 1 virus

22 // N // 11α–dehydroxyisoterreulactone A // AV/weak-mod. vs 1 virus; enzyme inhib./IA vs AChE; others/IA vs antifouling activ. (barnacle *Balanus amphitrite* larvae)

10. Li, H.; Sun, W.; Deng, M.; Qi, C.; Chen, C.; Zhu, H.; Luo, Z.; Wang, J.; Xue, Y.; Zhang, Y., Asperversins A and B, Two Novel Meroterpenoids with an Unusual 5/6/6/6 Ring from the Marine-Derived Fungus *Aspergillus* versicolor. *Mar Drugs* **2018,** 16, (6), 177-189.

- Ascomycota *Aspergillus versicolor* // marine sediment, South China Sea

23 // N // asperversin A // enzyme inhib./IA vs AChE; cytotox./IA vs 4 TCLs; AB/IA vs 4 bact.

24 // N // asperversin B // enzyme inhib./IA vs AChE; cytotox./IA vs 4 TCLs; AB/IA vs 4 bact.

25 // N // asperversin C // enzyme inhib./IA vs AChE; cytotox./IA vs 4 TCLs; AB/IA vs 4 bact.

26 // N // asperversin D // enzyme inhib./IA vs AChE; cytotox./IA vs 4 TCLs; AB/IA vs 4 bact.

27 // N // asperversin E // enzyme inhib./IA vs AChE; cytotox./IA vs 4 TCLs; AB/IA vs 4 bact.

28 // N // asperversin F // enzyme inhib./IA vs AChE; cytotox./IA vs 4 TCLs; AB/IA vs 4 bact.

29 // N // asperversin G // enzyme inhib./weak-mod. vs AChE; cytotox./IA vs 4 TCLs; AB/IA vs 4 bact.

11. Yurchenko, A. N.; Smetanina, O. F.; Kalinovsky, A. I.; Pivkin, M. V.; Dmitrenok, P. S.; Kuznetsova, T. A., A new meroterpenoid from the marine fungus *Aspergillus* versicolor (Vuill.) Tirab. *Russ Chem Bull Int Ed* **2010,** 59, (4), 852-856.

- Ascomycota *Aspergillus versicolor* // marine benthos, Sakhalin Bay

30 // N // asperdemin // LT/weak-mod. vs embryos of the sea urchin *Strongylocentrotus nudus*

3.2 *Colletotrichum* sp. (4)

12. Cimmino, A.; Mathieu, V.; Masi, M.; Baroncelli, R.; Boari, A.; Pescitelli, G.; Ferderin, M.; Lisy, R.; Evidente, M.; Tuzi, A.; Zonno, M. C.; Kornienko, A.; Kiss, R.; Evidente, A., Higginsianins A and B, Two Diterpenoid alpha-Pyrones Produced by *Colletotrichum* higginsianum, with in Vitro Cytostatic Activity. *J Nat Prod* **2016,** 79, (1), 116-25.

14. Sangermano, F.; Masi, M.; Vivo, M.; Ravindra, P.; Cimmino, A.; Pollice, A.; Evidente, A.; Calabro, V., Higginsianins A and B, two fungal diterpenoid alpha-pyrones with cytotoxic activity against human cancer cells. *Toxicol In Vitro* **2019,** 61, 104614-22.

- Ascomycota *Colletotrichum higginsianum* // *Brassica rapa* subsp. *chinensis*

31 // N // higginsianin A // cytotox./potent vs 5 TCLs

32 // N // higginsianin B // cytotox./potent vs 5 TCLs

13. Dallery, J. F.; Le Goff, G.; Adelin, E.; Iorga, B. I.; Pigne, S.; O'Connell, R. J.; Ouazzani, J., Deleting a Chromatin Remodeling Gene Increases the Diversity of Secondary Metabolites Produced by *Colletotrichum* higginsianum. *J Nat Prod* **2019,** 82, (4), 813-822.

- Ascomycota *Colletotrichum higginsianum* IMI 349063 ΔcclA mutant // deleting the gene CH63R_04661 coding the sole ortholog of the *Aspergillus nidulans* CclA protein (AN9399) in *C. higginsianum*

33 // N // higginsianin C // AB/IA vs 3 bact.; AF/IA vs 3 fungi; enzyme inhib./IA vs 4 enzymes (tyrosinase, elastase, collagenase and hyaluronidase); others/IA vs AO (DPPH)

34 // N // 13–*epi*-higginsianin C // AB/IA vs 3 bact.; AF/IA vs 3 fungi; enzyme inhib./IA vs 4 enzymes (tyrosinase, elastase, collagenase and hyaluronidase); others/IA vs AO (DPPH)

3.3 *Emericella* sp. (3)

15. Chen, H. Y.; Liu, T. K.; Yang, J.; Yang, X. L., Emerones A-C: three novel merosesquiterpenoids with unprecedented skeletons from Emericella sp. XL029. *Org Biomol Chem* **2019,** 17, (36), 8450-8455.

- Ascomycota *Emericella.* sp. XL029 // *Panax notoginseng*

35 // N // emerone A // AB/weak-mod. vs 3 bact.; AF/weak-mod. vs 2 fungi

36 // N // emerone B // AB/weak-mod. vs 3 bact.; AF/weak-mod. vs 2 fungi

37 // N // emerone C // AB/IA vs 3 bact.; AF/IA vs 2 fungi

3.4 *Eurotium* sp. (5)

16. Kanokmedhakul, K.; Kanokmedhakul, S.; Suwannatrai, R.; Soytong, K.; Prabpai, S.; Kongsaeree, P., Bioactive meroterpenoids and alkaloids from the fungus Eurotium chevalieri. *Tetrahedron* **2011,** 67, (30), 5461-5468.

- Ascomycota *Eurotium chevalieri* // rhizosphere soil of para rubber tree

38 // N // chevalone A // AB/IA vs anti-TB; others/IA vs antimalarial activity; cytotox./IA vs 3 TCLs

39 // N // chevalone B // cytotox./weak-mod. vs 2 TCLs; AB/IA vs anti-TB; others/IA vs antimalarial activity

40 // N // chevalone C // cytotox./weak-mod. vs 1 TCL; AB/weak-mod. vs anti-TB; others/IA vs antimalarial activity

41 // N // chevalone D // cytotox./weak-mod. vs 1 TCL; others/weak-mod. vs antimalarial activity; AB/IA vs anti-TB

42 // N // aszonapyrone B // ND

3.5 *Fusarium* sp. (3)

17. Cao, Q. X.; Wei, J. H.; Deng, R.; Feng, G. K.; Zhu, X. F.; Lan, W. J.; Li, H. J., Two New Pyripyropenes from the Marine Fungus Fusarium lateritium 2016F18-1. *Chem Biodivers* **2017,** 14, (3), e1600298-303.

- Ascomycota *Fusarium lateritium* 2016F18–1 // marine sponge *Phyllospongia foliascens*

43 // N // 13–dehydroxy–1,11–deacetyl–pyri-pyropene A // cytotox./IA vs 6 TCLs

44 // N // 1–deacetyl–pyripyropene A // cytotox./IA vs 6 TCLs

45 // first obtained in pure form // 11–deacetylpyripyropene O // cytotox./IA vs 6 TCLs

3.6 *Metarhizium* sp. (4)

18. Kikuchi, H.; Hoshi, T.; Kitayama, M.; Sekiya, M.; Katou, Y.; Ueda, K.; Kubohara, Y.; Sato, H.; Shimazu, M.; Kurata, S.; Oshima, Y., New diterpene pyrone-type compounds, metarhizins A and B, isolated from entomopathogenic fungus, Metarhizium flavoviride and their inhibitory effects on cellular proliferation. *Tetrahedron* **2009,** 65, (2), 469-477.

19. Katou, Y.; Endo, N.; Suzuki, T.; Yu, J.; Kikuchi, H.; Oshima, Y.; Homma, Y., Metarhizin A suppresses cell proliferation by inhibiting cytochrome c oxidase activity. *Life Sci* **2014,** 103, (1), 1-7.

- Ascomycota *Metarhizium flavoviride* F–778 // the field cricket

46 // N // metarhizin A // LT/potent vs *Drosophila* S2 cells; cytotox./potent vs 4 TCLs, enzyme inhib./potent vs cytochrome c oxidase // ref. 18-19

47 // N // metarhizin B // LT/potent vs *Drosophila* S2 cells; cytotox./potent vs 3 TCLs // ref. 18

20. Kato, H.; Tsunematsu, Y.; Yamamoto, T.; Namiki, T.; Kishimoto, S.; Noguchi, H.; Watanabe, K., New natural products isolated from Metarhizium robertsii ARSEF 23 by chemical screening and identification of the gene cluster through engineered biosynthesis in *Aspergillus* nidulans A1145. *J Antibiot (Tokyo)* **2016,** 69, (7), 561-566.

- Ascomycota *Metarhizium robertsii* ARSEF 23 // *

48 // N // subglutinol C // ND
49 // N // subglutinol D // ND

3.7 *Neosartorya* sp. (17)

21. Eamvijarn, A.; Gomes, N. M.; Dethoup, T.; Buaruang, J.; Manoch, L.; Silva, A.; Pedro, M.; Marini, I.; Roussis, V.; Kijjoa, A., Bioactive meroditerpenes and indole alkaloids from the soil fungus Neosartorya fischeri (KUFC 6344), and the marine-derived fungi Neosartorya laciniosa (KUFC 7896) and Neosartorya tsunodae (KUFC 9213). *Tetrahedron* **2013,** 69, (40), 8583-8591.

- Ascomycota *Neosartorya fischeri* KUFC 6344 // Thailand coastal forest soil

50 // N // sartorypyrone A // cytotox./weak-mod. vs 3 TCLs; enzyme inhib./potent vs NFRD; AB/weak-mod. vs 3 bact. // ref. 23 and 25

- Ascomycota *Neosartorya tsunodae* KUFC 9213 // marine sponge

51 // N // sartorypyrone B // cytotox./weak-mod. vs 3 TCLs

22. Gomes, N. M.; Bessa, L. J.; Buttachon, S.; Costa, P. M.; Buaruang, J.; Dethoup, T.; Silva, A. M.; Kijjoa, A., Antibacterial and antibiofilm activities of tryptoquivalines and meroditerpenes isolated from the marine-derived fungi Neosartorya paulistensis, N. laciniosa, N. tsunodae, and the soil fungi N. fischeri and N. siamensis. *Mar Drugs* **2014,** 12, (2), 822-39.

- Ascomycota *Neosartorya paulistensis* KUFC 7897 // marine sponge *Chondrilla australiensis*

52 // N // sartorypyrone C // AB/IA vs 3 bact.

23. Kaifuchi, S.; Mori, M.; Nonaka, K.; Masuma, R.; Omura, S.; Shiomi, K., Sartorypyrone D: a new NADH-fumarate reductase inhibitor produced by Neosartorya fischeri FO-5897. *J Antibiot (Tokyo)* **2015,** 68, (6), 403-5.

- Ascomycota *Neosartorya fischeri* FO-5897 // soil sample

53 // N // sartorypyrone D // enzyme inhib./potent vs NFRD; AB/weak-mod. vs 3 bact.

24. Bang, S.; Song, J. H.; Lee, D.; Lee, C.; Kim, S.; Kang, K. S.; Lee, J. H.; Shim, S. H., Neuroprotective Secondary Metabolite Produced by an Endophytic Fungus, Neosartorya fischeri JS0553, Isolated from Glehnia littoralis. *J Agric Food Chem* **2019,** 67, (7), 1831-1838.

- Ascomycota *Neosartorya fischeri* JS0553 // *Glehnia. littoralis*

54 // N // sartorypyrone E // cytotox./IA vs 1 TCL

25. Ying, Y. M.; Huang, L.; Tian, T.; Li, C. Y.; Wang, S. L.; Ma, L. F.; Shan, W. G.; Wang, J. W.; Zhan, Z. J., Studies on the Chemical Diversities of Secondary Metabolites Produced by Neosartorya fischeri via the OSMAC Method. *Molecules* **2018,** 23, (11), 2772-2781.

- Ascomycota *Neosartorya fischeri* NRRL 181 // *

55 // NP // 1,7,11-trideacetyl-pyripyropene A // cytotox./IA vs 1 TCL
56 // NP // 1,11-dideacetyl pyripyropene A // cytotox./IA vs 1 TCL

26. Paluka, J.; Kanokmedhakul, K.; Soytong, M.; Soytong, K.; Kanokmedhakul, S., Meroditerpene pyrone, tryptoquivaline and brasiliamide derivatives from the fungus Neosartorya pseudofischeri. *Fitoterapia* **2019,** 137, 104257-62.

- Ascomycota *Neosartorya pseudofischeri* // soil sample, Chiang Mai forest, Thailand

57 // N // chevalone F // AB/IA vs 6 bact.; cytotox./IA vs 3 TCLs; others/IA vs anti-malarial
58 // N // 11–hydroxychevalone E // AB/IA vs 6 bact.; cytotox./IA vs 3 TCLs; others/IA vs anti-malarial

27. Lan, W. J.; Fu, S. J.; Xu, M. Y.; Liang, W. L.; Lam, C. K.; Zhong, G. H.; Xu, J.; Yang, D. P.; Li, H. J., Five New Cytotoxic Metabolites from the Marine Fungus Neosartorya pseudofischeri. *Mar Drugs* **2016,** 14, (1), 18-30.

- Ascomycota *Neosartorya pseudofischeri* // marine starfish *Acanthaster planci*

59 // N // 5–olefin phenylpyropene A // LT/weak-mod. vs *S. frugiperda* (Sf9)
60 // N // 13–dihydroxyl-pyripyropene A // LT/weak-mod. vs *S. frugiperda* (Sf9)

28. Rajachan, O. A.; Kanokmedhakul, K.; Sanmanoch, W.; Boonlue, S.; Hannongbua, S.; Saparpakorn, P.; Kanokmedhakul, S., Chevalone C analogues and globoscinic acid derivatives from the fungus Neosartorya spinosa KKU-1NK1. *Phytochemistry* **2016,** 132, 68-75.

- Ascomycota *Neosartorya spinosa* KKU–1NK1 // Thailand forest soil

61 // N // 1–hydroxychevalone C // AB/weak-mod. vs 1 bact. (anti-TB); cytotox./weak-mod. vs 2 TCLs; others/IA vs antimalarial activity

62 // N // 1–acetoxychevalone C // others/weak-mod. vs antimalarial activity; cytotox./weak-mod. vs 2 TCLs; AB/IA vs 1 bact. (anti-TB)

63 // N // 1,11–dihydroxychevalone C // cytotox./weak-mod. vs 2 TCLs; AB/IA vs 1 bact. (anti-TB); others/IA vs antimalarial activity

64 // N // 11–hydroxychevalone C // cytotox./IA vs 2 TCLs; AB/IA vs 1 bact. (anti-TB); others/IA vs antimalarial activity

29. Zin, W. W.; Buttachon, S.; Buaruang, J.; Gales, L.; Pereira, J. A.; Pinto, M. M.; Silva, A. M.; Kijjoa, A., A New Meroditerpene and a New Tryptoquivaline Analog from the Algicolous Fungus Neosartorya takakii KUFC 7898. *Mar Drugs* **2015,** 13, (6), 3776-90.

- Ascomycota *Neosartorya takakii* KUFC 7898 // marine alga *Amphiroa* sp.

65 // N // sartorenol // AB/IA vs 6 bact.

30. Yim, T.; Kanokmedhakul, K.; Kanokmedhakul, S.; Sanmanoch, W.; Boonlue, S., A new meroterpenoid tatenoic acid from the fungus Neosartorya tatenoi KKU-2NK23. *Nat Prod Res* **2014,** 28, (21), 1847-52.

- Ascomycota *Neosartorya tatenoi* KKU–2NK23 // Thailand forest soil

66 // N // tatenoic acid // ND

3.8 *Penicillium* sp. (27)

31. Chen, S.; Wang, J.; Wang, Z.; Lin, X.; Zhao, B.; Kaliaperumal, K.; Liao, X.; Tu, Z.; Li, J.; Xu, S.; Liu, Y., Structurally diverse secondary metabolites from a deep-sea-derived fungus Penicillium chrysogenum SCSIO 41001 and their biological evaluation. *Fitoterapia* **2017,** 117, 71-78.

- Ascomycota *Penicillium chrysogenum* SCSIO 41001 // deep-sea-sediment, Indian Ocean

67 // N // yaminterritrem C // AB/IA vs 3 bact.; AI/IA vs COX-2; cytotox./IA vs 3 TCLs; AV/IA vs 1 virus

32. Ding, Z.; Zhang, L.; Fu, J.; Che, Q.; Li, D.; Gu, Q.; Zhu, T., Phenylpyropenes E and F: new meroterpenes from the marine-derived fungus Penicillium concentricum ZLQ-69. *J Antibiot (Tokyo)* **2015,** 68, (12), 748-51.

- Ascomycota *Penicillium concentricum* ZLQ–69 // sea water, Bohai Sea

68 // N // phenylpyropene E // cytotox./weak-mod. vs 1 TCL

69 // N // phenylpyropene F // cytotox./IA vs 3 TCLs

33. Li, X. D.; Miao, F. P.; Liang, X. R.; Ji, N. Y., Meroterpenes from an algicolous strain of Penicillium echinulatum. *Magn Reson Chem* **2014,** 52, (5), 247-50.

- Ascomycota *Penicillium echinulatum* pt–4 // marine red alga *Chondrus ocellatus*

70 // N // arisugacin K // AB/weak-mod. vs *E. coli*; LT/IA vs brine shrimp

34. Wang, P. L.; Lib, D. Y.; Xie, L. R.; Wu, X.; Hua, H. M.; Li, Z. L., Novel decaturin alkaloids from the marine-derived fungus Penicillium oxalicum. *Nat Prod Commun* **2013,** 8, (10), 1397-8.

- Ascomycota *Penicillium oxalicum* 2HL–M–6 // marine mud

71 // N // decaturin E // ND

72 // N // decaturin F // ND

35. Zhang, P.; Li, X.-M.; Liu, H.; Li, X.; Wang, B.-G., Two new alkaloids from Penicillium oxalicum EN-201, an endophytic fungus derived from the marine mangrove plant Rhizophora stylosa. *Phytochem Lett* **2015,** 13, 160-164.

- Ascomycota *Penicillium oxalicum* EN–201 // mangrove plant *Rhizophora stylosa*

73 // N // 18–hydroxydecaturin B // LT/potent vs brine shrimp

36. Li, X.; Li, X. M.; Zhang, P.; Wang, B. G., A new phenolic enamide and a new meroterpenoid from marine alga-derived endophytic fungus Penicillium oxalicum EN-290. *J Asian Nat Prod Res* **2015,** 17, (12), 1204-12.

- Ascomycota *Penicillium oxalicum* EN–290 // marine green alga

  74 // N // 15–hydroxydecaturin A // AB/IA vs 2 bact.; LT/IA vs *N. closterium*

37. Dai, W. T.; Sandova, I. T.; Cai, S. X.; Smith, K. A.; Delacruz, R. G. C.; Boyd, K. A.; Mills, J. J.; Jones, D. A.; Cichewicz, R. H., Cholinesterase Inhibitory Arisugacins L-Q from a Penicillium sp. Isolate Obtained through a Citizen Science Initiative and Their Activities in a Phenotype-Based Zebrafish Assay. *J Nat Prod* **2019,** 82, (9), 2627-2637.

75 // N // arisugacin L // enzyme inhib./potent vs AChE; others/weak-mod. vs paralysis in zebrafish

76 // N // arisugacin M // enzyme inhib./potent vs AChE; others/IA vs paralysis in zebrafish

77 // N // arisugacin N // others/weak-mod. vs paralysis in zebrafish; enzyme inhib./IA vs AChE

78 // N // arisugacin O // enzyme inhib./potent vs AChE; others/IA vs paralysis in zebrafish

79 // N // arisugacin P // others/weak-mod. vs paralysis in zebrafish; enzyme inhib./IA vs AChE

80 // N // arisugacin Q // others/weak-mod. vs paralysis in zebrafish; enzyme inhib./IA vs AChE

38. Liao, L.; Lee, J. H.; You, M.; Choi, T. J.; Park, W.; Lee, S. K.; Oh, D. C.; Oh, K. B.; Shin, J., Penicillipyrones A and B, meroterpenoids from a marine-derived Penicillium sp. fungus. *J Nat Prod* **2014,** 77, (2), 406-10.

- Ascomycota *Penicillium* sp. F446 // Korean marine sediment

  81 // N // penicillipyrone A // cytotox./IA vs 2 TCLs, AB/IA vs 5 bact.; AF/IA vs 3 fungi; enzyme inhib./IA vs QR

  82 // N // penicillipyrone B // enzyme inhib./potent vs QR; cytotox./IA vs 2 TCLs, AB/IA vs 5 bact.; AF/IA vs 3 fungi

39. Li, Y.; Ye, D.; Chen, X.; Lu, X.; Shao, Z.; Zhang, H.; Che, Y., Breviane spiroditerpenoids from an extreme-tolerant Penicillium sp. isolated from a deep sea sediment sample. *J Nat Prod* **2009,** 72, (5), 912-6.

40. Li, Y.; Ye, D.; Shao, Z.; Cui, C.; Che, Y., A sterol and spiroditerpenoids from a Penicillium sp. isolated from a deep sea sediment sample. *Mar Drugs* **2012,** 10, (2), 497-508.

- Ascomycota *Penicillium* sp. MCCC 3A00005 // deep sea sediment (5115 m), East Pacific

  83 // N // brevione F // cytotox./weak-mod. vs 1 TCL; AV/ weak-mod. vs 1virus // ref. 39

  84 // N // brevione G // cytotox./weak-mod. vs 1 TCL; AV/ IA vs 1virus // ref. 39

  85 // N // brevione H // cytotox./weak-mod. vs 1 TCL; AV/ IA vs 1virus // ref. 39

  86 // N // brevione I // cytotox./weak-mod. vs 2 TCLs // ref. 40

  87 // N // brevione J // cytotox./IA vs 2 TCLs // ref. 40

  88 // N // brevione K // cytotox./IA vs 2 TCL // ref. 40

41. Ding, B.; Wang, Z.; Huang, X.; Liu, Y.; Chen, W.; She, Z., Bioactive alpha-pyrone meroterpenoids from mangrove endophytic fungus Penicillium sp. *Nat Prod Res* **2016,** 30, (24), 2805-2812.

42. Huang, X.; Sun, X.; Ding, B.; Lin, M.; Liu, L.; Huang, H.; She, Z., A new anti-acetylcholinesterase alpha-pyrone meroterpene, arigsugacin I, from mangrove endophytic fungus Penicillium sp. sk5GW1L of Kandelia candel. *Planta Med* **2013,** 79, (16), 1572-5.

- Ascomycota *Penicillium* sp. SK5GW1L // mangrove *Kandelia candel*

  89 // N // 3–epiarigsugacin E // enzyme inhib./IA vs AChE // ref. 41

  90 // N // arigsugacin I // enzyme inhib./potent vs AChE // ref. 42

43. Sun, X.; Kong, X.; Gao, H.; Zhu, T.; Wu, G.; Gu, Q.; Li, D., Two new meroterpenoids produced by the endophytic fungus Penicillium sp. SXH-65. *Arch Pharm Res* **2014,** 37, (8), 978-82.

- Ascomycota *Penicillium* sp. SXH-65 // plant *Tamarix chinensis* from saline–alkaline soil

  91 // N // arisugacin I_2 // cytotox./IA vs 3 TCLs

  92 // N // arisugacin J // cytotox./IA vs 3 TCLs

44. Yang, B.; Sun, W.; Wang, J.; Lin, S.; Li, X. N.; Zhu, H.; Luo, Z.; Xue, Y.; Hu, Z.; Zhang, Y., A New Breviane Spiroditerpenoid from the Marine-Derived Fungus Penicillium sp. TJ403-1. *Mar Drugs* **2018,** 16, (4), 110-118.

- Ascomycota *Penicillium* sp. TJ403-1 // soft coral *Alcyonium* sp.

  93 // N // brevione O // enzyme inhib./IA vs IDH1; cytotox./IA vs 6 TCLs

3.9 *Talaromyces* sp. (4)

45. Kaur, A.; Raja, H. A.; Swenson, D. C.; Agarwal, R.; Deep, G.; Falkinham, J. O., 3rd; Oberlies, N. H., Talarolutins A-D: Meroterpenoids from an endophytic fungal isolate of Talaromyces minioluteus. *Phytochemistry* **2016,** 126, 4-10.

- Ascomycota *Talaromyces minioluteus* G413 // medicinal plant *milk thistle*

  94 // N // talarolutin A // ND

  95 // N // talarolutin B // enzyme inhib./IA vs QR; cytotox./IA vs 1 TCL; AB/ IA vs 2 bact.; AF/ IA vs 3 fungi

  96 // N // talarolutin C // enzyme inhib./IA vs QR; cytotox./IA vs 1 TCL; AB/ IA vs 2 bact.; AF/ IA vs 3 fungi

  97 // N // talarolutin D // enzyme inhib./IA vs QR; cytotox./IA vs 1 TCL; AB/ IA vs 2 bact.; AF/ IA vs 3 fungi

3.10 *Tolypocladium* sp. (1)

46. Nogawa, T.; Kawatani, M.; Okano, A.; Futamura, Y.; Aono, H.; Shimizu, T.; Kato, N.; Kikuchi, H.; Osada, H., Structure and biological activity of Metarhizin C, a stereoisomer of BR-050 from Tolypocladium album RK17-F0007. *J Antibiot (Tokyo)* **2019,** 72, (12), 996-1000.

- Ascomycota *Tolypocladium album* RK17–F0007 // soil

  98 // N // metarhizin C // cytotox./potent vs 1 TCL; others/weak-mod. vs mitochondrial respiration inhibition

4 Tetraketide–terpenoids (554, 99-652)

4.1 Derived from Orsellinic acid/orcinaldehyde (225, 99-323)

4.1.1 *Acremonium* sp. (1)

47. Wanigesekara, W. M. A. P.; Wijeratne, E. M. K.; Arnold, A. E.; Gunatilaka, A. A. L., 10 '-Deoxy-10 'alpha-hydroxyascochlorin, a New Cell Migration Inhibitor and Other Metabolites from Acremonium sp., a Fungal Endophyte in Ephedra trifurca. *Nat Prod Commun* **2013,** 8, (5), 601-604.

- Ascomycota *Acremonium* sp. LG0808 // medicinal plant, *Ephedra trifurca*

  99 // N // 10'-deoxy-10'α-hydroxyascochlorin // others/potent vs metastatic prostate cancer cells

4.1.2 *Antrodia* sp. (18)

48. Yu, P. W.; Chang, Y. C.; Liou, R. F.; Lee, T. H.; Tzean, S. S., pks63787, a Polyketide Synthase Gene Responsible for the Biosynthesis of Benzenoids in the Medicinal Mushroom Antrodia cinnamomea. *J Nat Prod* **2016,** 79, (6), 1485-91.

49. Yu, P. W.; Cho, T. Y.; Liou, R. F.; Tzean, S. S.; Lee, T. H., Identification of the orsellinic acid synthase PKS63787 for the biosynthesis of antroquinonols in Antrodia cinnamomea. *Appl Microbiol Biotechnol* **2017,** 101, (11), 4701-4711.

- *Basidiomycete Antrodia camphorata mutant* // *

  100 // N // ND // biosynthetic products

  101 // N // ND // biosynthetic products

50. Yang, S. S.; Wang, G. J.; Wang, S. Y.; Lin, Y. Y.; Kuo, Y. H.; Lee, T. H., New constituents with iNOS inhibitory activity from mycelium of Antrodia camphorata. *Planta Med* **2009,** 75, (5), 512-6.

- *Basidiomycete Antrodia camphorata mycelium* // *

  102 // N // antroquinonol B // AI/potent vs NO

  103 // N // 4-acetyl-antroquinonol B // AI/potent vs NO // applied to clinical trials as anticancer, antihypercholesterolemia and antihyperlipidemia agents

51. Yen, I. C.; Yao, C. W.; Kuo, M. T.; Chao, C. L.; Pai, C. Y.; Chang, W. L., Anti-cancer agents derived from solid-state fermented Antrodia camphorata mycelium. *Fitoterapia* **2015,** 102, 115-9.

- Basidiomycete *Antrodia camphorata* mycelium // *

  104 // N // antrocamol LT1 // cytotox./potent vs 5 TCLs

  105 // N // antrocamol LT2 // cytotox./potent vs 5 TCLs

  106 // N // antrocamol LT3 // cytotox./potent vs 5 TCLs

52. Chen, M. C.; Cho, T. Y.; Kuo, Y. H.; Lee, T. H., Meroterpenoids from a Medicinal Fungus Antrodia cinnamomea. *J Nat Prod* **2017,** 80, (9), 2439-2446.

- Basidiomycete *Antrodia cinnamomea* IFS006 // *

107 // N // antroquinonol N // cytotox./IA vs 2 TCLs
108 // N // antroquinonol O // cytotox./IA vs 2 TCLs
109 // N // antroquinonol P // cytotox./weak-mod. vs 1 TCL
110 // N //antroquinonol Q // cytotox./weak-mod. vs 1 TCL
111 // N // antroquinonol R // cytotox./IA vs 2 TCLs
112 // N // antroquinonol S // cytotox./IA vs 2 TCLs
113 // N // antroquinonol T // cytotox./weak-mod. vs 1 TCL
114 // N // antroquinonol U // cytotox./IA vs 2 TCLs
115 // N // antroquinonol V // cytotox./potent vs 1 TCL//
116 // N // antroquinonol W // cytotox./potent vs 1 TCL//
117 // N // antroquinonol X // cytotox./IA vs 2 TCLs //

4.1.3 *Aspergillus* sp. (8)

53. Scherlach, K.; Schuemann, J.; Dahse, H. M.; Hertweck, C., Aspernidine A and B, prenylated isoindolinone alkaloids from the model fungus *Aspergillus* nidulans. *J Antibiot (Tokyo)* **2010,** 63, (7), 375-7.

- Ascomycota *Aspergillus nidulans* AXB4A2 // *

118 // N // aspernidine A // cytotox./weak-mod. vs 2 TCLs
119 // N // aspernidine B // weak-mod. vs 2 TCLs

54. Yaegashi, J.; Praseuth, M. B.; Tyan, S. W.; Sanchez, J. F.; Entwistle, R.; Chiang, Y. M.; Oakley, B. R.; Wang, C. C. C., Molecular Genetic Characterization of the Biosynthesis Cluster of a Prenylated Isoindolinone Alkaloid Aspernidine A in *Aspergillus* nidulans. *Organic Letters* **2013,** 15, (11), 2862-2865.

- Ascomycota *Aspergillus nidulans mutant* // *

120 // N // aspernidine C // ND // biosynthetic products
121 // N // aspernidine D // ND // biosynthetic products
122 // N // aspernidine E // ND // biosynthetic products

55. Li, Q.; Chen, C.; He, Y.; Wei, M.; Cheng, L.; Kang, X.; Wang, J.; Hao, X.; Zhu, H.; Zhang, Y., Prenylated quinolinone alkaloids and prenylated isoindolinone alkaloids from the fungus *Aspergillus* nidulans. *Phytochemistry* **2020,** 169, 112177-81.

- Ascomycota *Aspergillus nidulans* G Winter (Trichocomaceae) // *

123 // N // aspernidine F // IA vs 5 TCLs
124 // N // aspernidine G // cytotox./weak-mod. vs. 3 TCLs
125 // N // aspernidine H // cytotox./mod. to potent vs. 5 TCLs

4.1.4 *Cylindrocarpon* sp. (1)

56. Suzuki, T.; Yoshida, S.; Koseki, T.; Aboshi, T.; Murayama, T.; Supratman, U.; Shiono, Y., New Metabolites Produced by Cylindrocarpon sp. SY-39 from a Driftwood. *Chem Biodivers* **2018,** 15, (2), e1700493-9.

- Ascomycota *Cylindrocarpon* sp // driftwood, Shonai, Yamagata Prefecture, Japan

126 // N // 10'-hydroxyilicicolinic acid D // AB/weak-mod. vs. 1 bact.; cytotox./IA vs. 2 TCLs; AF/IA vs. 1 fungus No phytotoxicity

4.1.5 *Emericella* sp. (7)

57. Zhang, G. J.; Sun, S. W.; Zhu, T. J.; Lin, Z. J.; Gu, J. Y.; Li, D. H.; Gu, Q. Q., Antiviral isoindolone derivatives from an endophytic fungus Emericella sp associated with Aegiceras corniculatum. *Phytochemistry* **2011,** 72, (11-12), 1436-1442.

- Ascomycota *Emericella* sp. HK-ZJ // mangrove plant *Aegiceras corniculatum*

127 // N // emeriphenolicin A // AV/IA vs. H1N1
128 // N // emeriphenolicin B // AV/IA vs. H1N1
129 // N // emeriphenolicin C // AV/IA vs. H1N1
130// N // emeriphenolicin D // AV/IA vs. H1N1

58. Saito, T.; Itabashi, T.; Wakana, D.; Takeda, H.; Yaguchi, T.; Kawai, K.; Hosoe, T., Isolation and structure elucidation of new phthalide and phthalane derivatives, isolated as antimicrobial agents from Emericella sp. IFM57991. *J Antibiot (Tokyo)* **2016,** 69, (2), 89-96.

- Ascomycota *Emericella* sp. IFM57991 // *

131 // N // farnesylemefuranone A // ND
132 // N // farnesylemefuranone B // ND
133 // N // farnesylemefuranone C // ND

4.1.6 *Hericium* sp. (46)

59. Chen, L.; Li, Z. H.; Yao, J. N.; Peng, Y. L.; Huang, R.; Feng, T.; Liu, J. K., Isoindolinone-containing meroterpenoids with alpha-glucosidase inhibitory activity from mushroom Hericium caput-medusae. *Fitoterapia* **2017,** 122, 107-114.

- Basidiomycete *Hericium caput-medusae* // *//

134 // N // caputmedusin A // enzyme inhib./weak-mod. vs *α*-glucosidase
135 // N // caputmedusin B // enzyme inhib./weak-mod. vs *α*-glucosidase
136 // N // caputmedusin C // enzyme inhib./weak-mod. vs *α*-glucosidase
137 // N // caputmedusin D // enzyme inhib./IA vs *α*-glucosidase
138 // N // caputmedusin E // enzyme inhib./IA vs *α*-glucosidase
139 // N // caputmedusin F // enzyme inhib./IA vs *α*-glucosidase
140 // N // caputmedusin G // enzyme inhib./IA vs *α*-glucosidase
141 // N // caputmedusin H // enzyme inhib./IA vs *α*-glucosidase
142 // N // caputmedusin I // enzyme inhib./IA vs *α*-glucosidase
143 // N // caputmedusin J // enzyme inhib./IA vs. *α*-glucosidase
144 // N // caputmedusin K // enzyme inhib./IA vs. *α*-glucosidase

60. Wang, X. L.; Xu, K. P.; Long, H. P.; Zou, H.; Cao, X. Z.; Zhang, K.; Hu, J. Z.; He, S. J.; Zhu, G. Z.; He, X. A.; Xu, P. S.; Tan, G. S., New isoindolinones from the fruiting bodies of Hericium erinaceum. *Fitoterapia* **2016,** 111, 58-65.

- Basidiomycete *Hericium erinaceum* // *

145 // N // erinaceolactam A // cytotox./mod.-potent vs 2 TCLs
146 // N // erinaceolactam B // cytotox./mod.-potent vs 2 TCLs
147 // N // erinaceolactam C // cytotox./mod.-potent vs 2 TCLs //*
148 // N // erinaceolactam D // cytotox./mod.-potent vs 2 TCLs // racemate
149 // N // erinaceolactam E // cytotox./mod.-potent vs 2 TCLs // racemate

61. Ma, B. J.; Yu, H. Y.; Shen, J. W.; Ruan, Y.; Zhao, X.; Zhou, H.; Wu, T. T., Cytotoxic aromatic compounds from Hericium erinaceum. *J Antibiot (Tokyo)* **2010,** 63, (12), 713-5.

- Basidiomycete *Hericium erinaceum* // *

150 // N // hericenone D // cytotox./weak-mod. vs 1 TCL; AB/weak vs 5 bact.
151 // N // hericene I // cytotox./weak-mod. vs 1 TCL; AB/weak vs 5 bact.

62. Zhang, C. C.; Yin, X.; Cao, C. Y.; Wei, J.; Zhang, Q.; Gao, J. M., Chemical constituents from Hericium erinaceus and their ability to stimulate NGF-mediated neurite outgrowth on PC12 cells. *Bioorg Med Chem Lett* **2015,** 25, (22), 5078-82.

- Basidiomycete *Hericium erinaceum* // *

152 // N // hericenone K // ND // racemates

63. Ma, B.-J.; Ma, J.-C.; Ruan, Y., Hericenone L, a new aromatic compound from the fruiting bodies of Hericium erinaceums. *Chin J Nat Med* **2012,** 10, (5), 363-365.

- Basidiomycete *Hericium erinaceum* // *

153 // N // hericenone L // cytotox./weak-mod. vs 1 TCL

64. Miyazawa, M.; Takahashi, T.; Horibe, I.; Ishikawa, R., Two new aromatic compounds and a new d-arabinitol ester from the mushroom Hericium erinaceum. *Tetrahedron* **2012,** 68, (7), 2007-2010.

65. Yaoita, Y.; Yonezawa, S.; Kikuchi, M.; Machida, K., A new geranylated aromatic compound from the mushroom Hericium erinaceum. *Nat Prod Commun* **2012,** 7, (4), 527-8.

66. Kobayashi, S.; Inoue, T.; Ando, A.; Tamanoi, H.; Ryu, I.; Masuyama, A., Total synthesis and structural revision of hericerin. *J Org Chem* **2012,** 77, (13), 5819-22.

- Basidiomycete *Hericium erinaceum* // *

154 // N // isohericerin // enzyme/potent vs. *α*-glucosidase// revised hericerin, ref. 66

155 // N // isohericerin analogues // enzyme/potent vs. *α*-glucosidase // also named (2′*E*)-3′,7′-dimethyl-2′,6′-octadienyl]-4-hydroxy-6-methoxy-1-isoindolinone, ref. 65

67. Kim, K. H.; Noh, H. J.; Choi, S. U.; Lee, K. R., Isohericenone, a new cytotoxic isoindolinone alkaloid from Hericium erinaceum. *J Antibiot (Tokyo)* 2012, 65, (11), 575-7.

68. Kobayashi, S.; Tamanoi, H.; Hasegawa, Y.; Segawa, Y.; Masuyama, A., Divergent synthesis of bioactive resorcinols isolated from the fruiting bodies of Hericium erinaceum: total syntheses of hericenones A, B, and I, hericenols B-D, and erinacerins A and B. *J Org Chem* **2014,** 79, (11), 5227-38.

- Basidiomycete *Hericium erinaceum* // *

156 // N // isohericenone // cytotox./potent vs 2 TCLs // revised hericenone B, ref. 68

69. Li, W.; Zhou, W.; Kim, E. J.; Shim, S. H.; Kang, H. K.; Kim, Y. H., Isolation and identification of aromatic compounds in Lion's Mane Mushroom and their anticancer activities. *Food Chem* **2015,** 170, 336-42.

- Basidiomycete *Hericium erinaceum* // *

157 // N // hericerin A // cytotox./potent vs 1 TCL via tumor cells apoptosis

158 // N // isohericenone J // cytotox./potent vs 2 TCLs

70. Wang, K.; Bao, L.; Qi, Q.; Zhao, F.; Ma, K.; Pei, Y.; Liu, H., Erinacerins C-L, isoindolin-1-ones with alpha-glucosidase inhibitory activity from cultures of the medicinal mushroom Hericium erinaceus. *J Nat Prod* **2015,** 78, (1), 146-54.

- Basidiomycete *Hericium erinaceum* // *

159 // N // erinacerin C // enzyme inhib./IA vs *α*-glucosidase; cytotox./IA vs 2 TCLs

160 // N // erinacerin D // enzyme inhib./potent vs *α*-glucosidase; cytotox./IA vs 2 TCLs

161 // N // erinacerin E // enzyme inhib./potent vs *α*-glucosidase; cytotox./IA vs 2 TCLs

162 // N // erinacerin F// enzyme inhib./potent vs *α*-glucosidase; cytotox./IA vs 2 TCLs

163 // N // erinacerin G // enzyme inhib./weak-mod. vs *α*-glucosidase; cytotox./weak vs 2 TCLs

164 // N // erinacerin H // enzyme inhib./potent vs *α*-glucosidase; cytotox./IA vs 2 TCLs

165 // N // erinacerin I// enzyme inhib./weak-mod. vs *α*-glucosidase; cytotox./IA vs 2 TCLs

166 // N // erinacerin J // enzyme inhib./potent vs *α*-glucosidase; cytotox./IA vs 2 TCLs

167 // N // erinacerin K // enzyme inhib./potent vs *α*-glucosidase; cytotox./IA vs 2 TCLs

168 // N // erinacerin L // enzyme/potent vs *α*-glucosidase; cytotox./IA vs 2 TCLs

71. Ashour, A.; Amen, Y.; Allam, A. E.; Kudo, T.; Nagata, M.; Ohnuki, K.; Shimizu, K., New isoindolinones from the fruiting bodies of the fungus Hericium erinaceus. *Phytochem Lett* **2019,** 32, 10-14.

- Basidiomycete *Hericium erinaceum* // * //

169 // N // erinacerin M // cytotox./IA vs 6 TCLs

170 // N // erinacerin N // cytotox./IA vs 6 TCLs

72. Wang, K.; Bao, L.; Ma, K.; Liu, N.; Huang, Y.; Ren, J.; Wang, W.; Liu, H., Eight new alkaloids with PTP1B and α-glucosidase inhibitory activities from the medicinal mushroom Hericium erinaceus. *Tetrahedron* **2015,** 71, (51), 9557-9563.

- Basidiomycete *Hericium erinaceum* // *

171 // N // erinacerin Q // enzyme/weak-mod. vs PTP1B, potent vs *α*-glucosidase; cytotox./IA vs 2 TCLs

172 // N // erinacerin R // enzyme/weak-mod. vs PTP1B, potent vs *α*-glucosidase; cytotox./weak-mod. vs 2 TCLs

173 // N // erinacerin S // enzyme/weak-mod. vs PTP1B, potent vs *α*-glucosidase; cytotox./IA vs 2 TCLs

174 // N // erinacerin T // enzyme/weak-mod. vs PTP1B, potent vs *α*-glucosidase; cytotox./weak-mod. vs 2 TCLs

73. Lin, C.-F.; Shiao, Y.-J.; Chen, C.-C.; Tzeng, T.-T.; Chen, C.-C.; Lee, L.-Y.; Chen, W.-P.; Shen, C.-C., A xanthurenate and an isoindolinone from the mycelia of Hericium erinaceum. *Phytochem Lett* **2018,** 26, 218-221.

- Basidiomycete *Hericium erinaceum* // *

175 // N // erinacerin U // AI/IA vs NO

74. Li, W.; Sun, Y. N.; Zhou, W.; Shim, S. H.; Kim, Y. H., Erinacene D, a new aromatic compound from Hericium erinaceum. *J Antibiot (Tokyo)* **2014,** 67, (10), 727-9.

- Basidiomycete *Hericium erinaceum* // *

176 // N // erinacene D // AI/potent vs NF-*κ*B

75. Wittstein, K.; Rascher, M.; Rupcic, Z.; Lowen, E.; Winter, B.; Koster, R. W.; Stadler, M., Corallocins A-C, Nerve Growth and Brain-Derived Neurotrophic Factor Inducing Metabolites from the Mushroom Hericium coralloides. *J Nat Prod* **2016,** 79, (9), 2264-9.

- Basidiomycete *Hericium erinaceum* // *

177 // N // corallocin A // others/induce different patterns vs. NGF and BDNF; cytotox./IA vs 3 TCLs; AF/IA vs A 1 fungus

178 // N // corallocin B // others/induce different patterns vs. NGF and BDNF; cytotox./potent vs 3 TCLs; AF/weak-mod. vs A 1 fungus

179 // N // corallocin C // others/induce different patterns vs. NGF and BDNF; cytotox./IA vs 3 TCLs; AF/IA vs A 1 fungus

4.1.7 *Myrothecium* sp. (4)

76. Xu, Y.; Wang, C.; Liu, H.; Zhu, G.; Fu, P.; Wang, L.; Zhu, W., Meroterpenoids and Isocoumarinoids from a Myrothecium Fungus Associated with Apocynum Venetum. *Mar Drugs* **2018,** 16, (10), 363-375.

- Ascomycota *Myrothecium* sp. OUCMDZ–2784 // salt-resistant medicinal plant *Apocynum venetum*

180 // N // myrothecisin A // enzyme inhib./weak-mod. vs *α*–glucosidase

181 // N // myrothecisin B // enzyme inhib./weak-mod. vs *α*–glucosidase

182 // N // myrothecisin C // enzyme inhib./weak-mod. vs *α*–glucosidase

183 // N // myrothecisin D // enzyme inhib./weak-mod. vs *α*–glucosidase

4.1.8 *Neonectria* sp. (15)

77. Nirma, C.; Eparvier, V.; Stien, D., Antibacterial ilicicolinic acids C and D and ilicicolinal from Neonectria discophora SNB-CN63 isolated from a termite nest. *J Nat Prod* **2015,** 78, (1), 159-62.

78. Sorres, J.; Sabri, A.; Brel, O.; Stien, D.; Eparvier, V., Ilicicolinic acids and ilicicolinal derivatives from the fungus Neonectria discophora SNB-CN63 isolated from the nest of the termite Nasutitermes corniger found in French Guiana show antimicrobial activity. *Phytochemistry* **2018,** 151, 69-77.

- Ascomycota *Neonectria discophora* SNB-CN63 // the nest of the termite *Nasutitermes corniger* //

184 // N // ilicicolinic acid C // AB/ potent vs.2 bact.; weak-mod. vs 1 bact.; AF/ weak-mod. vs 3 fungi; cytotox./weak-mod. vs 3 TCLs // ref. 77

185 // N // ilicicolinic acid D // AB/ potent vs.1 bact.; weak-mod. vs 1 bact.; AF/ weak-mod. vs 3 fungi; cytotox./weak-mod. vs 3 TCLs // ref. 77

186 // N // ilicicolinal // AB/weak-mod. vs.1 bact.; AF/weak-mod. vs 3 fungi; cytotox./weak-mod. vs 3 TCLs // ref. 77

187 // N // ilicicolinal B // AF/IA vs. 1 fungus, AB/weak-mod. vs MRSA // ref. 78

188 // N // ilicicolinal C // AF/IA vs. 1 fungus, AB/potent. vs 2 bact. // ref. 78

189 // N // ilicicolinal D // AF/IA vs. 1 fungus, AB/weak-mod. vs MRSA // ref. 78

190 // N // ilicicolinal E // AF/IA vs. 1 fungus; AB/IA vs. 2 bact. // ref. 78

191 // N // ilicicolinal F // AF/IA vs. 1 fungus; AB/IA vs. 1 bact. // ref. 78

192 // N // ilicicolinal G // AF/IA vs. 1 fungus; AB/IA vs. 1 bact. // ref. 78

193 // N // ilicicolinal H // AF/weak-to-weak-mod. vs 1 fungus; AB/weak-mod. vs MRSA // ref. 78

194 // N // ilicicolinal I // AF/IA vs. 1 fungus; AB/weak-mod. vs 2 bact. // ref. 78

195 // N // ilicicolinic acid E // AF/potent vs. 1 fungus; AB/weak-to-mod. vs. 2 bact. // ref. 78

196 // N // ilicicolinic acid F // AF/potent vs. 1 fungus; AB/weak-mod. vs. 2 bact. // ref. 78

197// N // ilicicolinic acid G // AF/IA vs. 1 fungus; AB/IA vs. 2 bact. // ref. 78

198 // N // ilicicolinol // AF/weak-mod. vs 1 fungus; AB/IA vs.1 bact. // ref. 78

4.1.9 *Rhodotus* sp. (1)

79. Sandargo, B.; Michehl, M.; Praditya, D.; Steinmann, E.; Stadler, M.; Surup, F., Antiviral Meroterpenoid Rhodatin and Sesquiterpenoids Rhodocoranes A-E from the Wrinkled Peach Mushroom, Rhodotus palmatus. *Org Lett* **2019,** 21, (9), 3286-3289.

- Basidiomycete *Rhodotus palmatus* // *

199 // N // rhodatin // AV/ potent. vs 1 virus

4.1.10 *Pseudocosmospora* sp. (5)

80. Nakamura, T.; Suzuki, T.; Ariefta, N. R.; Koseki, T.; Aboshi, T.; Murayama, T.; Widiyantoro, A.; Kurniatuhadi, R.; Malik, A.; Annas, S.; Harneti, D.; Maharani, R.; Supratman, U.; Abe, J.; Kurisawa, N.; Kimura, K.; Shiono, Y., Meroterpenoids produced by *Pseudocosmospora* sp. Bm-1-1 isolated from Acanthus ebracteatus Vahl. *Phytochem Lett* **2019,** 31, 85-91.

- Ascomycota *Pseudocosmospora* sp. Bm-1-1 // Acanthus ebracteatus Vahl //

200 // N // 6-carboxy-cosmosporin A // cytotox./IA vs. 1 TCL; others/ IA vs Ca^{2+} signal transduction // *

201 // N // rel-(6a*S*,10a*R*)-Δ^9-tetrahydrocannabiorcolic acid B // cytotox./mod. vs. 1 TCL; others/ IA vs Ca^{2+} signal transduction // Rel. config.

202 // N // 8′-hydroxy-cannabiorcichromenic acid // cytotox./IA vs. 1 TCL; others/IA vs Ca^{2+} signal transduction

203 // N // cosmosporin A // cytotox./IA vs. 1 TCL; others/IA vs Ca^{2+} signal transduction

204 // NP // rel-(6a*S*,10a*R*)- decarboxy-Δ^9-tetrahydrocannabiorcolic acid B // cytotox./potent vs. 1 TCL; others/potent vs Ca^{2+} signal transduction // Rel. config.

4.1.11 *Stachybotrys* sp. (110)

81. Li, Y.; Wu, C.; Liu, D.; Proksch, P.; Guo, P.; Lin, W., Chartarlactams A-P, phenylspirodrimanes from the sponge-associated fungus Stachybotrys chartarum with antihyperlipidemic activities. *J Nat Prod* **2014,** 77, (1), 138-47.

82. Li, Y.; Liu, D.; Cen, S.; Proksch, P.; Lin, W., Isoindolinone-type alkaloids from the sponge-derived fungus Stachybotrys chartarum. *Tetrahedron* **2014,** 70, (39), 7010-7015.

83. Liu, D.; Li, Y.; Li, X.; Cheng, Z.; Huang, J.; Proksch, P.; Lin, W., Chartarolides A-C, novel meroterpenoids with antitumor activities. *Tetrahedron Lett* **2017,** 58, (19), 1826-1829.

- Ascomycota *Stachybotrys chartarum* WGC-25C-6 // Porifera, *Niphates recondite*, Weizhou Island, China //

205 // N // chartarlactam A // others/IA vs. antihyperlipidemic activity // ref. 81

206 // N // chartarlactam B // others/IA vs. antihyperlipidemic activity // ref. 81

207 // N // chartarlactam C // others/IA vs. antihyperlipidemic activity // ref. 81

208 // N // chartarlactam D // others/potent vs antihyperlipidemic activity // ref. 81

209 // N // chartarlactam E // others/potent vs antihyperlipidemic activity // ref. 81

210 // N // chartarlactam F // others/potent vs. antihyperlipidemic activity // ref. 81

211 // N // chartarlactam G // ND // ref. 81

212 // N // chartarlactam H // others/IA vs antihyperlipidemic activity // ref. 81

213 // N // chartarlactam I // others/IA vs antihyperlipidemic activity // ref. 81

214 // N // chartarlactam J // others/IA vs antihyperlipidemic activity // ref. 81

215 // N // chartarlactam K // others/potent vs antihyperlipidemic activity // ref. 81

216 // N // chartarlactam M // others/IA vs antihyperlipidemic activity // ref. 81

217 // N //chartarlactam N // others/potent vs antihyperlipidemic activity // ref. 81

218 // N // chartarlactam O // others/potent vs antihyperlipidemic activity // ref. 81

219 // N //chartarlactam P // others/IA vs antihyperlipidemic activity // ref. 81

220 // N //chartarutine A // AV/weak-mod. vs HIV-1 // ref. 82

221 // N //chartarutine B // AV/potent vs HIV-1 // ref. 82

222 // N //chartarutine C // AV/weak-mod. vs HIV-1 // ref. 82

223 // N //chartarutine D // AV/weak-mod. vs HIV-1 // ref. 82

224 // N // chartarutine E // AV/weak-mod. vs HIV-1 // ref. 82

225 // N // chartarutine F // AV/weak-mod. vs HIV-1 // ref. 82

226 // N // chartarutine G // AV/potent vs HIV-1 // ref. 82

227 // N // chartarutine H // AV/potent vs HIV-1 // ref. 82

228 // N // chartarlactam L // others/potent vs. antihyperlipidemic activity // ref. 81

229 // N // chartarolide A // cytotox./potent vs. 6 TCLs // ref. 83

230 // N // chartarolide B // cytotox./potent vs. 6 TCLs // ref. 83

231 // N // chartarolide C // cytotox./mod.-potent vs. 6 TCLs // ref. 83

84. Ma, X.; Li, L.; Zhu, T.; Ba, M.; Li, G.; Gu, Q.; Guo, Y.; Li, D., Phenylspirodrimanes with anti-HIV activity from the sponge-derived fungus Stachybotrys chartarum MXH-X73. J Nat Prod 2013, 76, (12), 2298-306.

85. Ma, X.; Wang, H.; Li, F.; Zhu, T.; Gu, Q.; Li, D., Stachybotrin G, a sulfate meroterpenoid from a sponge derived fungus Stachybotrys chartarum MXH-X73. Tetrahedron Lett 2015, 56, (50), 7053-7055.

- Ascomycota *Stachybotrys chartarum* MXH-X73 // sponge, *Xestospongia testudinaris*, South China Sea //

232 // N // stachybotrin D // AV/potent vs HIV-1 // ref. 84

233 // N // stachybotrin E // AV/ IA vs HIV-1 // ref. 84

234 // N // stachybotrin F // AV/IA vs HIV-1 // ref. 84

235 // N // stachyboside A // AV/IA vs HIV-1 // ref. 84

236 // N // stachyboside B // AV/IA vs HIV-1 // ref. 84

237 // N // stachybocin E // AV/IA vs HIV-1 // ref. 84

238 // N // stachybocin F // AV/IA vs HIV-1 // ref. 84

239 // N // stachybotrin G // cytotox./IA vs 4 TCLs; AV/IA vs 2 virus; AB/IA vs 4 bact. // ref. 85, copublication ref 85, rename as stachybotrin G-0

86. Zhou, D.; Li, L. J.; Qi, H.; Pan, J. J.; Zhang, H.; Wang, J. D.; Xiang, W. S., A new stachybotrin congener from a soil fungus Stachybotrys parvispora strain HS-FG-843. *J Antibiot (Tokyo)* **2015,** 68, (5), 339-41.

- Ascomycota *Stachybotrys parvispora* HS-FG-843 // soil sample, the peak of a bamboo forest

240 // N // stachybotrin G // cytotox./weak-mod. vs. 1 TCL // copublication ref. 85

87. Ma, X. H.; Zheng, W. M.; Sun, K. H.; Gu, X. F.; Zeng, X. M.; Zhang, H. T.; Zhong, T. H.; Shao, Z. Z.; Zhang, Y. H., Two new phenylspirodrimanes from the deep-sea derived fungus Stachybotrys sp. MCCC 3A00409. *Nat Prod Res* **2019,** 33, (3), 386-392.

- Ascomycota *Stachybotrys* sp. MCCC 3A00409/ deep-sea sediment of Atlantic Ocean at depth of 2807 m

241 // N // stachybotrin H // IA vs. 3 TCLs

242 // N // stachybotrysin H // cytotox./weak-mod. vs. 3 TCLs

88. Jacolot, M.; Jean, M.; Tumma, N.; Bondon, A.; Chandrasekhar, S.; van de Weghe, P., Synthesis of stachybotrin C and all of its stereoisomers: structure revision. *J Org Chem* **2013,** 78, (14), 7169-75.

89. Kuroda, Y.; Hasegawa, K.; Noguchi, K.; Chiba, K.; Hasumi, K.; Kitano, Y., Confirmation of the absolute configuration of Stachybotrin C using single-crystal X-ray diffraction analysis of its 4-bromobenzyl ether derivative. *J Antibiot (Tokyo)* **2018,** 71, (6), 584-591.

243 // R // stachybotrin C // ND // revised structure, ref. 88-89

90. Bao, Y. R.; Chen, G. D.; Wu, Y. H.; Li, X. X.; Hu, D.; Liu, X. Z.; Li, Y.; Yao, X. S.; Gao, H., Stachybisbins A and B, the first cases of seco-bisabosquals from Stachybotrys bisbyi. *Fitoterapia* **2015,** 105, 151-155.

- Ascomycota *Stachybotrys bisbyi* (PYH05-7)// mud, Poyang Lake, Jiangxi Province

244 // N // stachybisbin A // cytotox./IA vs 5 TCLs

245 // N // stachybisbin B // cytotox./IA vs 5 TCLs

91. Kim, J. W.; Ko, S. K.; Kim, H. M.; Kim, G. H.; Son, S.; Kim, G. S.; Hwang, G. J.; Jeon, E. S.; Shin, K. S.; Ryoo, I. J.; Hong, Y. S.; Oh, H.; Lee, K. H.; Soung, N. K.; Hashizume, D.; Nogawa, T.; Takahashi, S.; Kim, B. Y.; Osada, H.; Jang, J. H.; Ahn, J. S., Stachybotrysin, an Osteoclast Differentiation Inhibitor from the Marine-Derived Fungus Stachybotrys sp. KCB13F013. *J Nat Prod* **2016,** 79, (10), 2703-2708.

- Ascomycota *Stachybotrys* sp.// sediment, Wi-Is., S. Korea

246 // N // stachybotrysin // others/potent vs inhib. osteoclast differentiation

247 // N // stachybotrylactone B // others/ IA vs inhib. osteoclast differentiation

92. Zhao, J.; Feng, J.; Tan, Z.; Liu, J.; Zhao, J.; Chen, R.; Xie, K.; Zhang, D.; Li, Y.; Yu, L.; Chen, X.; Dai, J., Stachybotrysins A-G, Phenylspirodrimane Derivatives from the Fungus Stachybotrys chartarum. *J Nat Prod* **2017,** 80, (6), 1819-1826.

93. Feng, J. M.; Li, M.; Zhao, J. L.; Jia, X. N.; Liu, J. M.; Zhang, M.; Chen, R. D.; Xie, K. B.; Chen, D. W.; Yu, H. B.; Dai, J. G., Three new phenylspirodrimane derivatives with inhibitory effect towards potassium channel Kv1.3 from the fungus Stachybotrys chartarum. *J Asian Nat Prod Res* **2019,** 21, (9), 887-894.

94. Zhao, J.; Liu, J.; Shen, Y.; Tan, Z.; Zhang, M.; Chen, R.; Zhao, J.; Zhang, D.; Yu, L.; Dai, J., Stachybotrysams A–E, prenylated isoindolinone derivatives with anti-HIV activity from the fungus Stachybotrys chartarum. *Phytochem Lett* **2017,** 20, 289-294.

104. Zhao, J.; Feng, J.; Tan, Z.; Liu, J.; Zhang, M.; Chen, R.; Xie, K.; Chen, D.; Li, Y.; Chen, X.; Dai, J., Bistachybotrysins A-C, three phenylspirodrimane dimers with cytotoxicity from Stachybotrys chartarum. *Bioorg Med Chem Lett* **2018,** 28, (3), 355-359.

105. Zhang, M.; Feng, J.; Jia, X.; Zhao, J.; Liu, J.; Chen, R.; Xie, K.; Chen, D.; Li, Y.; Zhang, D.; Dai, J., Bistachybotrysins D and E, one stereoisomeric pair of cytotoxic phenylspirodrimane dimers from Stachybotrys chartarum. *Chin Chem Lett* **2019,** 30, (2), 435-438.

106. Feng, J.; Zhang, M.; Jia, X.; Zhao, J.; Chen, R.; Xie, K.; Chen, D.; Li, Y.; Liu, J.; Dai, J., Bistachybotrysins F-J, five new phenylspirodrimane dimers with a central cyclopentanone linkage from Stachybotrys chartarum. *Fitoterapia* **2019,** 136, 104158-62.

107. Jia, X. N.; Zhao, J. L.; Feng, J. M.; Chen, R. D.; Xie, K. B.; Chen, D. W.; Li, Y.; Liu, J. M.; Dai, J. G., Bistachybotrysin K, one new phenylspirodrimane dimer from Stachybotrys chartarum with potent cytotoxic activity. *J Asian Nat Prod Res* **2020,** 22, (5), 496-502.

108. Liu, J.; Feng, J.; Jia, X.; Zhao, J.; Chen, R.; Xie, K.; Chen, D.; Li, Y.; Dai, J., Bistachybotrysins W-Y, three new phenylspirodrimane dimers with a 6/7 oxygen heterocycle from Stachybotrys chartarum. *Phytochem Lett* **2020,** 35, 73-77.

109. Liu, J.; Jia, X.; Zhao, J.; Feng, J.; Chen, M.; Chen, R.; Xie, K.; Chen, D.; Li, Y.; Zhang, D.; Peng, Y.; Si, S.; Dai, J., Bistachybotrysins L–V, bioactive phenylspirodrimane dimers from the fungus Stachybotrys chartarum. *Org Chem Front* **2020,** 7, (3), 531-542.

- Ascomycota *Stachybotrys chartarum* CGMCC 3.5365 // *

248 // N // stachybotrysin A // AV/ weak-mod. vs HIV-1 and IAV; cytotox./weak-mod. vs 2 TCLs // ref. 92

249 // N // stachybotrysin B // AV/ weak-mod. vs HIV-1; IA vs IAV; cytotox./IA vs 5 TCLs // ref. 92

250 // N // stachybotrysin C // AV/IA vs 2 virus; cytotox./IA vs TCLs // ref. 92

251 // N // stachybotrysin D // AV/IA vs 2 virus; cytotox./IA vs TCLs // ref. 92

252 // N // stachybotrysin E // AV/weak-mod. vs 2 virus; cytotox./IA vs 4 TCLs // ref. 92

253 // N // stachybotrysin F // AV/weak-mod. vs 2 virus; cytotox./weak-mod. vs 5 TCLs // ref. 92

254 // N // stachybotrysin G // AV/weak-mod. vs 2 virus; cytotox./weak-mod. vs 5 TCLs // ref. 92

255 // N // stachybotrysin H // others/potent vs. inhibt. potassium channel Kv1.3 // ref. 93

256 // N // stachybotrysin I // others/potent vs. inhibt. potassium channel Kv1.3// ref. 93

257 // N // stachybotrin E // others/IA vs. inhibt. potassium channel Kv1.3 // ref. 93

258 // N // stachybotrysam A // AV/potent vs HIV-1 // ref. 94

259 // N // stachybotrysam B // AV/potent vs HIV-1 // ref. 94

260 // N // stachybotrysam C // AV/potent vs HIV-1 // ref. 94

261 // N // stachybotrysam D // AV/IA vs HIV-1 // ref. 94

262 // N // Stachybotrysam E // AV/IA vs HIV-1 // ref. 95

290 // N // bistachybotrysin A // cytotox./mod. to potent vs 5 TCLs // ref. 104

291 // N // bistachybotrysin B // cytotox./mod. to potent vs 5 TCLs // ref. 104

292 // N // bistachybotrysin C // cytotox./weak-mod. vs 5 TCLs // ref. 104

293 // N // bistachybotrysin D // cytotox./mod. to potent vs 5 TCLs // ref. 105

294 // N // bistachybotrysin E // cytotox./mod. to potent vs 4 TCLs // ref. 105

295 // N // bistachybotrysin F // cytotox./weak-mod. vs 4 TCLs // ref. 106

296 // N // bistachybotrysin G // cytotox./weak-mod. vs 2 TCLs // ref. 106

297 // N // bistachybotrysin H// cytotox./weak-mod. vs 5 TCLs // ref. 106

298 // N // bistachybotrysin I // cytotox. /mod.to potent vs 5 TCLs // ref. 106

299 // N // bistachybotrysin J // cytotox./weak-mod. vs 5 TCLs // ref. 106

300 // N // bistachybotrysin K // cytotox./potent vs 5 TCLs // ref. 107

301 // N // bistachybotrysin L // cytotox./weak-mod. vs 4 TCLs; others/IA vs neuroprotective effects; AI/weak-mod. vs NO // ref. 109

302 // N // bistachybotrysin M // cytotox./potent vs 5 TCLs ; others/potent vs neuroprotective effects; AI/weak-mod. vs NO // ref. 109

303 // N // bistachybotrysin N // cytotox./weak-mod. vs 5 TCLs; others/potent vs neuroprotective effects; AI/IA vs NO // ref. 109

304 // N // bistachybotrysin O // cytotox./weak-mod. vs 5 TCLs ; others/weak-mod. vs neuroprotective effects; AI/IA vs NO // ref. 109

305 // N // bistachybotrysin P // AF/weak-mod. vs NO // ref. 109

306 // N // bistachybotrysin Q // cytotox./weak-mod. vs 5 TCLs; AI/weak-mod. vs NO // ref. 109

307 // N // bistachybotrysin R // cytotox./mod. to potent vs 4 TCLs; AI/IA vs NO // ref. 109

308 // N // bistachybotrysin S // cytotox./potent vs 5 TCLs; others/weak-mod. vs neuroprotective effects; AI/potent vs NO // ref. 109

309 // N // bistachybotrysin T // others/potent vs neuroprotective effects; cytotox./IA vs 5 TCLs; AI/IA vs NO // ref. 109

310 // N // bistachybotrysin U // cytotox./potent vs 5 TCL; others/weak-mod. vs neuroprotective effects; AI/IA vs NO // ref. 109

311 // N // bistachybotrysin V // cytotox./weak-mod. vs 5 TCLs, AI/IA vs NO // ref. 109

312 // N // bistachybotrysin W // cytotox./mod. to potent vs 5 TCLs // ref. 108

313 // N // bistachybotrysin X // cytotox./weak-mod. vs 5 TCLs // ref. 108

314 // N // bistachybotrysinY // cytotox./mod.to potent vs 5 TCLs // ref. 108

95. Jagels, A.; Hovelmann, Y.; Zielinski, A.; Esselen, M.; Kohler, J.; Hubner, F.; Humpf, H. U., Stachybotrychromenes A-C: novel cytotoxic meroterpenoids from Stachybotrys sp. *Mycotoxin Res* **2018,** 34, (3), 179-185.

- Ascomycota *stachybotrys chartarum* DSMZ 12880 (chemotype S)

263 // N // stachybotrychromene A // cytotox./weak-mod. vs 1 TCL

264 // N // stachybotrychromene B // cytotox./weak-mod. vs 1 TCL

265 // N // stachybotrychromene C // cytotox./IA vs 1 TCL

96. Wu, B.; Oesker, V.; Wiese, J.; Malien, S.; Schmaljohann, R.; Imhoff, J. F., Spirocyclic drimanes from the marine fungus Stachybotrys sp. strain MF347. *Mar Drugs* **2014,** 12, (4), 1924-38.

- Ascomycota *Stachybotrys* sp. MF347// driftwood, Helgoland, North Sea, Germany //

266 // stachyin A // N // AF/IA vs. 3 fungi; AB/IA vs. 4 bact.; cytotox./IA vs 2 TCLs; enzyme inhib./IA vs 3 enzymatic assays

267 // stachyin B // N // AB/potent vs 3 bact., IA vs 1 Gram-negative bact.; cytotox./weak-mod. vs 2 TCLs; AF/IA vs 3 fungi; enzyme inhib./IA vs 3 enzymatic assays

97. Zhang, P.; Li, Y.; Jia, C.; Lang, J.; Niaz, S.-I.; Li, J.; Yuan, J.; Yu, J.; Chen, S.; Liu, L., Antiviral and anti-inflammatory meroterpenoids: stachybonoids A–F from the crinoid-derived fungus Stachybotrys chartarum 952. *RSC Adv.* **2017,** 7, (79), 49910-49916.

- Ascomycota *Stachybothys chartarum* 952 // crinoid, *Himerometra magnipinna*, Zhanjiang Mangrove National Nature Reserve, Guangdong Province, China

268 // N // stachybonoid A // AV/potent vs 1 virus

269 // N // stachybonoid B // AV/IA vs 1 virus

270 // N // stachybonoid C // AV/IA vs 1 virus

271 // N // stachybonoid D // AI/IA vs NO

272 // N // stachybonoid E // AI/IA vs NO

273 // N // stachybonoid F // AI/weak-mod. vs NO

98. Zhang, H.; Yang, M.-H.; Zhuo, F.-f.; Gao, N.; Cheng, X.-B.; Wang, X.-B.; Pei, Y.-H.; Kong, L.-Y., Seven new cytotoxic phenylspirodrimane derivatives from the endophytic fungus Stachybotrys chartarum. *RSC Adv.* **2019,** 9, (7), 3520-3531.

- Ascomycota *Stachybotrys chartarum* PT2–12 // plant *Pinellia ternata*

274 // N // stachybochartin A // cytotox/mod. to potent vs 2 TCLs

275 // N // stachybochartin B // cytotox/mod. to potent vs 2 TCLs

276 // N // stachybochartin C // cytotox/mod. to potent vs 2 TCLs

277 // N // stachybochartin D // cytotox/mod. to potent vs 2 TCLs

278 // N // stachybochartin E // cytotox/IA vs 3 TCLs

279 // N // stachybochartin F // cytotox/IA vs 3 TCLs

280 // N // stachybochartin G // cytotox /mod. to potent vs 2 TCLs

99. Chunyu, W.-X.; Ding, Z.-G.; Li, M.-G.; Zhao, J.-Y.; Gu, S.-J.; Gao, Y.; Wang, F.; Ding, J.-H.; Wen, M.-L., Stachartins A - E, Phenylspirodrimanes from the Tin Mine Tailings-Associated FungusStachybotrys chartarum. *Helv Chim Acta* **2016,** 99, (8), 583-587.

100. Ding, Z.-G.; Ding, J.-H.; Zhao, J.-Y.; Li, M.-G.; Hu, D.-B.; Jiang, X.-J.; Gu, S.-J.; Wang, F.; Wen, M.-L., Phenylspirodrimane Derivatives From Cultures of the Fungus Stachybotrys chartarum YIM DT 10079. *Nat Prod Commun* **2019,** 14, (10), 1-4.

101. Ding, Z. G.; Zhao, J. Y.; Ding, J. H.; Chunyu, W. X.; Li, M. G.; Gu, S. J.; Wang, F.; Wen, M. L., A novel phenylspirodrimane dimer from cultures of the fungus Stachybotrys chartarum. *Nat Prod Res* **2018,** 32, (19), 2370-2374.

102. Ding, Z. G.; Ding, J. H.; Zhao, J. Y.; Chunyu, W. X.; Li, M. G.; Gu, S. J.; Wang, F.; Wen, M. L., A new phenylspirodrimane dimer from the fungus Stachybotrys chartarum. *Fitoterapia* **2018,** 125, 94-97.

103. Ding, Z.-G.; Ding, J.-H.; Zhao, J.-Y.; Chunyu, W.-X.; Li, M.-G.; Wang, H.-B.; Gu, S.-J.; Wang, F.; Wen, M.-L., A New Phenylspirodrimane Dimer Derivative from the Tin Mine Tailings-Associated Fungus Stachybotrys chartarum. *Chem Nat Compd+* **2019,** 55, (6), 1050-1052.

- Ascomycota *Stachybotrys chartarum* YIM DT 10079 // (soil sample from the Datun tin mine tailings area, Yunnan)//

281 // N // stachartin A // ND // ref. 99
282 // N // stachartin B // ND // ref. 99
283 // N // stachartin C // ND // ref. 99
284 // N // stachartin D // ND // ref. 99
285 // N // stachartin E // ND // ref. 99
286 // N // stachartin F // cytotox./IA vs 5 TCLs // ref. 100
287 // N // stachartone A // cytotox./IA vs 5 TCLs // ref. 101
288 // N // stachartarin A // cytotox./IA vs 5 TCLs // ref. 102
289 // N // stachartarin B // ND // ref. 103

4.1.12 *Stereum* sp. (9)

110. Wang, B. T.; Qi, Q. Y.; Ma, K.; Pei, Y. F.; Han, J. J.; Xu, W.; Li, E. W.; Liu, H. W., Depside alpha-glucosidase inhibitors from a culture of the mushroom Stereum hirsutum. *Planta Med* **2014,** 80, (11), 918-24.

- Basidiomycete *Stereum hirsutum* // *

315 // N // sterenin E // enzyme inhib./potent vs α-glucosidase
316 // N // sterenin F // enzyme inhib./potent vs α-glucosidase
317 // N // sterenin G // enzyme inhib./potent vs α-glucosidase
318 // N // sterenin H // enzyme inhib./potent vs α-glucosidase
319 // N // sterenin I // enzyme inhib./potent vs α-glucosidase
320 // N // sterenin J // enzyme inhib./potent vs α-glucosidase
321 // N // sterenin K // enzyme inhib./potent vs α-glucosidase
322 // N // sterenin L // enzyme inhib./potent vs α-glucosidase
323 // N // sterenin M // enzyme inhib./potent vs α-glucosidase

4.2 Derived from 3,5–Dimethylorsellinic acid (DMOA) (169, 324-492)

4.2.1 *Aspergillus* sp. (67)

111. Lopez-Gresa, M. P.; Cabedo, N.; Gonzalez-Mas, M. C.; Ciavatta, M. L.; Avila, C.; Primo, J., Terretonins E and F, inhibitors of the mitochondrial respiratory chain from the marine-derived fungus *Aspergillus* insuetus (#). *J Nat Prod* **2009,** 72, (7), 1348-51.

112. Liu, X.-H.; Miao, F.-P.; Qiao, M.-F.; Cichewicz, R. H.; Ji, N.-Y., Terretonin, ophiobolin, and drimaneterpenes with absolute configurations from an algicolous *Aspergillus* ustus. *RSC Adv.* **2013,** 3, (2), 588-595.

- Ascomycota *Aspergillus insuetus* // marine sponge *Petrosia ficiformis*

324 // N // terretonin E // enzyme inhib./potent vs NADH oxidase
325 // N // terretonin F // enzyme inhib./potent vs NADH oxidase

113. Cohen, E.; Koch, L.; Thu, K. M.; Rahamim, Y.; Aluma, Y.; Ilan, M.; Yarden, O.; Carmeli, S., Novel terpenoids of the fungus *Aspergillus* insuetus isolated from the Mediterranean sponge Psammocinia sp. collected along the coast of Israel. *Bioorg Med Chem* **2011,** 19, (22), 6587-93.

- Ascomycota *Aspergillus insuetus* OY–207 // Mediterranean sponge *Psammocinia* sp.

326 // N // insuetolide A // AF/weak-mod. vs 1 fungus; cytotox./IA vs 1 TCL
327 // N // insuetolide B // AF/IA vs 1 fungus; cytotox./IA vs 1 TCL

328 // N // insuetolide C // cytotox./weak-mod. vs 1 TCL; AF/IA. vs 1 fungus

114. Ishikawa, K.; Sato, F.; Itabashi, T.; Wachi, H.; Takeda, H.; Wakana, D.; Yaguchi, T.; Kawai, K.; Hosoe, T., Asnovolins A-G, Spiromeroterpenoids Isolated from the Fungus *Aspergillus* novofumigatus, and Suppression of Fibronectin Expression by Asnovolin E. *J Nat Prod* **2016,** 79, (9), 2167-74.

- Ascomycota *Aspergillus novofumigatus* CBS117520 // *

329 // N // asnovolin A // others/IA vs fibronectin expression regulatory activity
330 // N // asnovolin B // others/IA vs fibronectin expression regulatory activity
331 // N // asnovolin C // others/IA vs fibronectin expression regulatory activity
332 // N // asnovolin D // others/IA vs fibronectin expression regulatory activity
333 // N // asnovolin E // others/potent vs fibronectin expression regulatory activity
334 // N // asnovolin F // others/IA vs fibronectin expression regulatory activity
335 // N // asnovolin G // others/IA vs fibronectin expression regulatory activity

115. Song, Y. X.; Qiao, L. T.; Wang, J. J.; Zeng, H. M.; She, Z. G.; Miao, C. D.; Hong, K.; Gu, Y. C.; Liu, L.; Lin, Y. C., Two New Meroterpenes from the Mangrove Endophytic Fungus *Aspergillus* sp 085241B. *Helv Chim Acta* **2011,** 94, (10), 1875-1880.

- Ascomycota *Aspergillus* sp. 085241B // mangrove

336 // N // acetoxydehydroaustin B // cytotox./IA vs 6 TCLs; enzyme inhib./IA vs *a*-glucosidase and tyrosinase
337 // N // 1,2–dihydro–acetoxydehydro-austin B // IA vs 6 TCLs; enzyme inhib./IA vs *a*-glucosidase and tyrosinase

116. Long, Y.; Cui, H.; Liu, X.; Xiao, Z.; Wen, S.; She, Z.; Huang, X., Acetylcholinesterase Inhibitory Meroterpenoid from a Mangrove Endophytic Fungus *Aspergillus* sp. 16-5c. *Molecules* **2017,** 22, (5), 727-734.

- Ascomycota *Aspergillus* sp. 16-5c // mangrove

338 // N // 2–hydro-acetoxydehydroaustin B // enzyme inhib./IA vs AChE

117. Fukuda, T.; Kurihara, Y.; Kanamoto, A.; Tomoda, H., Terretonin G, a new sesterterpenoid antibiotic from marine-derived *Aspergillus* sp. OPMF00272. *J Antibiot (Tokyo)* **2014,** 67, (8), 593-5.

- Ascomycota *Aspergillus sp.* OPMF00272 // poriferan

339 // N // terretonin G // AB/weak-mod. vs 3 bact.

118. He, Y.; Hu, Z.; Sun, W.; Li, Q.; Li, X. N.; Zhu, H.; Huang, J.; Liu, J.; Wang, J.; Xue, Y.; Zhang, Y., Spiroaspertrione A, a Bridged Spirocyclic Meroterpenoid, as a Potent Potentiator of Oxacillin against Methicillin-Resistant Staphylococcus aureus from *Aspergillus* sp. TJ23. *J Org Chem* **2017,** 82, (6), 3125-3131.

119. Qiao, Y.; Zhang, X.; He, Y.; Sun, W.; Feng, W.; Liu, J.; Hu, Z.; Xu, Q.; Zhu, H.; Zhang, J.; Luo, Z.; Wang, J.; Xue, Y.; Zhang, Y., Aspermerodione, a novel fungal metabolite with an unusual 2,6-dioxabicyclo[2.2.1]heptane skeleton, as an inhibitor of penicillin-binding protein 2a. *Sci Rep* **2018,** 8, (1), 5454-64.

- Ascomycota *Aspergillus* sp. TJ23 // plant *Hypericum perforatum*

340 // N // spiroaspertrione A // AB/potent vs MRSA (synergism with oxacillin) // ref. 118
341 // N // andiconin B // AB/weak-mod. vs MRSA // ref. 118
342 // N // aspermerodione // AB/weak-mod. vs MRSA // ref. 119
343 // N // andiconin C // AB/IA vs MRSA // ref. 119

120. Ding, C.; Wu, X.; Auckloo, B.; Chen, C.-T.; Ye, Y.; Wang, K.; Wu, B., An Unusual Stress Metabolite from a Hydrothermal Vent Fungus *Aspergillus* sp. WU 243 Induced by Cobalt. *Molecules* **2016,** 21, (1), 105-115.

- Ascomycota *Aspergillus* sp. WU 243 // a crab dwelling in heavy metal-rich hydrothermal vents

344 // N // aspergstressin // ND

121. Wen, H.; Yang, X.; Liu, Q.; Li, S.; Li, Q.; Zang, Y.; Chen, C.; Wang, J.; Zhu, H.; Zhang, Y., Structurally Diverse Meroterpenoids from a Marine-Derived *Aspergillus* sp. Fungus. *J Nat Prod* **2020,** 83, (1), 99-104.

- Ascomycota *Aspergillus* sp. ZYH026 // marine brown alga

345 // N // asperaustin A // ND
346 // N // asperaustin B // enzyme inhib./IA vs AChE

347 // N // asperaustin C // enzyme inhib./IA vs AChE

122. Qi, C.; Qiao, Y.; Gao, W.; Liu, M.; Zhou, Q.; Chen, C.; Lai, Y.; Xue, Y.; Zhang, J.; Li, D.; Wang, J.; Zhu, H.; Hu, Z.; Zhou, Y.; Zhang, Y., New 3,5-dimethylorsellinic acid-based meroterpenoids with BACE1 and AchE inhibitory activities from *Aspergillus* terreus. *Org Biomol Chem* **2018,** 16, (46), 9046-9052.

- Ascomycota *Aspergillus terreus* // soft coral *Sarcophyton subviride*

348 // N // terreusterpene A // enzyme inhib./potent vs BACE1
349 // N // terreusterpene B // enzyme inhib./potent vs BACE1
350 // N // terreusterpene C // ND
351 // N // terreusterpene D // enzyme inhib./potent vs BACE1 and AchE

123. Qi, C.; Bao, J.; Wang, J.; Zhu, H.; Xue, Y.; Wang, X.; Li, H.; Sun, W.; Gao, W.; Lai, Y.; Chen, J. G.; Zhang, Y., Asperterpenes A and B, two unprecedented meroterpenoids from *Aspergillus* terreus with BACE1 inhibitory activities. *Chem Sci* **2016,** 7, (10), 6563-6572.

124. Qi, C.; Liu, M.; Zhou, Q.; Gao, W.; Chen, C.; Lai, Y.; Hu, Z.; Xue, Y.; Zhang, J.; Li, D.; Li, X. N.; Zhang, Q.; Wang, J.; Zhu, H.; Zhang, Y., BACE1 Inhibitory Meroterpenoids from *Aspergillus* terreus. *J Nat Prod* **2018,** 81, (9), 1937-1945.

- Ascomycota *Aspergillus terreus* // soil sample

352 // N // asperterpene A // enzyme inhib./potent vs BACE1; AB/IA vs 4 bact.; cytotox./IA vs 4 TCLs // ref. 123
353 // N // asperterpene B // enzyme inhib./potent vs BACE1; AB/IA vs 4 bact.; cytotox./IA vs 4 TCLs // ref. 123
354 // N // asperterpene C // ND // ref. 123
355 // N // asperterpene D // enzyme inhib./IA vs BACE1 // ref. 124
356 // N // asperterpene E // enzyme inhib./potent vs BACE1 // ref. 124
357 // N // asperterpene F // enzyme inhib./potent vs BACE1 // ref. 124
358 // N // asperterpene G // enzyme inhib./IA vs BACE1 // ref. 124
359 // N // asperterpene H // enzyme inhib./IA vs BACE1 // ref. 124
360 // N // asperterpene I // enzyme inhib./IA vs BACE1 // ref. 124
361 // N // asperterpene J // enzyme inhib./weak-mod. vs BACE1 // ref. 124
362 // N // asperterpene K // enzyme inhib./IA vs BACE1 // ref. 124
363 // N // asperterpene L // enzyme inhib./IA vs BACE1 // ref. 124
364 // N // asperterpene M // enzyme inhib./IA vs BACE1 // ref. 124

125. Li, H.-L.; Li, X.-M.; Li, X.; Yang, S.-Q.; Wang, B.-G., Structure, absolute configuration and biological evaluation of polyoxygenated meroterpenoids from the marine algal-derived *Aspergillus* terreus EN-539. *Phytochem Lett* **2019,** 32, 138-142.

- Ascomycota *Aspergillus terreus* EN–539 // marine red algal

365 // N // aperterpene N // AV/potent vs influenza neuraminidase; AB/IA vs 9 bact.; AF/IA vs 4 fungi
366 // N // asperterpene O // AV/IA vs influenza neuraminidase; AB/IA vs 9 bact.; AF/IA vs 4 fungi

126. Liu, Z.; Liu, H.; Chen, Y.; She, Z., A new anti-inflammatory meroterpenoid from the fungus *Aspergillus* terreus H010. *Nat Prod Res* **2018,** 32, (22), 2652-2656.

- Ascomycota *Aspergillus terreus* H010 // mangrove

367 // N // 1,2–dehydro–terredehydroaustin // AI/weak-mod. vs NO

127. Wu, C. J.; Cui, X.; Xiong, B.; Yang, M. S.; Zhang, Y. X.; Liu, X. M., Terretonin D1, a new meroterpenoid from marine-derived *Aspergillus* terreus ML-44. *Nat Prod Res* **2019,** 33, (15), 2262-2265.

- Ascomycota *Aspergillus terreus* ML-44 // marine mollusk

368 // N // terretonin D1 // AI/weak-mod. vs NO

128. Qi, C.; Zhou, Q.; Gao, W.; Liu, M.; Chen, C.; Li, X. N.; Lai, Y.; Zhou, Y.; Li, D.; Hu, Z.; Zhu, H.; Zhang, Y., Anti-BACE1 and anti-AchE activities of undescribed spiro-dioxolane-containing meroterpenoids from the endophytic fungus *Aspergillus* terreus Thom. *Phytochemistry* **2019,** 165, 112041-48.

- Ascomycota *Aspergillus terreus* Thom // plant *Tripterygium wilfordii* Hook. f.

369 // N // spiroterreusnoid A // enzyme inhib./potent vs BACE1, weak-mod. vs AchE
370 // N // spiroterreusnoid B // enzyme inhib./potent vs BACE1, weak-mod. vs AchE

371 // N // spiroterreusnoid C // enzyme inhib./potent vs BACE1, weak-mod. vs AchE

372 // N // spiroterreusnoid D // enzyme inhib./potent vs BACE1, weak-mod. vs AchE

373 // N // spiroterreusnoid E // enzyme inhib./potent vs BACE1, weak-mod. vs AchE

374 // N // spiroterreusnoid F // enzyme inhib./potent vs BACE1, weak-mod. vs AchE

129. Shaaban, M.; El-Metwally, M. M.; Abdel-Razek, A. A.; Laatsch, H., Terretonin M: A new meroterpenoid from the thermophilic *Aspergillus* terreus TM8 and revision of the absolute configuration of penisimplicins. *Nat Prod Res* **2018,** 32, (20), 2437-2446.

130. Hamed, A.; Abdel-Razek, A. S.; Omran, D. A.; El-Metwally, M. M.; El-Hosari, D. G.; Frese, M.; Soliman, H. S. M.; Sewald, N.; Shaaban, M., Terretonin O: a new meroterpenoid from *Aspergillus* terreus. *Nat Prod Res* **2020,** 34, (7), 965-974.

- Ascomycota *Aspergillus terreus* TM8 // soil sample in a desert place

375 // N // terretonin M // AB/IA vs 3 bact.; AF/IA vs 2 fungi; LT/IA vs 1 green alga // ref. 129

376 // N // terretonin O // AB/weak-mod. vs 2 bact.; cytotox./IA vs 1 TCL // ref. 130

131. Feng, W.; Chen, C.; Mo, S.; Qi, C.; Gong, J.; Li, X. N.; Zhou, Q.; Zhou, Y.; Li, D.; Lai, Y.; Zhu, H.; Wang, J.; Zhang, Y., Highly oxygenated meroterpenoids from the Antarctic fungus *Aspergillus* terreus. *Phytochemistry* **2019,** 164, 184-191.

- Ascomycota *Aspergillus terreus* // soil sample, Penguin Island, Antarctic

377 // N // terreustoxin A // others/IA vs immunomodulation (Con A-induced murine T cells)

378 // N // terreustoxin B // others/IA vs immunomodulation (Con A-induced murine T cells)

379 // N // terreustoxin C // others/potent vs immunomodulation (Con A-induced murine T cells)

380 // N // terreustoxin D // others/IA vs immunomodulation (Con A-induced murine T cells)

381 // N // terreustoxin E // others/IA vs immunomodulation (Con A-induced murine T cells)

382 // N // terreustoxin F // others/IA vs immunomodulation (Con A-induced murine T cells)

383 // N // terreustoxin G // others/IA vs immunomodulation (Con A-induced murine T cells)

384 // N // terreustoxin H // others/IA vs immunomodulation (Con A-induced murine T cells)

385 // N // terreustoxin I // others/IA vs immunomodulation (Con A-induced murine T cells)

386 // N // terreustoxin J // others/IA vs immunomodulation (Con A-induced murine T cells)

387 // N // terreustoxin K // others/IA vs immunomodulation (Con A-induced murine T cells)

112. Liu, X.-H., Miao, F.-P., Qiao, M.-F., Cichewicz, R. H., Ji, N.-Y., Terretonin, ophiobolin, and drimaneterpenes with absolute configurations from an algicolous *Aspergillus* ustus. RSC Adv. 2013, 3, (2), 588-595.

- Ascomycota *Aspergillus ustus* cf-42 // marine green alga *Codium fragile*

388 // N // 1,2–dihydroterretonin F // AB/IA vs 1 bact.; AF/IA vs 2 fungi; LT/IA vs 1 brine shrimp

132. Oleinikova, G. K.; Denisenko, V. A.; Berdyshev, D. V.; Pushilin, M. A.; Kirichuk, N. N.; Menzorova, N. I.; Kuzmich, A. S.; Yurchenko, E. A.; Zhuravleva, O. I.; Afiyatullov, S. S., Two new sesterterpenoids, terretonins H and I, from the marine-derived fungus *Aspergillus* ustus. *Phytochem Lett* **2016,** 17, 135-139.

- Ascomycota *Aspergillus ustus* KMM 4664 // marine sediment

389 // N // terretonin H // LT/weak-mod. vs sea urchin eggs

390 // N // terretonin I // LT/weak-mod. vs sea urchin eggs

4.2.2 *Emericella* sp. (11)

133. He, Y.; Hu, Z. X.; Li, Q.; Huang, J. F.; Li, X. N.; Zhu, H. C.; Liu, J. J.; Wang, J. P.; Xue, Y. B.; Zhang, Y. H., Bioassay-Guided Isolation of Antibacterial Metabolites from Emericella sp TJ29. *J Nat Prod* **2017,** 80, (9), 2399-2405.

134. Li, Q.; Chen, C.; Cheng, L.; Wei, M.; Dai, C.; He, Y.; Gong, J.; Zhu, R.; Li, X. N.; Liu, J.; Wang, J.; Zhu, H.; Zhang, Y., Emeridones A-F, a Series of 3,5-Demethylorsellinic Acid-Based Meroterpenoids with Rearranged Skeletons from an Endophytic Fungus Emericella sp. TJ29. *J Org Chem* **2019,** 84, (3), 1534-1541.

- Ascomycota *Emericella* sp. TJ29 // plant *Hypericum perforatum*

391 // N // emervaridone A // AB/weak-mod. vs 5 bact.; cytotox./IA vs 1 TCL // ref. 133

392 // N // emervaridone B // AB/IA vs 5 bact.; cytotox./IA vs 1 TCL // ref. 133

393 // N // emervaridone C // AB/IA vs 5 bact.; cytotox./IA vs 1 TCL // ref. 133

394 // N // emeridone A // cytotox./IA vs 5 TCLs // ref. 134

395 // N // emeridone B // cytotox./weak-mod. vs 3 TCLs // ref. 134

396 // N // emeridone C // cytotox./IA vs 5 TCLs // ref. 134

397 // N // emeridone D // cytotox./weak-mod. vs 3 TCLs // ref. 134

398 // N // emeridone E // cytotox./IA vs 5 TCLs // ref. 134

399 // N // emeridone F // cytotox./weak-mod. vs 3 TCLs // ref. 134

135. Liangsakul, J.; Pornpakakul, S.; Sangvichien, E.; Muangsin, N.; Sihanonth, P., Emervaridione and varioxiranediol, two new metabolites from the endophytic fungus, Emericella variecolor. *Tetrahedron Lett* **2011,** 52, (48), 6427-6430.

136. Liangsakul, J.; Srisurichan, S.; Pornpakakul, S., Anthraquinone-steroids, evanthrasterol A and B, and a meroterpenoid, emericellic acid, from endophytic fungus, Emericella variecolor. *Steroids* **2016,** 106, 78-85.

- Ascomycota *Emericella variecolor* // plant *Croton oblongifolius*

400 // N // emervaridione // cytotox./IA vs 5 TCLs; AB/IA vs 4 bact.; AF/IA vs 1 fungus // ref. 135

401 // N // emericellic acid // cytotox./IA vs 5 TCLs // ref. 136

4.2.3 *Epicoccum* sp. (1)

137. Perveen, I.; Raza, M. A.; Iqbal, T.; Naz, I.; Sehar, S.; Ahmed, S., Isolation of anticancer and antimicrobial metabolites from Epicoccum nigrum; endophyte of Ferula sumbul. *Microb Pathog* **2017,** 110, 214-224.

- Ascomycota *Epicoccum nigrum* // plant *Ferula sumbul*

402 // N // preaustinoid A1 // cytotox./weak-mod. vs 3 TCLs; AB/IA vs 3 bact.

4.2.4 *Eupenicillium* sp. (5)

138. Gu, B.-B.; Wu, W.; Liu, L.-Y.; Tang, J.; Zeng, Y.-J.; Wang, S.-P.; Sun, F.; Li, L.; Yang, F.; Lin, H.-W., 3,5-Dimethylorsellinic Acid Derived Meroterpenoids fromEupenicilliumsp. 6A-9, a Fungus Isolated from the Marine SpongePlakortis simplex. *Eur J Org Chem* **2018,** 2018, (1), 48-59.

- Ascomycota *Eupenicillium sp.* 6A–9 // marine sponge

403 // N // eupeniacetal A // others/weak-mod. vs immune inhibition (TNF–*α*); AB/IA vs 3 bact.; cytotox./IA vs 4 TCLs

404 // N // eupeniacetal B // others/weak-mod. vs immune inhibition (TNF–*α*); AB/IA vs 3 bact.; cytotox./IA vs 4 TCLs

405 // N // 1–methoxy–hydropreaustinoid A1 // others/weak-mod. vs immune inhibition (TNF–*α*); AB/IA vs 3 bact.; cytotox./IA vs 4 TCLs

406 // N // hydroberkeleyone B // others/weak-mod. vs immune inhibition (TNF–*α*); AB/IA vs 3 bact.; cytotox./IA vs 4 TCLs

407 // N // 22–deoxy–10–oxominio-lutelide B // others/weak-mod. vs immune inhibition (TNF–*α*); AB/IA vs 3 bact.; cytotox./IA vs 4 TCLs

4.2.5 *Fusarium* sp. (2)

139. Yan, C.; Liu, W.; Li, J.; Deng, Y.; Chen, S.; Liu, H., Bioactive terpenoids from Santalum album derived endophytic fungus Fusarium sp. YD-2. *RSC Adv.* **2018,** 8, (27), 14823-14828.

- Ascomycota *Fusarium sp.* YD–2 // plant *Santalum album*

408 // N // fusariumin A // AB/weak-mod. vs 2 bact.; AI/IA vs NO

409 // N // fusariumin B // AI/weak-mod. vs NO; AB/IA vs 8 bact.

4.2.6 *Penicillium* sp. (76)

140. Xie, C. L.; Xia, J. M.; Lin, T.; Lin, Y. J.; Lin, Y. K.; Xia, M. L.; Chen, H. F.; Luo, Z. H.; Shao, Z. Z.; Yang, X. W., Andrastone A From the Deep-Sea-Derived Fungus Penicillium allii-sativi Acts as an Inducer of Caspase and RXRalpha-Dependent Apoptosis. *Front Chem* **2019,** 7, 692-698.

- Ascomycota *Penicillium allii–sativi* // deep-sea water, western Pacific

410 // N // andrastone A // cytotox./potent vs 1 TCL (RXR*α* pathways)

411 // N // 16–*epi*–citreohybriddione A // cytotox./IA vs 7 TCLs

141. Zhang, J.; Yuan, B.; Liu, D.; Gao, S.; Proksch, P.; Lin, W., Brasilianoids A-F, New Meroterpenoids From the Sponge-Associated Fungus Penicillium brasilianum. *Front Chem* **2018,** 6, 314.

142. Zhang, J.; Wu, Y.; Yuan, B.; Liu, D.; Zhu, K.; Huang, J.; Proksch, P.; Lin, W., DMOA-based meroterpenoids with diverse scaffolds from the sponge-associated fungus Penicillium brasilianum. *Tetrahedron* **2019,** 75, (14), 2193-2205.

- Ascomycota *Penicillium brasilianum* WZXY–m122–9 // marine sponge

412 // N // brasilianoid A // others/weak-mod. vs UVB-induced cell protection; AI/IA vs NO; cytotox./IA vs 3 TCLs; AV/IA vs 1 virus // ref. 141

413 // N // brasilianoid B // AI/weak-mod.vs NO; others/IA vs UVB-induced cell protection; cytotox./IA vs 3 TCLs; AV/IA vs 1 virus // ref. 141

414 // N // brasilianoid C // AI/weak-mod.vs NO; others/IA vs UVB-induced cell protection; cytotox./IA vs 3 TCLs; AV/IA vs 1 virus // ref. 141

415 // N // brasilianoid D // AI/IA vs NO; others/IA vs UVB-induced cell protection; cytotox./IA vs 3 TCLs; AV/IA vs 1 virus // ref. 141

416 // N // brasilianoid E // AI/IA vs NO; others/IA vs UVB-induced cell protection; cytotox./IA vs 3 TCLs; AV/IA vs 1 virus // ref. 141

417 // N // brasilianoid F // AI/IA vs NO; others/IA vs UVB-induced cell protection; cytotox./IA vs 3 TCLs; AV/IA vs 1 virus // ref. 141

418 // N // brasilianoid G // ND // ref. 142

419 // N // brasilianoid H // ND // ref. 142

420 // N // brasilianoid I // ND // ref. 142

421 // N // brasilianoid J // ND // ref. 142

422 // N // brasilianoid K // ND // ref. 142

423 // N // brasilianoid L // others/weak-mod. vs host cells protective in bacteria invasion; AB/IA vs 2 bact.; cytotox./IA vs 3 TCLs // ref. 142

143. Liu, H.; Li, X. M.; Liu, Y.; Zhang, P.; Wang, J. N.; Wang, B. G., Chermesins A-D: Meroterpenoids with a Drimane-Type Spirosesquiterpene Skeleton from the Marine Algal-Derived Endophytic Fungus Penicillium chermesinum EN-480. *J Nat Prod* **2016,** 79, (4), 806-11.

- Ascomycota *Penicillium chermesinum* EN–480 // marine red alga *Pterocladiella tenuis*

424 // N // chermesin A // AB/weak-mod.vs 3 bact.; AF/weak-mod.vs 1 fungus; LT/ IA vs brine shrimp

425 // N // chermesin B // AB/weak-mod.vs 3 bact.; AF/weak-mod.vs 1 fungus; LT/ IA vs brine shrimp

426 // N // chermesin C // AB/IA vs 8 bact.; AF/IA vs 6 fungi; LT/ IA vs brine shrimp

427 // N // chermesin D // AB/IA vs 8 bact.; AF/IA vs 6 fungi; LT/ IA vs brine shrimp

144. Qi, B.; Liu, X.; Mo, T.; Zhu, Z.; Li, J.; Wang, J.; Shi, X.; Zeng, K.; Wang, X.; Tu, P.; Abe, I.; Shi, S., 3,5-Dimethylorsellinic Acid Derived Meroterpenoids from Penicillium chrysogenum MT-12, an Endophytic Fungus Isolated from Huperzia serrata. *J Nat Prod* **2017,** 80, (10), 2699-2707.

- Ascomycota *Penicillium chrysogenum* MT–12 // plant *Huperzia serrata*

428 // N // chrysogenolide A // AI/IA vs NO

429 // N // chrysogenolide B // AI/IA vs NO

430 // N // chrysogenolide C // AI/weak-mod. vs NO

431 // N // chrysogenolide D // AI/potent vs NO

432 // N // chrysogenolide E // AI/IA vs NO

433 // N // chrysogenolide F // AI/potent vs NO

434 // N // chrysogenolide G // AI/IA vs NO

435 // N // chrysogenolide H // AI/IA vs NO

145. Dalsgaard, P. W.; Petersen, B. O.; Duus, J. O.; Zidorn, C.; Frisvad, J. C.; Christophersen, C.; Larsen, T. O., Atlantinone A, a Meroterpenoid Produced by Penicillium ribeum and Several Cheese Associated Penicillium Species. *Metabolites* **2012,** 2, (1), 214-20.

146. Wang, X.; Sena Filho, J. G.; Hoover, A. R.; King, J. B.; Ellis, T. K.; Powell, D. R.; Cichewicz, R. H., Chemical epigenetics alters the secondary metabolite composition of guttate excreted by an atlantic-forest-soil-derived Penicillium citreonigrum. *J Nat Prod* **2010,** 73, (5), 942-8.

- Ascomycota *Penicillium citreonigrum* // Atlantic forest soil // chemical epigenetics

436 // N // atlantinone A // AB vs IA vs 8 bact.; AF/IA vs 5 fungi // ref. 145 and 146

437 // N // atlantinone B // AB vs IA vs 8 bact.; AF/IA vs 5 fungi // ref. 146

147. Gao, S. S.; Shang, Z.; Li, X. M.; Li, C. S.; Cui, C. M.; Wang, B. G., Secondary metabolites produced by solid fermentation of the marine-derived fungus Penicillium commune QSD-17. *Biosci Biotechnol Biochem* **2012,** 76, (2), 358-60.

- Ascomycota *Penicillium commune* QSD-17 // marine sediment

  438 // N // 3–deacetylcitreohybridonol // AB/IA vs 4 bact.; AF/IA vs 1 fungus

148. de Silva, E. D.; Williams, D. E.; Jayanetti, D. R.; Centko, R. M.; Patrick, B. O.; Wijesundera, R. L.; Andersen, R. J., Dhilirolides A-D, meroterpenoids produced in culture by the fruit-infecting fungus Penicillium purpurogenum collected in Sri Lanka. *Org Lett* **2011,** 13, (5), 1174-7.

149. Centko, R. M.; Williams, D. E.; Patrick, B. O.; Akhtar, Y.; Garcia Chavez, M. A.; Wang, Y. A.; Isman, M. B.; de Silva, E. D.; Andersen, R. J., Dhilirolides E-N, meroterpenoids produced in culture by the fungus Penicillium purpurogenum collected in Sri Lanka: structure elucidation, stable isotope feeding studies, and insecticidal activity. *J Org Chem* **2014,** 79, (8), 3327-35.

- Ascomycota *Penicillium purpurogenum* // *Averrhoa bilimbi*

  439 // N // dhilirolide A // LT/IA vs cabbage looper *Trichoplusia ni* // ref. 148

  440 // N // dhilirolide B // ND // ref. 148

  441 // N // dhilirolide C // ND // ref. 148

  442 // N // dhilirolide D // LT/IA vs cabbage looper *Trichoplusia ni* // ref. 148

  443 // N // dhilirolide E // ND // ref. 149

  444 // N // dhilirolide F // ND // ref. 149

  445 // N // dhilirolide G // ND // ref. 149

  446 // N // dhilirolide H // ND // ref. 149

  447 // N // dhilirolide I // ND // ref. 149

  448 // N // dhilirolide J // ND // ref. 151

  449 // N // dhilirolide K // ND // ref. 149

  450 // N // dhilirolide L // LT/potent vs cabbage looper *Trichoplusia ni* // ref. 149

  451 // N // dhilirolide M // ND // ref. 149

  452 // N // dhilirolide N // ND // ref. 149

150. Sun, J.; Zhu, Z. X.; Song, Y. L.; Dong, D.; Zheng, J.; Liu, T.; Zhao, Y. F.; Ferreira, D.; Zjawiony, J. K.; Tu, P. F.; Li, J., Nitric Oxide Inhibitory Meroterpenoids from the Fungus Penicillium purpurogenum MHZ 111. *J Nat Prod* **2016,** 79, (5), 1415-22.

- Ascomycota *Penicillium purpurogenum* MHz 111 // soil sample

  453 // N // purpurogenolide A // AI/IA vs NO

  454 // N // purpurogenolide B // AI/weak-mod. vs NO

  455 // N // purpurogenolide C // AI/weak-mod.vs NO

  456 // N // purpurogenolide D // AI/potent vs NO

  457 // N // purpurogenolide E // AI/IA vs NO

151. Stierle, D. B.; Stierle, A. A.; Patacini, B.; McIntyre, K.; Girtsman, T.; Bolstad, E., Berkeleyones and related meroterpenes from a deep water acid mine waste fungus that inhibit the production of interleukin 1-beta from induced inflammasomes. *J Nat Prod* **2011,** 74, (10), 2273-7.

- Ascomycota *Penicillium rubrum* Stoll // deep water acid mine lake

  458 // N // berkeleyone A // AI/potent vs IL1–β; enzyme inhib./IA vs caspase–1

  459 // N // berkeleyone B // AI/potent vs IL1–β; enzyme inhib./weak-mod. vs caspase–1

  460 // N // berkeleyone C // AI/IA vs IL1–β; enzyme inhib./IA vs caspase–1

152. Li, H. L.; Xu, R.; Li, X. M.; Yang, S. Q.; Meng, L. H.; Wang, B. G., Simpterpenoid A, a Meroterpenoid with a Highly Functionalized Cyclohexadiene Moiety Featuring gem-Propane-1,2-dione and Methylformate Groups, from the Mangrove-Derived Penicillium simplicissimum MA-332. *Org Lett* **2018,** 20, (5), 1465-1468.

- Ascomycota *Penicillium simplicissimum* MA-332 // rhizospheric soil of the mangrove plant *Bruguiera sexangula* var. *rhynchopetala*

  461 // N // simpterpenoid A // AV/potent vs influenza neuraminidase; AB/weak-mod. vs 1 bact.; AF/IA vs 5 fungi

153. Hwang, J.-Y.; You, M. J.; Oh, D.-C.; Oh, K.-B.; Shin, J., New Meroterpenoids from a Penicillium sp. Fungus. *Nat Prod Sci* **2018,** 24, (4), 253-258.

- Ascomycota *Penicillium* sp. FCH061 // marine sediment

462 // N // preaustinoid E // enzyme inhib./IA vs (isocitrate lyase, Na^+/K^+-ATPase, and sortase A); cytotox./IA vs 2 TCLs; AB/IA vs 5 bact.; AF/ IA vs 4 fungi

463 // N // preaustinoid F // enzyme inhib./IA vs (isocitrate lyase, Na^+/K^+-ATPase, and sortase A); cytotox./IA vs 2 TCLs; AB/IA vs 5 bact.; AF/ IA vs 4 fungi

154. Li, J. W.; Duan, R. G.; Zou, J. H.; Chen, R. D.; Chen, X. G.; Dai, J. G., Meroterpenoids and isoberkedienolactone from endophytic fungus Penicillium sp. associated with Dysosma versipellis. *Acta Pharm Sin* **2014,** 49, (6), 913-20.

- Ascomycota *Penicillium* sp. // plant *Dysosma versipellis*

464 // N // 11*β*–acetoxyisoaustinone // cytotox./IA vs 5 TCLs

155. Li, J.; Yang, X.; Lin, Y.; Yuan, J.; Lu, Y.; Zhu, X.; Li, J.; Li, M.; Lin, Y.; He, J.; Liu, L., Meroterpenes and azaphilones from marine mangrove endophytic fungus Penicillium 303#. *Fitoterapia* **2014,** 97, 241-6.

- Ascomycota *Penicillium* sp. 303# // sea water in mangrove reserve

465 // N // * // cytotox./IA vs 4 TCLs

466 // N // * // cytotox./IA vs 4 TCLs

156. Zhang, Y.; Li, X. M.; Shang, Z.; Li, C. S.; Ji, N. Y.; Wang, B. G., Meroterpenoid and diphenyl ether derivatives from Penicillium sp. MA-37, a fungus isolated from marine mangrove rhizospheric soil. *J Nat Prod* **2012,** 75, (11), 1888-95.

- Ascomycota *Penicillium* sp. MA-37 // mangrove plant *Bruguiera gymnorrhiza*

467 // N // 4,25–dehydrominiolutelide B // LT/ IA vs brine shrimp; AB/IA vs 2 bact.

468 // N // 4,25–dehydro-22–deoxyminiolutelide B // LT/ IA vs brine shrimp; AB/IA vs 2 bact.

469 // N // isominiolutelide A // LT/ IA vs brine shrimp; AB/IA vs 2 bact.

157. Park, J. S.; Quang, T. H.; Yoon, C. S.; Kim, H. J.; Sohn, J. H.; Oh, H., Furanoaustinol and 7-acetoxydehydroaustinol: new meroterpenoids from a marine-derived fungal strain Penicillium sp. SF-5497. *J Antibiot (Tokyo)* **2018,** 71, (6), 557-563.

158. Park, J. S.; Quang, T. H.; Thi Thanh Ngan, N.; Sohn, J. H.; Oh, H., New preaustinoids from a marine-derived fungal strain Penicillium sp. SF-5497 and their inhibitory effects against PTP1B activity. *J Antibiot (Tokyo)* **2019,** 72, (8), 629-633.

- Ascomycota *Penicillium* sp. SF-5497 // marine sediment

470 // N // furanoaustinol // enzyme inhib./weak-mod. vs PTP1B; AI/IA vs NO // ref. 157

471 // N // 7–acetoxydehydroaustinol // AI/weak-mod. vs NO; enzyme inhib./IA vs PTP1B // ref. 157

472 // N // preaustinoid A6 // enzyme inhib./weak-mod. vs PTP1B // ref. 158

473 // N // preaustinoid A7 // enzyme inhib./IA vs PTP1B // ref. 158

159. Feng, Q.; Yu, Y.; Tang, M.; Zhang, T.; Zhang, M.; Wang, H.; Han, Y.; Zhang, Y.; Chen, G.; Pei, Y., Four new hybrid polyketide-terpenoid metabolites from the Penicillium sp. SYPF7381 in the rhizosphere soil of Pulsatilla chinensis. *Fitoterapia* **2018,** 125, 249-257.

- Ascomycota *Penicillium* sp. SYPF7381 // rhizosphere soil of plant *Pulsatilla chinensis*

474 // N // * // cytotox./potent vs 3 TCLs; AB/weak-mod. vs 2 bact.; AF/IA vs 1 fungus

475 // N // * // cytotox./potent vs 2 TCLs; AB/IA vs 6 bact.; AF/IA vs 1 fungus

476 // N // * // cytotox./IA vs 3 TCLs; AB/IA vs 6 bact.; AF/IA vs 1 fungus

477 // N // * // cytotox./IA vs 3 TCLs; AB/IA vs 6 bact.; AF/IA vs 1 fungus

160. Duan, R.; Zhou, H.; Yang, Y.; Li, H.; Dong, J.; Li, X.; Chen, G.; Zhao, L.; Ding, Z., Antimicrobial meroterpenoids from the endophytic fungus Penicillium sp. T2-8 associated with Gastrodia elata. *Phytochem Lett* **2016,** 18, 197-201.

- Ascomycota *Penicillium* sp. T2–8 // plant *Gastrodia elata*

478 // N // preaustinoid D // AF/weak-mod. vs 1 fungus; AB/IA vs 3 bact.; cytotox./IA vs 5 TCLs

161. Bai, M.; Zheng, C. J.; Huang, G. L.; Mei, R. Q.; Wang, B.; Luo, Y. P.; Zheng, C.; Niu, Z. G.; Chen, G. Y., Bioactive Meroterpenoids and Isocoumarins from the Mangrove-Derived Fungus Penicillium sp. TGM112. *J Nat Prod* **2019,** 82, (5), 1155-1164.

- Ascomycota *Penicillium* sp. TGM112 // mangrove

  479 // N // penicianstinoid A // LT/weak-mod. vs larvae of *Helicoverpa armigera* Hubner and *Caenorhabditis elegans*

  480 // N // penicianstinoid B // LT/weak-mod. vs larvae of *Helicoverpa armigera* Hubner and *Caenorhabditis elegans*

162. Pan, C.; Shi, Y.; Auckloo, B. N.; Hassan, S. S. U.; Akhter, N.; Wang, K.; Ye, Y.; Arthur Chen, C. T.; Tao, X.; Wu, B., Isolation and Antibiotic Screening of Fungi from a Hydrothermal Vent Site and Characterization of Secondary Metabolites from a Penicillium Isolate. *Mar Biotechnol* **2017,** 19, (5), 469-479.

- Ascomycota *Penicillium* sp. Y–5–2 // sediment of a hydrothermal vent

  481 // N // austinone // AB/IA vs 3 bact.; cytotox./IA vs 3 TCLs

163. Cheng, Z.; Xu, W.; Wang, Y.; Bai, S.; Liu, L.; Luo, Z.; Yuan, W.; Li, Q., Two new meroterpenoids and two new monoterpenoids from the deep sea-derived fungus Penicillium sp. YPGA11. *Fitoterapia* **2019,** 133, 120-124.

- Ascomycota *Penicillium* sp. YPGA11 // deep sea sediment, Yap Trench, West Pacific Ocean

  482 // N // 15–deacetylated citreohybridone E // AI/IA vs NO

  483 // N // 3–deacetylated andrastin A // AI/IA vs NO

164. Hoang, T. P. T.; Roullier, C.; Boumard, M. C.; Robiou du Pont, T.; Nazih, H.; Gallard, J. F.; Pouchus, Y. F.; Beniddir, M. A.; Grovel, O., Metabolomics-Driven Discovery of Meroterpenoids from a Mussel-Derived Penicillium ubiquetum. *J Nat Prod* **2018,** 81, (11), 2501-2511.

- Ascomycota *Penicillium ubiquetum* MMS330 // the blue *mussel Mytilus edulis*

  484 // N // 22–deoxyminio-lutelide A // cytotox./IA vs 2 TCLs

  485 // N // 4–hydroxy–22–deoxyminiolutelide B // cytotox./IA vs 2 TCLs

4.2.8 *Pestalotiopsis* sp. (2)

165. Arunpanichlert, J.; Rukachaisirikul, V.; Phongpaichit, S.; Supaphon, O.; Sakayaroj, J., Meroterpenoid, isocoumarin, and phenol derivatives from the seagrass-derived fungus *Pestalotiopsis* sp. PSU-ES194. *Tetrahedron* **2015,** 71, (5), 882-888.

- Ascomycota *Pestalotiopsis* sp. PSU-ES194 // seagrass

  486 // N // 7–hydroxydehydroaustin // ND

  487 // N // 11*β*–acetoxyisoaustinone // ND

4.2.9 *Talaromyces* sp. (4)

166. Chen, S.; Ding, M.; Liu, W.; Huang, X.; Liu, Z.; Lu, Y.; Liu, H.; She, Z., Anti-inflammatory meroterpenoids from the mangrove endophytic fungus Talaromyces amestolkiae YX1. *Phytochemistry* **2018,** 146, 8-15.

- Ascomycota *Talaromyces amestolkiae* YX1 // mangrove

  488 // N // amestolkolide A // AI/potent vs NO

  489 // N // amestolkolide B // AI/potent vs NO

  490 // N // amestolkolide C // AI/IA vs NO

  491 // N // amestolkolide D // AI/IA vs NO

4.2.10 *Verticillium* sp. (1)

167. Wu, G.; Li, L.; Chen, B.; Chen, C.; Luo, D.; He, B., Natural meroterpenoids isolated from the plant pathogenic fungus Verticillium albo-atrum with noteworthy modification action against voltage-gated sodium channels of central neurons of Helicoverpa armigera. *Pestic Biochem Physiol* **2018,** 144, 91-99.

- Ascomycota *Verticillium albo–atrum* // plant pathogenic fungus

  492 // N // acetoxydehydroaustin A // others/potent vs sodium channel inhibition

4.3. Derived from 6–Methylsalicylic acid (6-MSA) (88, 493-580)

4.3.1 *Acremonium* sp. (20)

168. Arnone, A.; Assante, G.; Bava, A.; Dallavalle, S.; Nasini, G., Acremines H–N, novel prenylated polyketide metabolites produced by a strain of Acremonium byssoides. *Tetrahedron* **2009,** 65, (4), 786-791.

- Ascomycota *Acremonium byssoides* A20 // grapevine leaves infected by *Plasmopara viticola*

  493 // N // acremine H // others/weak-mod. vs inhibition of germination of *P. viticola* sporangia; cytotox./IA vs 1 TCL

  494 // N // acremine I // others/weak-mod. vs inhibition of germination of *P. viticola* sporangia; cytotox./weak-mod. vs 1 TCL

495 // N // acremine L // others/weak-mod. vs inhibition of germination of *P. viticola* sporangia; cytotox./IA vs 1 TCL

496 // N // acremine M // others/IA vs inhibition of germination of *P. viticola* sporangia; cytotox./IA vs 1 TCL

497 // N // acremine N // others/weak-mod. vs inhibition of germination of *P. viticola* sporangia; cytotox./IA vs 1 TCL

169. Suciati; Fraser, J. A.; Lambert, L. K.; Pierens, G. K.; Bernhardt, P. V.; Garson, M. J., Secondary metabolites of the sponge-derived fungus Acremonium persicinum. *J Nat Prod* **2013,** 76, (8), 1432-40.

170. Garson, M. J.; Hehre, W.; Pierens, G. K.; Suciati, Revision of the Structure of Acremine P from a Marine-Derived Strain of Acremonium persicinum. *Molecules* **2017,** 22, (4), 521-525.

- Ascomycota *Acremonium persicinum* // marine sponge *Anomoianthella rubra*

498 // N // 5–chloroacremine A // ND // ref. 169

499 // N // 5–chloroacremine H // ND // ref. 169

500 // N // acremine O // ND // ref. 169

501 // N // acremine P // ND // ref. 169-170

502 // N // acremine Q // ND // ref. 169

503 // N // acremine R // ND // ref. 169

171. Alves, A. J. S.; Pereira, J. A.; Dethoup, T.; Cravo, S.; Mistry, S.; Silva, A. M. S.; Pinto, M. M. M.; Kijjoa, A., A New Meroterpene, A New Benzofuran Derivative and Other Constituents from Cultures of the Marine Sponge-Associated Fungus Acremonium persicinum KUFA 1007 and Their Anticholinesterase Activities. *Mar Drugs* **2019,** 17, (6), 379-391.

- Ascomycota *Acremonium persicinum* KUFA 1007 // marine sponge *Mycale* sp.

504 // N // acremine S–2 // enzyme inhib./IA vs AChE and BuChE

172. Wu, P.; Yao, L.; Xu, L.; Xue, J.; Wei, X., Bisacremines A-D, Dimeric Acremines Produced by a Soil-Derived Acremonium persicinum Strain. *J Nat Prod* **2015,** 78, (9), 2161-6.

173. Wu, P.; Xue, J.; Yao, L.; Xu, L.; Li, H.; Wei, X., Bisacremines E-G, Three Polycyclic Dimeric Acremines Produced by Acremonium persicinum SC0105. *Org Lett* **2015,** 17, (19), 4922-5.

- Ascomycota *Acremonium persicinum* SC0105 // humus soil sample

505 // N // bisacremine A // cytotox./weak-mod. vs 1 TCL; AB/IA vs 1 bact. // ref. 172

506 // N // bisacremine B // cytotox./weak-mod. vs 3 TCLs; AB/IA vs 1 bact. // ref. 172

507 // N // bisacremine C // cytotox./weak-mod. vs 1 TCL; AB/IA vs 1 bact. // ref. 172

508 // N // bisacremine D // cytotox./weak-mod. vs 1 TCL; AB/IA vs 1 bact. // ref. 172

509 // N // acremine T // ND // ref. 172

510 // N // bisacremine E // AI/weak-mod. vs TNF–α, IL–6, and NO; AB/IA vs 1 bact.; cytotox./IA vs 3 TCLs // ref. 173

511 // N // bisacremine F // AI/IA vs TNF–α, IL–6, and NO; AB/IA vs 1 bact.; cytotox./IA vs 3 TCLs // ref. 173

512 // N // bisacremine G // AI/weak-mod. vs TNF–α, IL–6, and NO; AB/IA vs 1 bact.; cytotox./IA vs 3 TCLs // ref. 173

4.3.2 *Aspergillus* sp. (4)

174. Petersen, L. M.; Holm, D. K.; Knudsen, P. B.; Nielsen, K. F.; Gotfredsen, C. H.; Mortensen, U. H.; Larsen, T. O., Characterization of four new antifungal yanuthones from *Aspergillus* niger. *J Antibiot (Tokyo)* **2015,** 68, (3), 201-5.

- Ascomycota *Aspergillus niger* KB1001 // *

513 // N // yanuthone K // AF/weak-mod. vs *C. albicans*

514 // N // yanuthone L // AF/weak-mod. vs *C. albicans*

515 // N // yanuthone M // AF/weak-mod. vs *C. albicans*

516 // N // yanuthone X_2 // AF/weak-mod. vs *C. albicans*

4.3.3 *Hymenopsis* sp. (3)

175. Schmidt, L. E.; Deyrup, S. T.; Baltrusaitis, J.; Swenson, D. C.; Wicklow, D. T.; Gloer, J. B., Hymenopsins A and B and a macrophorin analogue from a fungicolous Hymenopsis sp. *J Nat Prod* **2010,** 73, (3), 404-8.

- Ascomycota *Hymenopsis* sp. MYC–1703 // dead hardwood branch from *Eucalyptus* forest planting

517 // N // hymenopsin A // AB/IA vs 2 bact.; AF/IA vs 2 fungi

518 // N // hymenopsin B // AB/weak-mod. vs 2 bact.; AF/IA vs 2 fungi

519 // N // 2′,3′–epoxy–13–hydroxy–4′–oxo–macrophorin A // AB/weak-mod. vs 2 bact.; AF/weak-mod. vs 2 fungi

4.3.4 *Lophiostoma* sp. (1)

176. Zheng, C. J.; Shao, C. L.; Chen, M.; Niu, Z. G.; Zhao, D. L.; Wang, C. Y., Merosesquiterpenoids and Ten-Membered Macrolides from aSoft CoralDerived Lophiostoma sp.Fungus. *Chem Biodivers* **2015,** 12, (9), 1407-1414.

- Ascomycota *Lophiostoma* sp. ZJ–2008011 // soft coral

  520 // N // craterellin D1 // cytotox./IA vs 3 TCLs; AB/IA vs 7 bact.

4.3.5 *Microdiplodia* sp. (1)

177. Shiono, Y.; Koyama, H.; Murayama, T.; Koseki, T., New sesquiterpenes from the endophyte *Microdiplodia* sp. TT-12 and their antimicrobial activity. *Phytochem Lett* **2015,** 14, 143-147.

- Ascomycota *Microdiplodia* sp. TT-12 // plant Japanese oak

  521 // N // 13–hydroxylmacrophorin A // AB/weak-mod. vs 2 bact.; AF/ weak-mod. vs 1 fungus

4.3.6 *Montagnula* sp. (4)

178. Zhang, L.; Shen, Y.; Wang, F.; Leng, Y.; Liu, J. K., Rare merosesquiterpenoids from basidiomycete Craterellus odoratus and their inhibition of 11beta-hydroxysteroid dehydrogenases. *Phytochemistry* **2010,** 71, (1), 100-3.

179. Guo, H.; Feng, T.; Li, Z. H.; Liu, J. K., Four new compounds from the basidiomycete Craterellus odoratus. *J Asian Nat Prod Res* **2012,** 14, (10), 950-5.

- Ascomycota *Montagnula donacina* // *

  522 // N // craterellin A // enzyme inhib./potent vs 11β–HSD2; cytotox./IA vs 5 TCLs // ref. 178

  523 // N // craterellin B // enzyme inhib./IA vs 11β-HSD1 and 11β-HSD2; cytotox./IA vs 5 TCLs // ref. 178

  524 // N // craterellin C // enzyme inhib./IA vs 11β-HSD1 and 11β-HSD2; cytotox./IA vs 5 TCLs // ref. 178

  525 // N // craterellin D // enzyme inhib./IA vs 11β-HSD1 and 11β-HSD2; cytotox./IA vs 5 TCLs // ref. 179

4.3.7 *Myceliophthora* sp. (3)

180. Smetanina, O. F.; Yurchenko, A. N.; Kalinovskii, A. I.; Berdyshev, D. V.; Gerasimenko, A. V.; Pivkin, M. V.; Slinkina, N. N.; Dmitrenok, P. S.; Menzorova, N. I.; Kuznetsova, T. A.; Afiyatullov, S. S., Biologically active metabolites from the marine isolate of the fungus Myceliophthora lutea. *Chem Nat Compd+* **2011,** 47, (3), 385-390.

- Ascomycota *Myceliophthora lutea* // marine sediment

  526 // N // isoacremine D // LT/weak-mod. vs embryos and sperm cell of the sea urchin; AB/weak-mod. vs 1 bact.

  527 // N // spiroacremine A // LT/weak-mod. vs sperm cell of the sea urchin; AB/IA vs 1 bact.

  528 // N // spiroacremine B // LT/weak-mod. vs sperm cell of the sea urchin; AB/IA vs 1 bact.

4.3.8 *Myrothecium* sp. (8)

181. Fu, Y.; Wu, P.; Xue, J.; Wei, X., Cytotoxic and Antibacterial Quinone Sesquiterpenes from a Myrothecium Fungus. *J Nat Prod* **2014,** 77, (8), 1791-9.

182. Fu, Y.; Wu, P.; Xue, J.; Li, H.; Wei, X., Myrothecols g and h, two new analogues of the marine-derived quinone sesquiterpene penicilliumin A. *Mar Drugs* **2015,** 13, (6), 3360-7.

- Ascomycota *Myrothecium* sp. SC0265 // forest leaf litter sample

  529 // N // myrothecol A // cytotox./potent vs 3 TCLs; AB/weak-mod. vs 2 bact.

  530 // N // myrothecol B // cytotox./weak-mod. vs 3 TCLs; AB/weak-mod. vs 2 bact.

  531 // N // myrothecol C // cytotox./weak-mod. vs 3 TCLs; AB/weak-mod. vs 2 bact.

  532 // N // myrothecol D // cytotox./weak-mod. vs 3 TCLs; AB/weak-mod. vs 2 bact.

  533 // N // myrothecol E // cytotox./weak-mod. vs 3 TCLs; AB/weak-mod. vs 2 bact.

  534 // N // myrothecol F // cytotox./IA vs 3 TCLs; AB/IA vs 5 bact.

  535 // N // myrothecol G // cytotox./weak-mod. vs 3 TCLs; AB/IA vs 5 bact.

  536 // N // myrothecol H // cytotox./weak-mod. vs 3 TCLs; AB/IA vs 5 bact.

4.3.9 *Nectria* sp. (2)

183. Ariefta, N. R.; Kristiana, P.; Nurjanto, H. H.; Momma, H.; Kwon, E.; Ashitani, T.; Tawaraya, K.; Murayama, T.; Koseki, T.; Furuno, H.; Usukhbayar, N.; Kimura, K.-i.; Shiono, Y., Nectrianolins A, B, and C, new metabolites produced by endophytic fungus Nectria pseudotrichia 120-1NP. *Tetrahedron Lett* **2017,** 58, (43), 4082-4086.

- Ascomycota *Nectria pseudotrichia* 120-1NP // plant *Gliricidia sepium*

537 // N // nectrianolin A // cytotox./potent vs 1 TCL; weak-mod. vs 1 TCL

538 // N // nectrianolin B // cytotox./potent vs 1 TCL; weak-mod. vs 1 TCL

4.3.10 *Paraconiothyrium* sp. (5)

184. Mohamed, I. E.; Gross, H.; Pontius, A.; Kehraus, S.; Krick, A.; Kelter, G.; Maier, A.; Fiebig, H. H.; Konig, G. M., Epoxyphomalin A and B, prenylated polyketides with potent cytotoxicity from the marine-derived fungus Phoma sp. *Org Lett* **2009,** 11, (21), 5014-7.

185. Mohamed, I. E.; Kehraus, S.; Krick, A.; Konig, G. M.; Kelter, G.; Maier, A.; Fiebig, H. H.; Kalesse, M.; Malek, N. P.; Gross, H., Mode of action of epoxyphomalins A and B and characterization of related metabolites from the marine-derived fungus *Paraconiothyrium* sp. *J Nat Prod* **2010,** 73, (12), 2053-6.

- Ascomycota *Paraconiothyrium* cf *sporulosum* // marine sponge *Ectyplasia perox*

539 // N // epoxyphomalin A // cytotox./potent vs 12 TCLs; others/potent vs 20S proteasome inhib. // ref. 184-185

540 // N // epoxyphomalin B // cytotox./potent vs 8 TCLs; others/potent vs 20S proteasome inhib. // ref. 184-185

541 // N // epoxyphomalin C // cytotox./IA vs 36 TCLs // ref. 184

542 // N // epoxyphomalin D // cytotox./potent vs 2 TCLs // ref. 184

543 // N // epoxyphomalin E // cytotox./IA vs 36 TCLs // ref. 184

4.3.11 *Penicillium* sp. (15)

186. Liu, S.; Su, M.; Song, S. J.; Hong, J.; Chung, H. Y.; Jung, J. H., An Anti-Inflammatory PPAR-gamma Agonist from the Jellyfish-Derived Fungus Penicillium chrysogenum J08NF-4. *J Nat Prod* **2018,** 81, (2), 356-363.

- Ascomycota *Penicillium chrysogenum* J08NF-4 // marine animal jellyfish

544 // N // chrysogenester // AI/weak-mod. vs PPAR–γ/NF–κB

545 // N // 5–farnesyl–2–methyl–1–O–methylhydroquinone // AI/IA vs PPAR–γ/NF–κB

187. Wang, J.-P.; Shu, Y.; Liu, S.-X.; Hu, J.-T.; Sun, C.-T.; Zhou, H.; Gan, D.; Cai, X.-Y.; Pu, W.; Cai, L.; Ding, Z.-T., Expanstines A–D: four unusual isoprenoid epoxycyclohexenones generated by Penicillium expansum YJ-15 fermentation and photopromotion. *Org Chem Front* **2019,** 6, (23), 3839-3846.

- Ascomycota *Penicillium expansum* YJ-15// plant *Aconitum vilmorinianum* Kom

546 // N // expanstine A // AI/potent vs NO; cytotox./IA vs 5 TCLs; AB/IA vs 2 bact.; AF/IA vs 1 fungus

547 // N // expanstine B // cytotox./potent vs 5 TCLs; AI/potent vs NO; AB/IA vs 2 bact.; AF/IA vs 1 fungus

548 // N // expanstine C // cytotox./potent vs 5 TCLs; AI/potent vs NO; AB/potent vs 1 bact.; AF/IA vs 1 fungus

549 // N // expanstine D // cytotox./potent vs 5 TCLs; AI/potent vs NO; AB/potent vs 1 bact.; AF/IA vs 1 fungus

188. Fang, S. M.; Cui, C. B.; Li, C. W.; Wu, C. J.; Zhang, Z. J.; Li, L.; Huang, X. J.; Ye, W. C., Purpurogemutantin and purpurogemutantidin, new drimenyl cyclohexenone derivatives produced by a mutant obtained by diethyl sulfate mutagenesis of a marine-derived Penicillium purpurogenum G59. *Mar Drugs* **2012,** 10, (6), 1266-87.

- Ascomycota *Penicillium purpurogenum* BD-1-6 // bioactive mutant of marine soil sample-derived fungus *P. purpurogenum* G59

550 // N // purpurogemutantin // cytotox./potent vs 5 TCLs

551 // N // purpurogemutantidin // cytotox./potent vs 5 TCLs

189. Lin, X.; Zhou, X.; Wang, F.; Liu, K.; Yang, B.; Yang, X.; Peng, Y.; Liu, J.; Ren, Z.; Liu, Y., A new cytotoxic sesquiterpene quinone produced by Penicillium sp. F00120 isolated from a deep sea sediment sample. *Mar Drugs* **2012,** 10, (1), 106-15.

190. Lin, X.; Wu, Q.; Yu, Y.; Liang, Z.; Liu, Y.; Zhou, L.; Tang, L.; Zhou, X., Penicilliumin B, a novel sesquiterpene methylcyclopentenedione from a deep sea-derived Penicillium strain with renoprotective activities. *Sci Rep* **2017,** 7, (1), 10757-63.

- Ascomycota *Penicillium* sp. F00120 // deep sea sediment

552 // N // penicilliumin A // cytotox./weak-mod. vs 3 TCLs; AV/IA vs 3 virus // ref. 189

553 // N // penicilliumin B // others/potent vs renoprotective activity (kidney fibrogenic action) // ref.190

191. Yang, Y.; Yang, F.; Zhao, L.; Duang, R.; Chen, G.; Li, X.; Li, Q.; Qin, S.; Ding, Z., A new polyoxygenated farnesylcyclohexenone from Fungus Penicillium sp. *Nat Prod Res* **2016,** 30, (1), 65-8.

- Ascomycota *Penicillium* sp. YIM PH30003 // plant *Panax notoginseng*

554 // N // peniginsengin A // AF/ weak-mod. vs 1 fungus; AB/IA vs 1 bact.; cytotox./IA vs 5 TCLs

192. Cheng, Z.; Xu, W.; Liu, L.; Li, S.; Yuan, W.; Luo, Z.; Zhang, J.; Cheng, Y.; Li, Q., Peniginsengins B(-)E, New Farnesylcyclohexenones from the Deep Sea-Derived Fungus Penicillium sp. YPGA11. *Mar Drugs* **2018,** 16, (10), 358-367.

- Ascomycota *Penicillium* sp. YPGA11 // deep sea sediment

555 // N // peniginsengin B // IA vs 2 bact.

556 // N // peniginsengin C // AB/weak-mod. vs 2 bact.

557 // N // peniginsengin D // AB/weak-mod. vs 1 bact.

558 // N // peniginsengin E // AB/weak-mod. vs 2 bact.

4.3.12 *Peyronellaea* sp. (1)

193. Li, C. S.; Ren, G.; Yang, B. J.; Miklossy, G.; Turkson, J.; Fei, P.; Ding, Y.; Walker, L. A.; Cao, S., Meroterpenoids with Antiproliferative Activity from a Hawaiian-Plant Associated Fungus Peyronellaea coffeae-arabicae FT238. *Org Lett* **2016,** 18, (10), 2335-8.

- Ascomycota *Peyronellaea coffeae-arabicae* FT238 // Hawaiian plant *Pritchardia lowreyana*

559 // N // 11–dehydroxy epoxyphomalin A // cytotox./potent vs 1 TCL and 1 regulator (Stat3)

4.3.13 *Phialocephala* sp. (1)

194. Chen, L.; Li, D. H.; Cai, S. X.; Wang, F. P.; Xiao, X.; Gu, Q. Q., A new cytotoxic metabolite from a deep sea derived fungus, Phialocephala sp. *Acta Pharm Sin* **2010,** 45, (10), 1275-8.

- Ascomycota *Phialocephala* sp. FL30r // deep-sea sediment

560 // N // * // cytotox./potent vs 2 TCLs

4.3.14 *Pleosporales* sp. (4)

195. Chen, C. J.; Zhou, Y. Q.; Liu, X. X.; Zhang, W. J.; Hu, S. S.; Lin, L. P.; Huo, G. M.; Jiao, R. H.; Tan, R. X.; Ge, H. M., Antimicrobial and anti-inflammatory compounds from a marine fungus Pleosporales sp. *Tetrahedron Lett* **2015,** 56, (45), 6183-6189.

- Ascomycota *Pleosporales* sp. // marine alga

561 // N // pleosporallin A // AI/weak-mod. vs IL–6; AB/IA vs 5 bact.; AF/IA vs 1 fungus

562 // N // pleosporallin B // AI/weak-mod. vs IL–6; AB/IA vs 5 bact.; AF/IA vs 1 fungus

563 // N // pleosporallin C // AI/weak-mod. vs IL–6; AB/IA vs 5 bact.; AF/IA vs 1 fungus

564 // N // pleosporallin D // AB/weak-mod. vs 5 bact.; AI/IA vs IL–6; AF/IA vs 1 fungus

4.3.15 *Trichoderma* sp. (16)

196. Hirose, A.; Maeda, H.; Tonouchi, A.; Nehira, T.; Hashimoto, M., Neomacrophorin I, II, and III, novel drimenyl cyclohexanes with hydroxylated butanoates from Trichoderma sp. 1212-03. *Tetrahedron* **2014,** 70, (7), 1458-1463.

197. Nishiyama, M.; Maeda, H.; Tonouchi, A.; Hashimoto, M., Neomacrophorin and premacrophorin congeners from Trichoderma sp. 1212-03. *Tetrahedron* **2019,** 75, (22), 2993-3000.

198. Uesugi, S.; Honmura, Y.; Nishiyama, M.; Kusakabe, K.; Tonouchi, A.; Yamashita, T.; Hashimoto, M.; Kimura, K. I., Identification of neomacrophorins isolated from Trichoderma sp. 1212-03 as proteasome inhibitors. *Bioorg Med Chem* **2019,** 27, (24), 115161-9.

- Ascomycota *Trichoderma* sp. 1212–03 // fruiting body of *Daedaleopsis tricolor*

565 // N // neomacrophorin I // AF/potent vs 1 fungus; cytotox./weak-mod. vs 2 TCLs; others/weak-mod. vs proteasome inhib. // ref. 196-198

566 // N // neomacrophorin II // cytotox./weak-mod. vs 1TCL; AF/potent vs 1 fungus; others/weak-mod. vs proteasome inhib. // ref. 196-198

567 // N // neomacrophorin III // cytotox./weak-mod. vs 1TCL; AF/potent vs 1 fungus others/weak-mod. vs proteasome inhib. // ref. 196-198

568 // N // 3–deoxyneomacrophorin IV // cytotox./weak-mod. vs 1TCL // ref. 197

569 // N // 3–oxoneomacrophorin I // cytotox./IA vs 1TCL // ref. 197

570 // N // 3–oxoneomacrophorin II // cytotox./IA vs 1TCL // ref. 197

571 // N // neomacrophorin VII // cytotox./IA vs 1TCL // ref. 197

572 // N // 5'–epimacrophorin B // I cytotox./IA vs 1TCL // ref. 197

573 // N // 5'–deoxyneomacrophorin IV // cytotox./weak-mod. vs 1TCL // ref. 197

574 // N // premacrophorin III // cytotox./IA vs 1TCL // ref. 197

575 // N // premacrophorindiol // cytotox./IA vs 1TCL // ref. 197

576 // N // premacrophorintriol-I // cytotox./IA vs 1TCL // ref. 197

577 // N // premacrophorintriol-II // cytotox./IA vs 1TCL // ref. 197

578 // N // neomacrophorin IV // cytotox./potent vs 1TCL; others/weak-mod. vs proteasome inhib. // ref. 198

579 // N // neomacrophorin V // cytotox./weak-mod. vs 1TCL; others/IA vs proteasome inhib. // ref. 198

580 // N // neomacrophorin VI // cytotox./potent vs 1TCL; others/weak-mod. vs proteasome inhib. // ref. 198

4.4. Other tetraketide–terpenoids (72, 581-652)

4.4.1 Derived from 3-Methylorsellinic acid (3-MOA) (10, 581-590)

4.4.1.1 *Albatrellus* sp. (3)

199. Guo, H.; Li, Z. H.; Feng, T.; Liu, J. K., One new ergostane-type steroid and three new phthalide derivatives from cultures of the basidiomycete Albatrellus confluens. *J Asian Nat Prod Res* **2015,** 17, (2), 107-13.

- Basidiomycota *Albatrellus confluens* // *****

581 // N // 5-(20,30-epoxy-30,30-dimethylpropoxy)-7-methoxy-6-methylphthalide // cytotox./IA vs 2 TCLs

582 // N // (20)-(*Z*)-5-(30-hydroxymethyl-30-methylallyloxy)-7-methoxy-6-methylphthalide // cytotox./IA vs 2 TCLs

583 // N // 5-(30,30-di-methylallyloxy)-7-hydroxy-6-methylphthalide // cytotox./potent vs 1 TCL, weak-mod. vs 1 TCL

4.4.1.2 *Stachylidium* sp. (7)

200. Almeida, C.; Hemberger, Y.; Schmitt, S. M.; Bouhired, S.; Natesan, L.; Kehraus, S.; Dimas, K.; Gutschow, M.; Bringmann, G.; Konig, G. M., Marilines A-C: novel phthalimidines from the sponge-derived fungus Stachylidium sp. *Chem Eur J* **2012,** 18, (28), 8827-34.

201. Almeida, C.; Kehraus, S.; Prudencio, M.; Konig, G. M., Marilones A-C, phthalides from the sponge-derived fungus Stachylidium sp. *Beilstein J Org Chem* **2011,** 7, 1636-42.

202. Almeida, C.; Eguereva, E.; Kehraus, S.; Konig, G. M., Unprecedented polyketides from a marine sponge-associated Stachylidium sp. *J Nat Prod* **2013,** 76, (3), 322-6.

- Ascomycota *Stachylidium* sp. 220 // sponge *Callyspongia* sp.

584 // N // mariline A_1 // enzyme inhib./potent vs HLE and cholesterol esterase, IA vs protein kinases; cytotox./weak-mod. vs 5 TCLs; others/potent vs antiplasmodial activity, weak-mod. vs anti-parasitic activity; AB/IA vs 1 bact. // ref. 200

585 // N // mariline A_2 // enzyme inhib./potent vs HLE and cholesterol esterase, IA vs protein kinases; cytotox./weak-mod. vs 19 TCLs; others/potent vs antiplasmodial activity, potent vs antagonistic activity 3 receptors (histamine receptor H2, dopamine receptor DAT and adrenergic receptor Beta3); AB/IA vs 1 bact. // ref. 200

586 // N // mariline B // others/potent vs antiplasmodial activity, potent vs antagonistic activity on 1 receptor (cannabinoid receptor CB2); enzyme inhib./IA vs HLE and cholesterol esterase, IA vs protein kinases; AB/IA vs 1 bact. // ref. 200

587 // N // marilone A // cytotox./weak-mod. vs 3 TCLs; others/potent vs antiplasmodial activity, IA vs antidiabetic activity; IA vs NF-κB protein complex; enzyme inhib./IA vs protein kinases and proteases; AB/ IA vs 4 bact.; AV/IA vs 1 virus // ref. 201

588 // N // marilone C // cytotox./weak-mod. vs 3 TCLs; others/IA vs antiplasmodial activity, IA vs antidiabetic activity; IA vs NF-κB protein complex; enzyme inhib./IA vs protein kinases and proteases; AB/ IA vs 4 bact.; AV/IA vs 1 virus // ref. 201

589 // N // maristachone D // AB/IA vs 4 bact.; AF/IA vs 1 fungus; LT/IA vs antialgal activity; AV/IA vs 1 virus; enzyme inhib./IA vs protein kinases and proteases; others/IA vs psychoactive, IA vs antidiabetic activity; IA vs NF-κB protein complex // ref. 202

590 // N // maristachone E // AB/IA vs 4 bact.; AF/IA vs 1 fungus; LT/IA vs antialgal activity; AV/IA vs 1 virus; enzyme inhib./IA vs protein kinases and proteases; others/IA vs psychoactive, IA vs antidiabetic activity; IA vs NF-κB protein complex // ref. 202

4.4.2 Derived from 5–Methylorsellinic acid (5–MOA) (34, 591-624)

4.4.2.1 *Aspergillus* sp. (11)

203. Zhou, Y. M.; Mandi, A.; Debbab, A.; Wray, V.; Schulz, B.; Muller, W. E. G.; Lin, W. H.; Proksch, P.; Kurtan, T.; Aly, A. H., New Austalides from the Sponge-Associated Fungus *Aspergillus* sp. *Eur J Org Chem* **2011,** 2011, (30), 6009-6019.

204. Zhou, Y.; Debbab, A.; Wray, V.; Lin, W.; Schulz, B.; Trepos, R.; Pile, C.; Hellio, C.; Proksch, P.; Aly, A. H., Marine bacterial inhibitors from the sponge-derived fungus *Aspergillus* sp. *Tetrahedron Lett* **2014,** 55, (17), 2789-2792.

- Ascomycota *Aspergillus* sp. // Mediterranean sponge *Tethya aurantium*

591 // N // austalide M // AB/potent vs 6 bact.; cytotox./IA vs 1 TCL // ref. 203-204
592 // N // austalide N // AB/potent vs 2 bact.; cytotox./IA vs 1 TCL // ref. 203-204
593 // N // austalide O // cytotox./IA vs 1 TCL // ref. 203
594 // N // austalide P // cytotox./IA vs 1 TCL // ref. 203
595 // N // austalide Q // cytotox./IA vs 1 TCL // ref. 203
596 // N // austalide R // AB/potent vs 6 bact., weak-mod. vs 2 bact. // ref. 204

205. Peng, J.; Zhang, X.; Wang, W.; Zhu, T.; Gu, Q.; Li, D., Austalides S-U, New Meroterpenoids from the Sponge-Derived Fungus *Aspergillus* aureolatus HDN14-107. *Mar Drugs* **2016,** 14, (7), 131-139.

- Ascomycota *Aspergillus aureolatus* HDN14–107 // marine sponge

597 // N // austalide S // cytotox./IA vs 1 TCL; AV/IA vs 1 virus
598 // N // austalide T // cytotox./IA vs 1 TCL; AV/IA vs 1 virus
599 // N // austalide U // AV/potent vs 1 virus; cytotox./IA vs 1 TCL

206. Antipova, T. V.; Zaitsev, K. V.; Oprunenko, Y. F.; Ya Zherebker, A.; Rystsov, G. K.; Zemskova, M. Y.; Zhelifonova, V. P.; Ivanushkina, N. E.; Kozlovsky, A. G., Austalides V and W, new meroterpenoids from the fungus *Aspergillus* ustus and their antitumor activities. *Bioorg Med Chem Lett* **2019,** 29, (22), 126708-13.

- Ascomycota *Aspergillus ustus* VKMF–4692 // building stone, Moscow Kremlin

600 // N // austalide V // cytotox./weak-mod. vs 2 TCLs; others/weak-mod. vs migration of LNCaP (AKT–mTOR signaling pathway, FAK, Src and HSP60)
601 // N // austalide W // cytotox./weak-mod. vs 2 TCLs; others/weak-mod. vs migration of LNCaP

4.4.2.2 *Eupenicillium* sp. (1)

207. León, F.; Gao, J.; Dale, O.; Wu, Y.; Habib, E.; Husni, A.; Hill, R.; Cutler, S., Secondary Metabolites from Eupenicillium parvum and Their in Vitro Binding Affinity for Human Opioid and Cannabinoid Receptors. *Planta Med* **2013,** 79, (18), 1756-1761.

- Ascomycota *Eupenicillum parvum* // soil

602 // N // euparvilactone // others/IA vs 5 G-protein coupled receptors

4.4.2.3 *Laetiporus* sp. (1)

208. Fan, Q. Y.; Yin, X.; Li, Z. H.; Li, Y.; Liu, J. K.; Feng, T.; Zhao, B. H., Mycophenolic acid derivatives from cultures of the mushroom Laetiporus sulphureu. *Chin J Nat Med* **2014,** 12, (9), 685-8.

- Basidiomycota *Laetiporus sulphureu* // *

603 // N // *// cytotox./IA vs 5 TCLs

4.4.2.4 *Penicillium* sp. (21)

209. Lu, X.; Zheng, Z.; Zhang, H.; Huo, C.; Dong, Y.; Ma, Y.; Ren, X.; Ke, A.; He, J.; Gu, Y.; Shi, Q., Two new members of mycophenolic acid family from Penicillium brevicompactum Dierckx. *J Antibiot (Tokyo)* **2009,** 62, (9), 527-9.

- Ascomycota *Penicillium brevicompactum* Dierckx F01–1358 // soil sample

604 // N // F01–1358 A // enzyme inhib./weak-mod. vs IMPDH
605 // N // F01–1358 B // enzyme inhib./weak-mod. vs IMPDH

210. Chen, L.; Zhu, T.; Zhu, G.; Liu, Y.; Wang, C.; Piyachaturawat, P.; Chairoungdua, A.; Zhu, W., Bioactive Natural Products from the Marine-Derived Penicillium brevicompactum OUCMDZ-4920. *Chin J Org Chem* **2017,** 37, (10), 2752-2762.

- Ascomycota *Penicillium brevicompactum* OUCMDZ-4920 // marine sediment (-68 m), South China Sea

606 // N // (－)-brevicolide A // AB/IA vs 5 bact.; AF/IA vs 3 fungi; cytotox./IA vs 7 TCLs
607 // N // (＋)-brevicolide A // AB/IA vs 5 bact.; AF/IA vs 3 fungi; cytotox./IA vs 7 TCLs
608 // N // (－)-brevicolide B // AB/IA vs 5 bact.; AF/IA vs 3 fungi; cytotox./IA vs 7 TCLs
609 // N // (＋)-brevicolide B // AB/IA vs 5 bact.; AF/IA vs 3 fungi; cytotox./IA vs 7 TCLs

211. Zhuravleva, O. I.; Sobolevskaya, M. P.; Leshchenko, E. V.; Kirichuk, N. N.; Denisenko, V. A.; Dmitrenok, P. S.; Dyshlovoy, S. A.; Zakharenko, A. M.; Kim, N. Y.; Afiyatullov, S., Meroterpenoids from the alga-derived fungi Penicillium thomii Maire and Penicillium lividum Westling. *J Nat Prod* **2014,** 77, (6), 1390-5.

212. Sobolevskaya, M. P.; Zhuravleva, O. I.; Leshchenko, E. V.; Zakharenko, A. M.; Denisenko, V. A.; Kirichuk, N. N.; Popov, R. S.; Berdyshev, D. V.; Pislyagin, E. A.; Pivkin, M. V.; Afiyatullov, S. S., New metabolites from the alga-derived fungi Penicillium thomii Maire and Penicillium lividum Westling. *Phytochem Lett* **2016,** 15, 7-12.

- Ascomycota *Penicillium lividum* Westling KMM 4663 // marine brown alga *Sargassum miyabei*

610 // N // austalide H acid // enzyme inhib./potent vs *endo*–1,3–*β*–D–glucanase; others/weak-mod. vs AP–1-dependent transcriptional activity; cytotox./IA vs 2 TCLs // ref. 211

611 // N // austalide P acid butyl ester // enzyme inhib./potent vs *endo*–1,3–*β*–D–glucanase // ref. 211

612 // N // austalide P acid // enzyme inhib./potent vs *endo*–1,3–*β*–D–glucanase // ref. 211

613 // N // austalide Q acid // enzyme inhib./potent vs *endo*–1,3–*β*–D–glucanase // ref. 211

614 // N // 13–deoxyaustalide Q acid // cytotox./IA vs 2 TCLs; enzyme inhib./IA vs *endo*–1,3–*β*–D–glucanase; others/IA vs AP–1-dependent transcriptional activity // ref. 211

615 // N // 17–O–demethylaustalide B // enzyme inhib./IA vs *endo*–1,3–*β*–D–glucanase // ref. 211

616 // N // 13–O–deacetylaustalide I // enzyme inhib./potent vs *endo*–1,3–*β*–D–glucanase; others/weak-mod. vs AP–1-dependent transcriptional activity; cytotox./IA vs 2 TCLs // ref. 211

617 // N // 13–deacetoxyaustalide I // enzyme inhib./potent vs *endo*–1,3–*β*–D–glucanase; others/weak-mod. vs AP–1-dependent transcriptional activity; cytotox./IA vs 2 TCLs // ref. 211

618 // N // 17*S*–dihydroaustalide K // ND // ref. 211

- Ascomycota *Penicillium thomii* Maire KMM 4645 // marine brown alga *Sargassum miyabei*

619 // N // austalide H acid ethyl ester // enzyme inhib./potent vs *endo*–1,3–*β*–D–glucanase // ref. 212

620 // N // austalide H acid butyl ester // enzyme inhib./potent vs *endo*–1,3–*β*–D–glucanase; others/weak-mod. vs AP–1-dependent transcriptional activity; cytotox./IA vs 2 TCLs // ref. 213

213. Wang, W.; Lee, J.; Kim, K. J.; Sung, Y.; Park, K. H.; Oh, E.; Park, C.; Son, Y. J.; Kang, H., Austalides, Osteoclast Differentiation Inhibitors from a Marine-Derived Strain of the Fungus Penicillium rudallense. J Nat Prod 2019, 82, (11), 3083-3088.

- Ascomycota *Penicillium rudallense* // marine sediment

621 // N // austalide V1 // others/potent vs inhibition of RANKL-induced osteoclast differentiation

622 // N // austalide W1 // others/potent vs inhibition of RANKL-induced osteoclast differentiation

623 // N // austalide X // others/IA vs inhibition of RANKL-induced osteoclast differentiation

624 // N // 6–[(2*E*,6*E*)–10,11–Dihydro–11–hydroxyfarnesyl]–5,7–dihydroxy–4–methyl–phthalide // others/IA vs inhibition of RANKL-induced osteoclast differentiation

4.4.3 Other tetraketide-terpenoids (28, 625-652)

4.4.3.1 *Albatrellus* sp. (16)

214. Liu, L. Y.; Li, Z. H.; Wang, G. Q.; Wei, K.; Dong, Z. J.; Feng, T.; Li, G. T.; Li, Y.; Liu, J. K., Nine new farnesylphenols from the basidiomycete albatrellus caeruleoporus. *Nat Prod Bioprospect* **2014,** 4, (2), 119-28.

- Basidiomycota *Albatrellus caeruleoporus* // *

625 // N // (*S*)–17–hydroxy–18,20–ene–neogrifolin // cytotox./IA vs 5 TCLs

626 // N // (*S*)–18,19–dihydroxy–neogrifolin // cytotox./IA vs 5 TCLs

627 // N // (*S*)–9–hydroxy–10,22–ene–neogrifolin // cytotox./IA vs 5 TCLs

628 // N // (9*S*,10*R*)–6,10–epoxy–9–hydroxyneogrifolin // cytotox./IA vs 5 TCLs

629 // N // (9*S*,10*R*)–6,9–epoxy–10–hydroxyneo-grifolin // cytotox./IA vs 5 TCLs

630 // N // (–)–13,14–dihydroxyneogrifolin // cytotox./IA vs 5 TCLs

631 // N // albatrelin G // cytotox./weak-mod. vs 4 TCLs

632 // N // albatrelin H // cytotox./weak-mod. vs 4 TCLs

633 // N // (*S*)–10–hydroxygrifolin // cytotox./IA vs 5 TCLs

215. Liu, L. Y.; Li, Z. H.; Ding, Z. H.; Dong, Z. J.; Li, G. T.; Li, Y.; Liu, J. K., Meroterpenoid pigments from the basidiomycete Albatrellus ovinus. *J Nat Prod* **2013,** 76, (1), 79-84.

- Basidiomycota *Albatrellus ovinus* // *

634 // N // albatrelin A // cytotox./IA vs 5 TCLs

635 // N // albatrelin B // cytotox./IA vs 5 TCLs

636 // N // albatrelin C // cytotox./IA vs 5 TCLs

637 // N // albatrelin D // cytotox./IA vs 5 TCLs
638 // N // albatrelin E // cytotox./IA vs 5 TCLs
639 // N // albatrelin F // cytotox./IA vs 5 TCLs

216. Zhang, L.; Dong, Z.; Liu, J., A New Grifolin Derivative from the Mushroom Albatrellus yasuda (Polyporaceae). *Acta Bota Yunnanica* **2009,** 31, (2), 187-189.

- Basidiomycota *Albatrellus yasuda* // *
  640 // N // grifolene // *

4.4.3.2 *Neosetophoma* sp. (5)

217. El-Elimat, T.; Raja, H. A.; Ayers, S.; Kurina, S. J.; Burdette, J. E.; Mattes, Z.; Sabatelle, R.; Bacon, J. W.; Colby, A. H.; Grinstaff, M. W.; Pearce, C. J.; Oberlies, N. H., Meroterpenoids from Neosetophoma sp.: A Dioxa[4.3.3]propellane Ring System, Potent Cytotoxicity, and Prolific Expression. *Org Lett* **2019,** 21, (2), 529-534.

- Ascomycota *Neosetophoma* sp. MSX50044 // *
  641 // N // neosetophomone A // cytotox./potent vs 6 TCLs; others/IA vs mitochondrial toxicity
  642 // N // neosetophomone B // cytotox./potent vs 6 TCLs; others/IA vs mitochondrial toxicity
  643 // N // dehydroxyeupenifeldin // cytotox./potent vs 6 TCLs
  644 // N // noreupenifeldin B // cytotox./potent vs 6 TCLs
  645 // N // 22–hydroxyramiferin // cytotox./potent vs 6 TCLs

4.4.3.3 *Penicillium* sp. (1)

160. Duan, R., Zhou, H., Yang, Y., Li, H., Dong, J., Li, X., Chen, G., Zhao, L., Ding, Z., Antimicrobial meroterpenoids from the endophytic fungus Penicillium sp. T2-8 associated with Gastrodia elata. *Phytochemistry Letters* **2016,** 18, 197-201.

- Ascomycota *Penicillium* sp. T2-8 // plant *Gastrodia elata*
  646 // N // dihydroxyneogrifolic acid // AB/weak-mod. vs 2 bact.; AF/weak-mod. vs 1 fungus; cytotox./IA vs 5 TCLs

4.4.3.4 *Phoma* sp. (6)

218. Zhang, J.; Liu, L.; Wang, B.; Zhang, Y.; Wang, L.; Liu, X.; Che, Y., Phomanolides A and B from the Fungus Phoma sp.: Meroterpenoids Derived from a Putative Tropolonic Sesquiterpene via Hetero-Diels-Alder Reactions. *J Nat Prod* **2015,** 78, (12), 3058-66.

219. Zhang, J.; Li, Y.; Ren, F.; Zhang, Y.; Liu, X.; Liu, L.; Che, Y., Phomanolides C-F from a Phoma sp.: Meroterpenoids Generated via Hetero-Diels-Alder Reactions. *J Nat Prod* **2019,** 82, (6), 1678-1685.

- Ascomycota *Phoma* sp. // soil sample
  647 // N // phomanolide A // cytotox./potent vs 2 TCLs // ref. 218
  648 // N // phomanolide B // cytotox./IA vs 4 TCLs // ref. 218
  649 // N // phomanolide C // cytotox./IA vs 5 TCLs // ref. 219
  650 // N // phomanolide D // cytotox./weak-mod. vs 5 TCLs // ref. 219
  651 // N // phomanolide E // cytotox./IA vs 5 TCLs // ref. 219
  652 // N // phomanolide F // cytotox./weak-mod. vs 5 TCLs // ref. 219

5. Other polyketide–terpenoids (78, 653-730)

5.1 *Arthrinium* sp. (10)

220. Elissawy, A. M.; Ebada, S. S.; Ashour, M. L.; Özkaya, F. C.; Ebrahim, W.; Singab, A. B.; Proksch, P., Spiroarthrinols a and B, two novel meroterpenoids isolated from the sponge- derived fungus Arthrinium sp. *Phytochem Lett* **2017,** 20, 246-251.

- Ascomycota *Arthrinium* sp. // marine sponge *Sarcotragus muscarum*
  653 // N // spiroarthrinol A // cytotox./IA vs 1 TCL
  654 // N // spiroarthrinol B // cytotox./IA vs 1 TCL

221. Zhang, X.; Wang, T. T.; Xu, Q. L.; Xiong, Y.; Zhang, L.; Han, H.; Xu, K.; Guo, W. J.; Xu, Q.; Tan, R. X.; Ge, H. M., Genome Mining and Comparative Biosynthesis of Meroterpenoids from Two Phylogenetically Distinct Fungi. *Angew Chem Int Ed Engl* **2018,** 57, (27), 8184-8188.

- Ascomycota *Arthrinium* sp. NF2194 *and Nectria* sp. Z14–w // *
  655 // N // arthripenoid A // others/IA vs immunosuppressive activity (ConA-induced T cells)
  656 // N // arthripenoid B // others/IA vs immunosuppressive activity (ConA-induced T cells)
  657 // N // arthripenoid C // others/potent vs immunosuppressive activity (ConA-induced T cells)
  658 // N // arthripenoid D // others/IA vs immunosuppressive activity (ConA-induced T cells)
  659 // N // arthripenoid E // others/IA vs immunosuppressive activity (ConA-induced T cells)
  660 // N // arthripenoid F // others/IA vs immunosuppressive activity (ConA-induced T cells)
  661 // N // nectripenoid A // others/IA vs immunosuppressive activity (ConA-induced T cells)
  662 // N // nectripenoid B // others/IA vs immunosuppressive activity (ConA-induced T cells)

5.2 *Bipolaris* sp. (17)

222. Qi, Q. Y.; Huang, L.; He, L. W.; Han, J. J.; Chen, Q.; Cai, L.; Liu, H. W., Cochlioquinone derivatives with apoptosis-inducing effects on HCT116 colon cancer cells from the phytopathogenic fungus Bipolaris luttrellii L439. *Chem Biodivers* **2014,** 11, (12), 1892-9.

- Ascomycota *Bipolaris luttrellii.* L439 // *
  663 // N // cochlioquinone F // cytotox./IA vs 1 TCL

223. Wang, M.; Sun, Z. H.; Chen, Y. C.; Liu, H. X.; Li, H. H.; Tan, G. H.; Li, S. N.; Guo, X. L.; Zhang, W. M., Cytotoxic cochlioquinone derivatives from the endophytic fungus Bipolaris sorokiniana derived from Pogostemon cablin. *Fitoterapia* **2016,** 110, 77-82.

224. M, W.; YC, C.; HH, L.; ZH, S.; HX, L.; GH, T.; HJ, Y.; XL, G.; WM, Z., A new cochlioquinone from endophytic fungus Bipolaris sorokiniana derived from Pogostemon cablin and its bioactivity. *Chin Trad Herb Drugs* **2016**, 2601-2605.

- Ascomycota *Bipolaris sorokiniana* A606 // medicinal plant *Pogostemon cablin*
  664 // N // isocochlioquinone D // cytotox./weak-mod. vs 4 TCLs // ref. 223
  665 // N // isocochlioquinone E // cytotox./weak-mod. vs 4 TCLs // ref. 223
  666 // N // cochlioquinone G // cytotox./weak-mod. vs 4 TCLs // ref. 223
  667 // N // cochlioquinone H // cytotox./weak-mod. vs 4 TCLs // ref. 223
  668 // N // 11–hydroxy–12,13–dehydrocochlioquinone B // cytotox./weak-mod. vs 3 TCLs; AB/IA vs 2 bact. // ref. 224

225. Long, Y.; Tang, T.; Wang, L. Y.; He, B.; Gao, K., Absolute Configuration and Biological Activities of Meroterpenoids from an Endophytic Fungus of Lycium barbarum. *J Nat Prod* **2019,** 82, (8), 2229-2237.

- Ascomycota *Bipolaris* sp. L1–2 // plant *Lycium barbarum*
  669 // N // bipolahydroquinone A // cytotox./IA vs 2 TCLs
  670 // N // bipolahydroquinone B // cytotox./IA vs 2 TCLs
  671 // N // bipolahydroquinone C // cytotox./potent vs 2 TCLs
  672 // N // cochlioquinone I // cytotox./potent vs 2 TCLs
  673 // N // cochlioquinone J // cytotox./IA vs 2 TCLs; AB/IA vs 4 bact.
  674 // N // cochlioquinone K // cytotox./potent vs 1 TCL
  675 // N // cochlioquinone L // cytotox./potent vs 1 TCL
  676 // N // cochlioquinone M // cytotox./potent vs 1 TCL
  677 // N // isocochlioquinone F // cytotox./IA vs 2 TCLs; AB/IA vs 4 bact.
  678 // N // isocochlioquinone G // cytotox./IA vs 2 TCLs; AB/IA vs 4 bact.
  679 // N // cochlioquinone N // cytotox./IA vs 2 TCLs; AB/IA vs 4 bact.

5.3 Cochliobolus sp. (1)

226. Zhang, G. F.; Guo, Z. K.; Wang, W.; Cui, J. T.; Tan, R. X.; Ge, H. M., Neuraminidase inhibitory terpenes from endophytic Cochliobolus sp. *J Asian Nat Prod Res* **2011,** 13, (8), 761-4.

- Ascomycota *Cochliobolus* sp. // plant *Phragmites australis*

  680 // N // isocochlioquinone B // enzyme inhib./IA vs neuraminidase

5.4 *Cytospora* sp. (3)

227. Li, Y.; Niu, S. B.; Sun, B. D.; Liu, S. C.; Liu, X. Z.; Che, Y. S., Cytosporolides A-C, Antimicrobial Meroterpenoids with a Unique Peroxylactone Skeleton from Cytospora sp. *Organic Letters* **2010,** 12, (14), 3144-3147.

228. Spence, J. T. J.; George, J. H., Structural Reassignment of Cytosporolides A-C via Biomimetic Synthetic Studies and Reinterpretation of NMR Data. *Organic Letters* **2011,** 13, (19), 5318-5321.

- Ascomycota *Cytospora* sp. // soil–sample

  681 // N // cytosporolide A // AB/weak-mod. vs 2 bact.

  682 // N // cytosporolide B // AB/weak-mod. vs 2 bact.

  683 // N // cytosporolide C // AB/potent vs 2 bact.

5.5 *Helminthosporium* sp. (2)

229. Arayama, M.; Nehira, T.; Maeda, H.; Tanaka, K.; Miyagawa, H.; Ueno, T.; Hosokawa, S.; Hashimoto, M., Isolation, ECD assisted structural analyses, biosynthetic discussions, and biological activities of epi-cochlioquinones D and its derivatives. *Tetrahedron* **2015,** 71, (29), 4788-4794.

- Ascomycota *Helminthosporium velutinum* TS28 // dead branches of *Sambucus sieboldiana*

  684 // N // *epi*–cochlioquinone D // AF/potent vs 1 fungus; cytotox./potent vs 1 TCL

  685 // N // 12–*α*–hydroxy–*epi*–cochlioquinone D // AF/potent vs 1 fungus; cytotox./potent vs 1 TCL

5.6 *Nigrospora* sp. (1)

230. Shang, Z.; Li, X. M.; Li, C. S.; Wang, B. G., Diverse secondary metabolites produced by marine-derived fungus Nigrospora sp. MA75 on various culture media. *Chem Biodivers* **2012,** 9, (7), 1338-48.

- Ascomycota *Nigrospora* sp. MA75 // marine semi–mangrove plant *Pongamia pinnata*

  686 // N // 2,3–didehydro–19–*α*–hydroxy–14–epicochlioquinone B // AB/potent vs 5 bact.; cytotox./weak-mod. vs 6 TCLs

5.7 *Penicillium* sp. (25)

231. Yamazaki, H.; Omura, S.; Tomoda, H., Pentacecilides, new inhibitors of lipid droplet formation in mouse macrophages produced by Penicillium cecidicola FKI-3765-1: II. Structure elucidation. *J Antibiot (Tokyo)* **2009,** 62, (4), 207-211.

232. Yamazaki, H.; Ugaki, N.; Matsuda, D.; Tomoda, H., Absolute stereochemistry of pentacecilides, new inhibitors of lipid droplet formation in mouse macrophages, produced by Penicillium cecidicola FKI-3765-1. *J Antibiot (Tokyo)* **2010,** 63, (6), 315-8.

- Ascomycota *Penicillium cecidicola* FKI–3765–1 // soil

  687 // N // pentacecilide A // enzyme inhib./potent vs cholesterol acyltransferase ACAT1 and ACAT2 isozymes // ref. 231-232

  688 // N // pentacecilide B // enzyme inhib./potent vs cholesterol acyltransferase ACAT1 and ACAT2 isozymes // ref. 231-232

  689 // N // pentacecilide C // enzyme inhib./IA vs cholesterol acyltransferase ACAT1 and ACAT2 isozymes // ref. 231-232

  690 // N // pentacecilide D // enzyme inhib./IA vs cholesterol acyltransferase ACAT1 and ACAT2 isozymes // ref. 232

233. Zhou, H.; Li, L.; Wang, W.; Che, Q.; Li, D.; Gu, Q.; Zhu, T., Chrodrimanins I and J from the Antarctic Moss-Derived Fungus Penicillium funiculosum GWT2-24. *J Nat Prod* **2015,** 78, (6), 1442-5.

- Ascomycota *Penicillium funiculosum* GWT2–24 // Antarctic moss

  691 // N // chrodrimanin I // cytotox./IA vs 4 TCLs; AB/ IA vs 2 bact.; AV/IA vs 1 virus

  692 // N // chrodrimanin J // cytotox./IA vs 4 TCLs; AB/ IA vs 2 bact.; AV/IA vs 1 virus

234. Kong, F. D.; Ma, Q. Y.; Huang, S. Z.; Wang, P.; Wang, J. F.; Zhou, L. M.; Yuan, J. Z.; Dai, H. F.; Zhao, Y. X., Chrodrimanins K-N and Related Meroterpenoids from the Fungus Penicillium sp. SCS-KFD09 Isolated from a Marine Worm, Sipunculus nudus. *J Nat Prod* **2017,** 80, (4), 1039-1047.

235. Kong, F. D.; Zhang, R. S.; Ma, Q. Y.; Xie, Q. Y.; Wang, P.; Chen, P. W.; Zhou, L. M.; Dai, H. F.; Luo, D. Q.; Zhao, Y. X., Chrodrimanins O-S from the fungus Penicillium sp. SCS-KFD09 isolated from a marine worm, Sipunculusnudus. *Fitoterapia* **2017,** 122, 1-6.

- Ascomycota *Penicillium* sp. SCS–KFD09 // marine worm *Sipunculus nudus*

693 // N // chrodrimanin K // AV/potent vs H1N1; enzyme inhib./IA vs AChE and *α*-glycosidase; AB/IA vs 1 bact.; LT/ IA vs *Panagrellus redivivus* // ref. 234

694 // N // chrodrimanin L // enzyme inhib./IA vs AChE and *α*-glycosidase; AB/IA vs 1 bact.; AV/IA vs 1 virus; LT/ IA vs *Panagrellus redivivus* // ref. 234

695 // N // chrodrimanin M // enzyme inhib./IA vs AChE and *α*-glycosidase; AB/IA vs 1 bact.; AV/IA vs 1 virus; LT/ IA vs *Panagrellus redivivus* // ref. 234

696 // N // chrodrimanin N // AV/potent vs H1N1; enzyme inhib./IA vs AChE and *α*-glycosidase; AB/IA vs 1 bact.; LT/ IA vs *Panagrellus redivivus* // ref. 234

697 // N // verruculide B2 // AB/weak-mod. vs 1 bact.; enzyme inhib./IA vs AChE and *α*-glycosidase; AV/IA vs 1 virus; LT/ IA vs *Panagrellus redivivus* // ref. 234

698 // N // verruculide B3 // enzyme inhib./IA vs AChE and *α*-glycosidase; AB/IA vs 1 bact.; AV/IA vs 1 virus; LT/ IA vs *Panagrellus redivivus* // ref. 234

699 // N // chrodrimanin O // enzyme inhib./weak-mod. vs PTP1B; cytotox./IA vs 4 TCLs // ref. 235

700 // N // chrodrimanin P // enzyme inhib./IA vs AChE, *α*-glycosidase and PTP1B; cytotox./IA vs 4 TCLs // ref. 235

701 // N // chrodrimanin Q // enzyme inhib./IA vs AChE, *α*-glycosidase and PTP1B; cytotox./IA vs 4 TCLs // ref. 235

702 // N // chrodrimanin R // enzyme inhib./weak-mod. vs PTP1B; cytotox./IA vs 4 TCLs // ref. 235

703 // N // chrodrimanin S // enzyme inhib./weak-mod. vs PTP1B; cytotox./IA vs 4 TCLs // ref. 235

236. Phipps, R. K.; Gotfredsen, C. H.; Paludan, S. R.; Frisvad, J. C.; Eriksen, K.; Petersen, B. O.; Duus, J. Ø.; Larsen, T. O., Hesseltins B–G, novel meroterpenoids from a new Penicillium species. *Tetrahedron Lett* **2011,** 52, (5), 598-601.

- Ascomycota *Penicillium* sp. IBT 14455 // the walls of Lechuguilla Cave, Carlsbad Caverns

704 // N // hesseltin B // AV/IA vs 1 virus

705 // N // hesseltin C // AV/ IA vs 1 virus

706 // N // hesseltin D // AV/ IA vs 1 virus

707 // N // hesseltin E // AV/ IA vs 1 virus

708 // N // hesseltin F // AV/ IA vs 1 virus

709 // N // hesseltin G // AV/ IA vs 1 virus

237. Yamazaki, H.; Nakayama, W.; Takahashi, O.; Kirikoshi, R.; Izumikawa, Y.; Iwasaki, K.; Toraiwa, K.; Ukai, K.; Rotinsulu, H.; Wewengkang, D. S.; Sumilat, D. A.; Mangindaan, R. E.; Namikoshi, M., Verruculides A and B, two new protein tyrosine phosphatase 1B inhibitors from an Indonesian ascidian-derived Penicillium verruculosum. *Bioorg Med Chem Lett* **2015,** 25, (16), 3087-90.

- Ascomycota *Penicillium verruculosum* TPU1311// marine animal Indonesian ascidian

710 // N // verruculide A // enzyme inhib./potent vs PTP1B

711 // N // verruculide B // enzyme inhib./weak-mod. vs PTP1B

5.8 *Periconia* sp. (5)

238. Ge, H. L.; Zhang, D. W.; Li, L.; Xie, D.; Zou, J. H.; Si, Y. K.; Dai, J., Two new terpenoids from endophytic fungus Periconia sp. F-31. *Chem Pharm Bull* **2011,** 59, (12), 1541-4.

239. Liu, J.-M.; Zhang, D.-W.; Zhang, M.; Chen, R.-D.; Yan, Z.; Zhao, J.-Y.; Zhao, J.-L.; Wang, N.; Dai, J.-G., Periconones B–E, new meroterpenoids from endophytic fungus Periconia sp. *Chin Chem Lett* **2017,** 28, (2), 248-252.

- Ascomycota *Periconia* sp. F–31// medicinal plant *Annona muricata*

712 // N // (+)–(3*S*,6*S*,7*R*,8*S*)–periconone A // cytotox./IA vs 6 TCLs // ref. 238

713 // N // periconone B // AV/potent vs 1 virus; cytotox./IA vs 6 TCLs // ref. 239
714 // N // periconone C // AV/IA vs 1 virus; cytotox./IA vs 6 TCLs // ref. 239
715 // N // periconone D // AV/IA vs 1 virus; cytotox./IA vs 6 TCLs // ref. 239
716 // N // periconone E // cytotox./potent vs 1 TCL; AV/IA vs 1 virus // ref. 239

5.9 *Peyronellaea* sp. (3)

193. Li, C. S., Ren, G., Yang, B. J., Miklossy, G., Turkson, J., Fei, P., Ding, Y., Walker, L. A., Cao, S., Meroterpenoids with Antiproliferative Activity from a Hawaiian-Plant Associated Fungus Peyronellaea coffeae-arabicae FT238. Org Lett 2016, 18, (10), 2335-8.

- Ascomycota *Peyronellaea coffeae-arabicae* FT238 // Hawaiian plant *Pritchardia lowreyana*

717 // N // peyronellin A // cytotox./weak-mod. vs 2 TCLs
718 // N // peyronellin B // cytotox./IA vs 12 TCLs
719 // N // peyronellin C // cytotox./IA vs 12 TCLs

5.10 *Phoma* sp. (1)

240. Gubiani, J. R.; Wijeratne, E. M.; Shi, T.; Araujo, A. R.; Arnold, A. E.; Chapman, E.; Gunatilaka, A. A., An epigenetic modifier induces production of (10'S)-verruculide B, an inhibitor of protein tyrosine phosphatases by Phoma sp. nov. LG0217, a fungal endophyte of Parkinsonia microphylla. *Bioorg Med Chem* **2017,** 25, (6), 1860-1866.

- Ascomycota *Phoma* sp. nov. LG0217 // *Parkinsonia microphylla* // treated with SAHA

720 // N // (10'*S*)–verruculide B // enzyme inhib./weak-mod. vs PTP1B, SHP1 and TCPTP

5.11 *Talaromyces* sp. (10)

241. Cao, X.; Shi, Y.; Wu, X.; Wang, K.; Huang, S.; Sun, H.; Dickschat, J. S.; Wu, B., Talaromyolides A-D and Talaromytin: Polycyclic Meroterpenoids from the Fungus Talaromyces sp. CX11. *Org Lett* **2019,** 21, (16), 6539-6542.

- Ascomycota *Talaromyces* sp. CX11 // *

721 // N // talaromyolide A // AV/IA vs 1 virus; cytotox./IA vs 13 TCLs
722 // N // talaromyolide B // AV/IA vs 1 virus; cytotox./IA vs 13 TCLs
723 // N // talaromyolide C // AV/IA vs 1 virus; cytotox./IA vs 13 TCLs
724 // N // talaromyolide D // AV/potent vs 1 virus; cytotox./IA vs 13 TCLs
725 // N // talaromytin // AV/IA vs 1 virus; cytotox./IA vs 13 TCLs

242. Hayashi, H.; Oka, Y.; Kai, K.; Akiyama, K., A new meroterpenoid, chrodrimanin C, from YO-2 of Talaromyces sp. *Biosci Biotechnol Biochem* **2012,** 76, (4), 745-8.

243. Hayashi, H.; Oka, Y.; Kai, K.; Akiyama, K., New chrodrimanin congeners, chrodrimanins D-H, from YO-2 of Talaromyces sp. *Biosci Biotechnol Biochem* **2012,** 76, (9), 1765-8.

- Ascomycota *Talaromyces* sp. Yo–2 // okara

726 // N // chrodrimanin C // LT/IA vs silkworms // ref. 242
727 // N // chrodrimanin D // LT/weak-mod. vs silkworms // ref. 243
728 // N // chrodrimanin E // LT/weak-mod. vs silkworms // ref. 243
729 // N // chrodrimanin F // LT/weak-mod. vs silkworms // ref. 243
730 // N // chrodrimanin G // LT/IA vs silkworms // ref. 243

6. Indole–terpenoids (114, 731-844)

6.1 Indole–diterpenoids (109, 731-839)

6.1.1 *Aspergillus* sp. (26)

244. Sun, K.; Li, Y.; Guo, L.; Wang, Y.; Liu, P.; Zhu, W., Indole diterpenoids and isocoumarin from the fungus, *Aspergillus* flavus, isolated from the prawn, Penaeus vannamei. *Mar Drugs* **2014,** 12, (7), 3970-81.

- Ascomycota *Aspergillus flavus* // Arthropoda, *Penaeus vannamei*, Lianyungang, China //

731 // N // 2*R*,4b*R*,6a*S*,12b*S*,12c*S*,14a*S*-4b-deoxy-β-aflatrem // cytotox./weak-mod. vs 1 TCL; enzyme inhib./weak-mod. vs PKC-beta; AB/weak-mod. vs 1 bact.

732 // N // 2*R*,4b*S*,6a*S*,12b*S*,12c*R*-9-isopentenyl paxilline D // cytotox./weak-mod. vs 1 TCL; enzyme inhib./IA vs PKC-beta; AB/IA vs 1 bact.

245. Zhang, P.; Li, X.-M.; Li, X.; Wang, B.-G., New indole-diterpenoids from the algal-associated fungus *Aspergillus* nidulans. *Phytochem Lett* **2015,** 12, 182-185.

- Ascomycota *Aspergillus nidulans* // Rhodophyta, *Polysiphonia scopulorum*, Yantai, China //

733 // N // 19-hydroxypenitrem A // LT/potent vs brine shrimp; enzyme inhib./weak-mod. vs PKC-beta; AB/weak-mod. vs 4 bact.

734 // N // 19-hydroxypenitrem E // LT/potent vs brine shrimp; AB/weak-mod. vs 4 bact.; enzyme inhib./IA vs PKC-beta

246. Ivanets, E. V.; Yurchenko, A. N.; Smetanina, O. F.; Rasin, A. B.; Zhuravleva, O. I.; Pivkin, M. V.; Popov, R. S.; von Amsberg, G.; Afiyatullov, S. S.; Dyshlovoy, S. A., Asperindoles A(-)D and a p-Terphenyl Derivative from the Ascidian-Derived Fungus *Aspergillus* sp. KMM 4676. *Mar Drugs* **2018,** 16, (7), 232-243.

- Ascomycota *Aspergillus* sp KMM 4676 // (unidentified coloinial ascidian) Shikotan Is., Pacific Ocean //

735 // N // asperindole A // cytotox./weak-mod. vs. 3 TCLs

736 // N // asperindole B // ND

737 // N // asperindole C // cytotox./IA vs. 3 TCLs

738 // N // asperindole D // ND

247. Qiao, M. F.; Ji, N. Y.; Liu, X. H.; Li, K.; Zhu, Q. M.; Xue, Q. Z., Indoloditerpenes from an algicolous isolate of *Aspergillus* oryzae. *Bioorg Med Chem Lett* **2010,** 20, (19), 5677-80.

- Ascomycota *Aspergillus oryzae* // (marine red alga *Heterosiphonia japonica*)//

739 // N // asporyzin A // AB/weak-mod. vs 1 bact.; AF/IA vs. 2 fungi; LT/weak-mod. vs brine shrimp; enzyme inhib./weak-mod. vs AChE

740 // N // asporyzin B // AB/weak-mod. vs 1 bact.; AF/IA vs. 2 fungi; LT/weak-mod.vs brine shrimp; enzyme inhib./weak-mod. vs AChE

741 // N // asporyzin C // AB/potent vs 1 bact.; AF/IA vs 2 fungi; LT/weak-mod. vs brine shrimp; enzyme inhib./weak-mod. vs AChE

248. Chea, S. Z., Y., Isolation of novel indole diterpenes and dihydrodibenzofuran from the marine fungus *Aspergillus* sp. *J. Pharm. Bioresour.* **2014,** 14, 39–45.

- Ascomycota *Aspergillus* sp. AF–119 and *Aspergillus* sp. JQG 1–6f // *

742 // N // * // ND

743 // N // * // ND

249. Petersen, L. M.; Frisvad, J. C.; Knudsen, P. B.; Rohlfs, M.; Gotfredsen, C. H.; Larsen, T. O., Induced sclerotium formation exposes new bioactive metabolites from *Aspergillus* sclerotiicarbonarius. *J Antibiot (Tokyo)* **2015,** 68, (10), 603-8.

- Ascomycota *Aspergillus sclerotiicarbonarius* IBT 28362 // *

744 // N // emindole SC // LT/potent vs larvicidal activity; AF/IA vs 1 fungus

250. Nakanishi, K.; Doi, M.; Usami, Y.; Amagata, T.; Minoura, K.; Tanaka, R.; Numata, A.; Yamada, T., Anthcolorins A–F, novel cytotoxic metabolites from a sea urchin-derived *Aspergillus* versicolor. *Tetrahedron* **2013,** 69, (23), 4617-4623.

- Ascomycota *Aspergillus versicolor* OUPS-N136 // marine sea urchin *Anthocidaris crassispana*

745 // N // anthcolorin A // cytotox./weak-mod. vs 1 TCL
746 // N // anthcolorin B // cytotox./potent vs 1 TCL
747 // N // anthcolorin C // cytotox./potent vs 1 TCL
748 // N // anthcolorin D // cytotox./potent vs 1 TCL
749 // N // anthcolorin E // cytotox./weak-mod. vs 1 TCL
750 // N // anthcolorin F // cytotox./weak-mod. vs 1 TCL

251. Elsbaey, M.; Tanaka, C.; Miyamoto, T., New secondary metabolites from the mangrove endophytic fungus *Aspergillus* versicolor. *Phytochem Lett* **2019,** 32, 70-76.

252. Zhang, D.; Yi, W.; Ge, H.; Zhang, Z.; Wu, B., A new antimicrobial indoloditerpene from a marine-sourced fungus *Aspergillus* versicolor ZZ761. *Nat Prod Res* **2019**, 1-6.

- Ascomycota *Aspergillus versicolor* // marine mangrove

751 // N // anthcolorin G // cytotox./IA vs 1 TCL // ref. 251
752 // N // anthcolorin H // cytotox./weak-mod. vs 1 TCL; AB/weak-mod. vs. 1 bact.; AF/ weak-mod. vs 1 fungus // ref. 252, also named 3*R*,9*S*,12*R*,13*S*,17*S*,18*S*)–2–carbonyl–3–hydroxylemeniveol // co-publication, ref. 252

253. Cai, S.; Du, L.; Gerea, A. L.; King, J. B.; You, J.; Cichewicz, R. H., Spiro fused diterpene-indole alkaloids from a creek-bottom-derived *Aspergillus* terreus. *Org Lett* **2013,** 15, (16), 4186-9.

- Ascomycota *Aspergillus terreus* // sediment of a small creek bed (Cedar Creek)

753 // N // teraspiridole A // cytotox./IA vs TCL; AB/IA vs bact.; AF/IA vsfungus; LT/IA vs planaria
754 // N // teraspiridole B // cytotox./IA vs TCL; AB/IA vs bact.; AF/ IA vs fungus; LT/weak-mod. vs planaria
755 // N // teraspiridole C // cytotox./IA vs TCL; AB/IA vs bact.; AF/IA vs fungus; LT/IA vs planaria
756 // N // teraspiridole D // cytotox./IA vs TCL; AB/IA vs bact.; AF/IA vs fungus; LT/IA vs planaria

6.1.2 *Chaunopycnis* sp. (1)

254. Tarui, Y.; Chinen, T.; Nagumo, Y.; Motoyama, T.; Hayashi, T.; Hirota, H.; Muroi, M.; Ishii, Y.; Kondo, H.; Osada, H.; Usui, T., Terpendole E and its derivative inhibit STLC- and GSK-1-resistant Eg5. *Chembiochem* **2014,** 15, (7), 934-8.

- Ascomycota *Chaunopycnis alba* Eg5 mutants // *

757 // N // 11-ketopaspaline // others/potent vs Eg5–microtubule–stimulated ATPase

6.1.3 *Cladosporium* sp. (1)

255. Han, X.; Bao, X. F.; Wang, C. X.; Xie, J.; Song, X. J.; Dai, P.; Chen, G. D.; Hu, D.; Yao, X. S.; Gao, H., Cladosporine A, a new indole diterpenoid alkaloid with antimicrobial activities from Cladosporium sp. *Nat Prod Res* **2019**, 1-7.

- Ascomycota *Cladosporium* sp. // *

758 // N // cladosporine A // AB/potent vs 1 bact., AF/weak-mod. vs 1 fungus

6.1.4 *Dichotomomyces* sp. (2)

256. Harms, H.; Rempel, V.; Kehraus, S.; Kaiser, M.; Hufendiek, P.; Muller, C. E.; Konig, G. M., Indoloditerpenes from a marine-derived fungal strain of Dichotomomyces cejpii with antagonistic activity at GPR18 and cannabinoid receptors. *J Nat Prod* **2014,** 77, (3), 673-7.

- Ascomycota *Dichotomomyces cejpeii* // Porifera, *Callyspongia* sp. cf. *C. flammea*, Bear Is., Australia

759 // N // emindole SB beta-mannoside // others/potent vs antagonist of CB2
760 // N // 27-O-methylasporyzin C // others/potent vs antagonist GPR18

6.1.5 *Drechmeria* sp. (11)

257. Zhao, J. C.; Wang, Y. L.; Zhang, T. Y.; Chen, Z. J.; Yang, T. M.; Wu, Y. Y.; Sun, C. P.; Ma, X. C.; Zhang, Y. X., Indole diterpenoids from the endophytic fungus Drechmeria sp. as natural antimicrobial agents. *Phytochemistry* **2018,** 148, 21-28.

258. Zhao, J. C.; Luan, Z. L.; Liang, J. H.; Cheng, Z. B.; Sun, C. P.; Wang, Y. L.; Zhang, M. Y.; Zhang, T. Y.; Wang, Y.; Yang, T. M.; Wu, Y. Y.; Zhang, Y. X.; Zhao, X. Y.; Ma, X. C., Drechmerin H, a novel 1(2), 2(18)-diseco indole diterpenoid from the fungus Drechmeria sp. as a natural agonist of human pregnane X receptor. *Bioorg Chem* **2018,** 79, 250-256.

259. Liang, J. H.; Huo, X. K.; Cheng, Z. B.; Sun, C. P.; Zhao, J. C.; Kang, X. H.; Zhang, T. Y.; Chen, Z. J.; Yang, T. M.; Wu, Y. Y.; Deng, X. P.; Zhang, Y. X., An indole diterpenoid isolated from the fungus Drechmeria sp. and its antimicrobial activity. *Nat Prod Res* **2019,** 33, (19), 2770-2776.

- Ascomycota *Drechmeria sp.* SYPF 8335 // the root of *Panax notoginseng*

761 // N // drechmerin A // AF/ weak-mod. vs 1 fungus; AB/weak-mod. vs 1 bact. // ref. 257

762 // N // drechmerin B // AF/weak-mod. vs 1 fungus, AB/weak-mod. vs 3 bact. // ref. 257

763 // N // drechmerin C // AB/weak-mod. vs 2 bact. // ref. 257

764 // N // drechmerin D // AF/IA vs 1 fungus; AB/IA vs 5 bact. // ref. 257

765 // N // drechmerin E // AF/IA vs 1 fungus; AB/IA vs 5 bact. // ref. 257

766 // N // drechmerin F // AF/IA vs 1 fungus; AB/IA vs 5 bact. // ref. 257

767 // N // drechmerin G // AF/weak-mod. vs 1 fungus; AB/weak-mod. vs 1 bact. // ref. 257

769// N // drechmerin H // others/potent vs antagonist of pregnane X receptor (PXR) // ref. 258

768 // N // 2′-epi terpendole A // others/IA vs PXR // ref. 258

771 // R // terpendole A // ND // ref. 258, abs. struc.

770 // N // drechmerin I // AF/IA vs 1 fungus; AB/weak-mod. vs 1 bact // ref. 259

6.1.6 *Eupenicillium* sp. (8)

260. Matsui, C.; Ikeda, Y.; Iinuma, H.; Kushida, N.; Kunisada, T.; Simizu, S.; Umezawa, K., Isolation of a novel paxilline analog pyrapaxilline from fungus that inhibits LPS-induced NO production. *J Antibiot (Tokyo)* **2014,** 67, (11), 787-90.

- Ascomycota *Eupenicillium shearii* PF1443 // soil sample, Okinawa

772 // N // pyrapaxilline // AI/weak-mod. vs NO

261. Zheng, C. J.; Bai, M.; Zhou, X. M.; Huang, G. L.; Shao, T. M.; Luo, Y. P.; Niu, Z. G.; Niu, Y. Y.; Chen, G. Y.; Han, C. R., Penicilindoles A-C, Cytotoxic Indole Diterpenes from the Mangrove-Derived Fungus Eupenicillium sp. HJ002. *J Nat Prod* **2018,** 81, (4), 1045-1049.

- Ascomycota *Eupenicillium* sp HJ002 // *Xylocarpus granatum* Koenig, South China Sea

773 // N // penicilindole A // cytotox./potent vs. 2 TCLs, weak-mod. vs 1 TCL; AB/IA vs 6 bact.

774 // N // penicilindole B // cytotox./weak-mod. vs. 3 TCLs; AB/IA vs 6 bact.

775 // N // penicilindole C // ND

262. Nozawa, K.; Nakadate, S.; Horie, H.; Fujii, Y.; Yaguchi, T., New Type Indole Diterpene, Eujindoles, from Eupenicillium javanicum. *Heterocycles* **2011,** 83, (2), 351-356.

263. Nozawa, K.; Nakadate, S.; Yaguchi, T., Two New Eujindoles from Eupenicillium javanicum. *Heterocycles* **2011,** 83, (8), 1867-1871.

- Ascomycota *Eupenicillium javanicum* IFM 59075 // soil, Chiba

776 // N // 17-hydroxyeujindole // ND // ref. 262

777 // N // 17-oxoeujindole // ND // ref. 262

778 // N // 8,21-dehydro-17-hydroxyeujindole // ND // ref. 263

779 // N // 8,21-dehydro-17,20-epoxyeujindole // ND // ref. 263

6.1.7 *Mucor* sp. (6)

264. Gao, S. S.; Li, X. M.; Williams, K.; Proksch, P.; Ji, N. Y.; Wang, B. G., Rhizovarins A-F, Indole-Diterpenes from the Mangrove-Derived Endophytic Fungus Mucor irregularis QEN-189. *J Nat Prod* **2016,** 79, (8), 2066-74.

- Mucoromycota *Mucor irregularis* QEN-189 // Tracheophyta, *Rhizophora stylosa*, stems, Hainan Is., China

780 // N // rhizovarin A // cytotox. /mod. to potent vs 2 TCLs

781 // N // rhizovarin B // cytotox./potent vs 2 TCLs

782 // N // rhizovarin C // cytotox./IA vs 2 TCLs

783 // N // rhizovarin D // cytotox./IA vs 2 TCLs

784 // N // rhizovarin E // cytotox./potent vs 1 TCLs

785 // N // rhizovarin F // cytotox./IA vs 2 TCLs

6.1.8 *Penicillium* sp. (42)

265. Itabashi, T.; Hosoe, T.; Wakana, D.; Fukushima, K.; Takizawa, K.; Yaguchi, T.; Okada, K.; Takaki, G. M.; Kawai, K., A new indoloditerpene derivative, penijanthine A, isolated from Penicillium janthinellum. *J Nat Med* **2009,** 63, (1), 96-9.

- Ascomycota *Penicillium janthinellum* IFM 55557 // *

  786 // N // penijanthine A // ND

266. Su, S. S.; Song, A. H.; Chen, G.; Wang, H. F.; Li, Z. Q.; Pei, Y. H., Two new indole-diterpenoids from the fungus Penicilliumcrustosum YN-HT-15. *J Asian Nat Prod Res* **2014,** 16, (3), 285-9.

- Ascomycota *Penicillium crustosum* YN-HT-15 // red soil, Yunnan

  787 // N // penijanthine B // ND

  801 // N // penitrem H // ND

267. Zhang, Y. H.; Huang, S. D.; Pan, H. Q.; Bian, X. Q.; Wang, Z. Y.; Han, A. H.; Bai, J., Structure determination of two new indole-diterpenoids from Penicillium sp. CM-7 by NMR spectroscopy. *Magn Reson Chem* **2014,** 52, (6), 306-9.

- Ascomycota *Penicillium* sp. CM-7 // soil sample of Chama

  788// N // 4b-deoxy-1′-O-acetylpaxilline // ND

  789 // N // 4b-deoxypenijanthine A // ND

268. Gao, N.; Shang, Z.-C.; Yu, P.; Luo, J.; Jian, K.-L.; Kong, L.-Y.; Yang, M.-H., Alkaloids from the endophytic fungus Penicillium brefeldianum and their cytotoxic activities. *Chin Chem Lett* **2017,** 28, (6), 1194-1199.

- Ascomycota *Penicillium brefeldianum*// rhizome of *Pinellia ternata*

  790 // N // 6,7-dehydropaxilline // cytotox./IA vs 3 TCLs

269. Guo, X. C.; Xu, L. L.; Yang, R. Y.; Yang, M. Y.; Hu, L. D.; Zhu, H. J.; Cao, F., Anti-Vibrio Indole-Diterpenoids and C-25 Epimeric Steroids From the Marine-Derived Fungus Penicillium janthinellum. *Front Chem* **2019,** 7, 80-86.

- Ascomycota *Penicillium janthinellum* // marine sediment from the Bohai Sea

  791 // N // penijanthine C // AB/potent vs 3 bact.

  792 // N // penijanthine D // AB/potent vs 2 bact.

270. Fan, Y.; Wang, Y.; Liu, P.; Fu, P.; Zhu, T.; Wang, W.; Zhu, W., Indole-diterpenoids with anti-H1N1 activity from the aciduric fungus Penicillium camemberti OUCMDZ-1492. *J Nat Prod* **2013,** 76, (7), 1328-36.

271. Fan, Y.; Wang, Y.; Fu, P.; Chairoungdua, A.; Piyachaturawat, P.; Zhu, W., Secopaxilline A, an indole-diterpenoid derivative from an aciduric Penicillium fungus, its identification and semisynthesis. *Org Chem Front* **2018,** 5, (19), 2835-2839.

- Ascomycota *Penicillium camemberti* OUCMDZ-1492 // mangrove soil and mud, around the roots of *Rhizophora apiculata*//

  793 // N // 3–deoxo–4b–deoxypaxilline // AV/potent vs H1NI // ref. 270

  794 // N // 4*α*–demethylpaspaline–4*α*–carboxylic acid // AV/ potent vs H1NI // ref. 270

  795 // N // 4*α*–demethylpaspaline–3,4,4*α*–triol // AV/ weak-mod. vs H1NI virus // ref. 270

  796 // N // 2′hydroxypaxilline // AV/weak-mod. vs H1NI // ref. 270

  797 // N // 9,10–diisopentenylpaxilline // AV/potent vs H1NI // ref. 270

  798 // N // (6*S*,7*R*,10*E*,14*E*)–16–(1H–indol–3–yl)–2,6,10,14–tetramethylhexadeca–2,10,14triene–6,7–diol // AV/potent vs H1NI // ref. 270

  799 // N // secopaxilline A // AV/IA vs H1NI virus // ref. 271

272. Moldes-Anaya, A.; Rundberget, T.; Uhlig, S.; Rise, F.; Wilkins, A. L., Isolation and structure elucidation of secopenitrem D, an indole alkaloid from Penicillium crustosum Thom. *Toxicon* **2011,** 57, (2), 259-65.

- Ascomycota *Penicillium crustosum Thom* // *

  800 // N // secopenitrem D // ND

273. Sallam, A. A.; Houssen, W. E.; Gissendanner, C. R.; Orabi, K. Y.; Foudah, A. I.; El Sayed, K. A., Bioguided discovery and pharmacophore modeling of the mycotoxic indole diterpene alkaloids penitrems as breast cancer proliferation, migration, and invasion inhibitors. *Medchemcomm* **2013,** 4, (10), 1360-1369.

- Ascomycota *Penicillium commune* isolate GS20 // marine *//

802 // N // 6-bromopenitrem B // cytotox./potent vs antiproliferative, potent vs anti-migratory and potent vs anti-invasive properties against breast TCLs

274. Hu, X. Y.; Meng, L. H.; Li, X.; Yang, S. Q.; Li, X. M.; Wang, B. G., Three New Indole Diterpenoids from the Sea-Anemone-Derived Fungus Penicillium sp. AS-79. *Mar Drugs* **2017,** 15, (5), 137-146.

275. Liu, T.; Meyer, S. L. F.; Chitwood, D. J.; Chauhan, K. R.; Dong, D.; Zhang, T.; Li, J.; Liu, W. C., New Nematotoxic Indoloditerpenoid Produced by Gymnoascus reessii za-130. *J Agric Food Chem* **2017,** 65, (15), 3127-3132.

- Ascomycota *Penicillium* sp AS-79 // sea anemone, *Haliplanella luciae*, Qingdao, China

  803 // N // 22-hydroxylshearinine F // AB/IA vs 3 bact.

  804 // N // 6-hydroxylpaspalinine // AB/weak-mod. vs 1 bact., IA vs 2 bact.

  805 // N // 7-O-acetylemindole SB (gymnoascole acetate) // AB /I A vs 3 bact.; LT/potent vs nematode // copublication: ref. 275

276. Ariantari, N. P.; Ancheeva, E.; Wang, C.; Mandi, A.; Knedel, T. O.; Kurtan, T.; Chaidir, C.; Muller, W. E. G.; Kassack, M. U.; Janiak, C.; Daletos, G.; Proksch, P., Indole Diterpenoids from an Endophytic Penicillium sp. *J Nat Prod* **2019,** 82, (6), 1412-1423.

- Ascomycota *Penicillium* sp. ZO-R1-1 // roots of the medicinal plant *Zingiber officinale*

  806 // N // shearilicine // mod. to potent vs 4 TCLs

  807 // N // paspalinine-13-ene // cytotox./mod. to potent vs 4 TCLs

  808 // N // 7-hydroxypaxilline-13-ene // cytotox./mod. to potent vs 2 TCLs

  809 // N // 7-methoxypaxilline // cytotox./weak-mod. vs 2 TCLs

  810 // N // shearinine N // cytotox./weak-mod. vs 2 TCLs

  811 // N // shearinine O // cytotox./weak-mod. vs 2 TCLs

  812 // N // shearinine P // cytotox./mod. to potent vs 4 TCLs

  813 // N // 7-methoxyshearinine P // cytotox./weak-mod. vs 2 TCLs

  814 // N // shearinine Q // cytotox./weak-mod. vs 1 TCL

277. Babu, J. V.; Popay, A. J.; Miles, C. O.; Wilkins, A. L.; di Menna, M. E.; Finch, S. C., Identification and Structure Elucidation of Janthitrems A and D from Penicillium janthinellum and Determination of the Tremorgenic and Anti-Insect Activity of Janthitrems A and B. *J Agric Food Chem* **2018,** 66, (50), 13116-13125.

- Ascomycota *Penicillium janthinellum* AR37 // perennial ryegrass

  815 // N // janthitrem A (11,12–epoxyjanthitrem B) // others/potent vs tremors in mice, and insect antifeedant

  816 // N // janthitrem D (11,12–epoxyjanthitrem C) // others/IA vs tremors in mice, and insect antifeedant

  817 // R // janthitrem C // others/IA vs insecticidal activity // revised structure

278. Kong, F. D.; Fan, P.; Zhou, L. M.; Ma, Q. Y.; Xie, Q. Y.; Zheng, H. Z.; Zheng, Z. H.; Zhang, R. S.; Yuan, J. Z.; Dai, H. F.; Luo, D. Q.; Zhao, Y. X., Penerpenes A-D, Four Indole Terpenoids with Potent Protein Tyrosine Phosphatase Inhibitory Activity from the Marine-Derived Fungus Penicillium sp. KFD28. *Org Lett* **2019,** 21, (12), 4864-4867.

279. Zhou, L. M.; Kong, F. D.; Fan, P.; Ma, Q. Y.; Xie, Q. Y.; Li, J. H.; Zheng, H. Z.; Zheng, Z. H.; Yuan, J. Z.; Dai, H. F.; Luo, D. Q.; Zhao, Y. X., Indole-Diterpenoids with Protein Tyrosine Phosphatase Inhibitory Activities from the Marine-Derived Fungus Penicillium sp. KFD28. *J Nat Prod* **2019,** 82, (9), 2638-2644.

- Ascomycota *Penicillium* sp. KFD28 // perennial ryegrass

  818 // N // penerpene A // enzyme inhib./potent vs PTP1B and TCPTP // ref. 278

  819 // N // penerpene B //enzyme inhib./potent vs PTP1B and TCPTP // ref. 278

  820 // N // penerpene C // enzyme inhib./IA vs PTP1B, TCPTP, PTPsigma and VHR // ref. 278

  821 // N // penerpene D // enzyme inhib./IA vs PTP1B, TCPTP, PTPsigma and VHR // ref. 278

  822 // N // penerpene E // enzyme inhib./mod. to potent vs PTP1B and PTPsigma // ref. 279

  823 // N // penerpene F // enzyme inhib./weak-mod. vs PTP1B // ref. 279

  824 // N // penerpene G // enzyme inhib./weak-mod. vs PTP1B, TCPTP and PTPsigma // ref. 279

  825 // N // penerpene H // enzyme inhib./weak-mod. vs PTP1B and PTPsigma // ref. 279

  826 // N // penerpene I // enzyme inhib./IA vs PTP1B, TCPTP, and PTPsigma // ref. 279

280. Liu, L.; Xu, W.; Li, S.; Chen, M.; Cheng, Y.; Yuan, W.; Cheng, Z.; Li, Q., Penicindopene A, a new indole diterpene from the deep-sea fungus Penicillium sp. YPCMAC1. *Nat Prod Res* **2019,** 33, (20), 2988-2994.

- Ascomycota *Penicillium* sp. YPCMAC1 // deep-sea water at a depth of 4500 m of the Yap Trench in West Pacific Ocean//
  827 // N // penicindopene A // cytotox./weak-mod. vs 2 TCLs

6.1.9 *Tolypocladium* sp. (12)

281. Xu, L. L.; Hai, P.; Zhang, S. B.; Xiao, J. F.; Gao, Y.; Ma, B. J.; Fu, H. Y.; Chen, Y. M.; Yang, X. L., Prenylated Indole Diterpene Alkaloids from a Mine-Soil-Derived Tolypocladium sp. *J Nat Prod* **2019,** 82, (2), 221-231.

282. Xu, L. L.; Pang, X. J.; Shi, Q.; Xian, P. J.; Tao, Y. D.; Yang, X. L., Two New Prenylated Indole Diterpenoids from Tolypocladium sp. and Their Antimicrobial Activities. *Chem Biodivers* **2019,** 16, (6), e1900116-121.

- Ascomycota *Tolypocladium sp*. XL115 // mine-soil
  828 // N // tolypocladin A // AF/weak-mod. vs 7 fungi, AB/weak-mod. vs 2 bact.; cytotox/ weak-mod. vs 7 TCLs // ref. 281
  829 // N // tolypocladin B // AF/potent vs *A. fragariae* e, AB/weak-mod. vs MRSA // ref. 281
  830 // N // tolypocladin C // AF/IA vs 7 fungi, AB/weak-mod. vs 8 bact.// ref. 281
  831 // N // tolypocladin D // AF/potent vs *A. fragariae* // ref. 281
  832 // N // tolypocladin E // AF/potent vs *A. fragariae* // ref. 281
  833 // N // tolypocladin F // AF/potent vs *A. fragariae* // ref. 281
  834 // N // tolypocladin G // AF/potent vs *A. fragariae* // ref. 281
  835 // N // tolypocladin H // AF/IA vs 7 fungi, AB/weak-mod. vs 8 bact. // ref. 281
  836 // N // tolypocladin I // AF/potent vs *A. fragariae* // ref. 281
  837 // N // tolypocladin J // AF/potent vs *A. fragariae* // ref. 281
  838 // N // tolypocladin K // AB/IA vs 8 bact.; AB/weak-mod. vs 7 fungi // ref. 282
  839 // N // tolypocladin L // AB/IA vs 8 bact.; AF/IA vs 7 fungi // ref. 282

6.2 Indole–sesquiterpenoids (*Verticillium* sp.) (5, 840-844)

283. Roll, D. M.; Barbieri, L. R.; Bigelis, R.; McDonald, L. A.; Arias, D. A.; Chang, L. P.; Singh, M. P.; Luckman, S. W.; Berrodin, T. J.; Yudt, M. R., The lecanindoles, nonsteroidal progestins from the terrestrial fungus Verticillium lecanii 6144. *J Nat Prod* **2009,** 72, (11), 1944-8.

- Ascomycota *Verticillium lecanii* 6144 // terrestrial brown *citrus aphid*
  840 // N // lecanindole A // others/IA vs PGR agonist
  841 // N // lecanindole B // others/IA vs PGR agonist
  842 // N // lecanindole C // others/IA vs PGR agonist
  843 // N // lecanindole D // others/potent vs PGR agonist

284. Kudo, K.; Liu, C.; Matsumoto, T.; Minami, A.; Ozaki, T.; Toshima, H.; Gomi, K.; Oikawa, H., Heterologous Biosynthesis of Fungal Indole Sesquiterpene Sespendole. *Chembiochem* **2018,** 19, (14), 1492-1497.

- Ascomycota *Aspergillus oryzae* mutant // *
  844 // N // 16,17–diprenyllecanindole B // ND // biosynthetic products

7. Shikimate–terpenoids (700, 845-1544)

7.1 *Alternaria* sp. (38)

285. Zhang, G.; Wu, G.; Zhu, T.; Kurtan, T.; Mandi, A.; Jiao, J.; Li, J.; Qi, X.; Gu, Q.; Li, D., Meroterpenoids with diverse ring systems from the sponge-associated fungus Alternaria sp. JJY-32. *J Nat Prod* **2013,** 76, (10), 1946-57.

- Ascomycota *Alternaria sp.* JJY-32 // marine sponge *Callyspongia* sp., Hainan Island, China
  845 // N // tricycloalternarene A // AI/weak-mod. vs NF–κB
  846 // N // tricycloalternarene B // AI/weak-mod. vs NF–κB
  847 // N // tricycloalternarene C // AI/weak-mod. vs NF–κB
  848 // N // bicycloalternarene A // AI/weak-mod. vs NF–κB
  849 // N // bicycloalternarene B // AI/weak-mod. vs NF–κB
  850 // N // bicycloalternarene C // AI/weak-mod. vs NF–κB
  851 // N // bicycloalternarene D // AI/weak-mod. vs NF–κB

852 // N // bicycloalternarene E // AI/IA vs. NF–κB
853 // N // bicycloalternarene F // AI/IA vs. NF–κB
854 // N // monocycloalternarene A // AI/weak-mod. vs NF–κB
855 // N // monocycloalternarene B // AI/weak-mod. vs NF–κB
856 // N // monocycloalternarene C // AI/weak-mod. vs NF–κB
857// N // monocycloalternarene D // AI/weak-mod. vs NF–κB

286. Shi, Z. Z.; Miao, F. P.; Fang, S. T.; Liu, X. H.; Yin, X. L.; Ji, N. Y., Sesteralterin and Tricycloalterfurenes A-D: Terpenes with Rarely Occurring Frameworks from the Marine-Alga-Epiphytic Fungus Alternaria alternata k21-1. *J Nat Prod* **2017,** 80, (9), 2524-2529.

287. Shi, Z. Z.; Fang, S. T.; Miao, F. P.; Ji, N. Y., Two new tricycloalternarene esters from an alga-epiphytic isolate of Alternaria alternata. *Nat Prod Res* **2018,** 32, (21), 2523-2528.

- Ascomycota *Alternaria alternata* k21-1 // red alga, *Lomentaria hakodatensis*, Kongdong Is., China

858 // N // tricycloalterfurene A // LT/weak-mod. vs 3 phytoplankton and 1 zooplankton; AB/IA vs 1 bact. // ref. 286
859 // N // tricycloalterfurene B // LT/ weak-mod. vs 3 phytoplankton and 1 zooplankton; AB/IA vs 1 bact. // ref. 286
860 // N // tricycloalterfurene C // LT/weak-mod. vs 3 phytoplankton and 1 zooplankton; AB/ IA vs 1 bact. // ref. 286
861 // N // tricycloalterfurene D // LT/weak-mod. vs 3 phytoplankton and 1 zooplankton; AB/IA vs 1 bact. // ref. 286
862 // N // 17-O-methyltricycloalternarene D // LT/ weak-mod. vs 4 phytoplankton // ref. 287
863 // N // methyl nortricycloalternarate // LT/ weak-mod. vs 4 phytoplankton // ref. 287

288. Shi, Z. Z.; Yin, X. L.; Fang, S. T.; Miao, F. P.; Ji, N. Y., Two new isomeric tricycloalternarenes from the marine alga-epiphytic fungus Alternaria alternata k23-3. *Magn Reson Chem* **2018,** 56, (3), 210-215.

- Ascomycota *Alternaria alternata* k23-3 // red alga, *Lomentaria hakodatensis*, Kongdong Is., China

864 // N // (2*E*)-TCA 12a // LT/ weak-mod. vs 4 phytoplankton
865 // N // (2*Z*)-TCA 12a // LT/ weak-mod. vs 4 phytoplankton

289. Li, D. M.; Zhang, Y. H.; Ji, H. X.; Wu, X.; Pei, Y. H.; Bai, J., Tricycloalternarene derivatives from endophytic fungus Alternaria tenuissima SY-P-07. *Nat Prod Res* **2013,** 27, (20), 1877-81.

- Ascomycota *Alternaria tenuissima* SY-P-07 // plant *Ginkgo biloba*

866 // N // TCA 11a // ND

290. Shi, X.; Wei, W.; Zhang, W. J.; Hua, C. P.; Chen, C. J.; Ge, H. M.; Tan, R. X.; Jiao, R. H., New tricycloalternarenes from fungus Alternaria sp. *J Asian Nat Prod Res* **2015,** 17, (2), 143-8.

- Ascomycota *Alternaria* sp// sediment, South Atlantic Ridge

867 // N // tricycloalternarene I // AB/IA vs 3 bact.
868 // N // tricycloalternarene J // AB/IA vs 3 bact.

291. Fang, S.-T.; Miao, F.-P.; Liu, X.-H.; Song, Y.-P.; Ji, N.-Y., Two new tricycloalternarene acids from the marine-derived fungus Alternaria alternata ICD5-11. *Phytochem Lett* **2018,** 23, 185-188.

- Ascomycota *Alternaria alternate* ICD5-11 // isopd, *Ligia exotica*, Changdao Is., Yantai, Shandong Province, China

869 // N // tricycloalternarene K // AB/IA vs 2 bact.
870 // N // tricycloalternarene L // AB/IA vs 2 bact.

292. Shen, L.; Tian, S. J.; Song, H. L.; Chen, X.; Guo, H.; Wan, D.; Wang, Y. R.; Wang, F. W.; Liu, L. J., Cytotoxic Tricycloalternarene Compounds from Endophyte Alternaria sp. W-1 Associated with Laminaria japonica. *Mar Drugs* **2018,** 16, (11), 402-416.

- Ascomycota *Alternaria* sp W-1// brown alga, *Laminaria japonica*, Weihai, China

871 // N // 2H-(2*E*)-tricycloalternarene 12a // cytotox./weak-mod. vs 2 TCLs

293. Wang, J.-T.; Ma, Z.-H.; Wang, G.-K.; Xu, F.-Q.; Chen, L.; Yu, Y.; Wang, G.; Liu, J.-S., Four meroterpenoids from Alternaria alternata isolated from Paeonia lactiflora. *Phytochem Lett* **2019,** 31, 1-4.

- Ascomycota *Alternaria alternata* // plant *Paeonia lactiflora*

872 // N // tricycloalternarene 15b // cytotox./IA vs 4 TCLs
873 // N // tricycloalternarene 16b // cytotox./IA vs 4 TCLs
874 // N // tricycloalternarene 17b // cytotox./IA vs 4 TCLs
875 // N // tricycloalternarene 18b // cytotox./IA vs 4 TCLs

294. Li, F.; Tang, Y.; Sun, W.; Guan, J.; Lu, Y.; Zhang, S.; Lin, S.; Wang, J.; Hu, Z.; Zhang, Y., New cytotoxic tricycloalternarenes from fungus Alternaria brassicicola. *Bioorg Chem* **2019,** 92, 103279-84.

- Ascomycota *Alternaria brassicicola* // plant *Siegesbeckia pubescens*

876 // N // tricycloalternarene Q // cytotox./weak-mod. vs 3 TCLs
877 // N // tricycloalternarene R // cytotox./weak-mod. vs 2 TCLs
878 // N // tricycloalternarene S // cytotox./IA vs 5 TCLs
879 // N // tricycloalternarene T // cytotox./IA vs 5 TCLs
880 // N // tricycloalternarene U // cytotox./weak-mod. vs 2 TCLs
881 // N // tricycloalternarene V // cytotox./IA vs 5 TCLs
882 // N // tricycloalternarene W // cytotox./weak-mod. vs 2 TCLs

7.2 *Aspergillus* sp. (5)

295. Bai, Z. Q.; Lin, X.; Wang, J.; Zhou, X.; Liu, J.; Yang, B.; Yang, X.; Liao, S.; Wang, L.; Liu, Y., New meroterpenoids from the endophytic fungus *Aspergillus* flavipes AIL8 derived from the mangrove plant Acanthus ilicifolius. *Mar Drugs* **2015,** 13, (1), 237-48.

- Ascomycota *Aspergillus flavipes* AIL8// (Tracheophyta, *Acanthus ilicifolius*, leaves) Daya Bay, Shenzhen, China //

883 // N // guignardone J //AB/IA vs 5 bact.; AF/IA vs 1 fungus; cytotox./IA vs 1 TCL
884 // N // guignardone K // AB/IA vs 5 bact.; AF/IA vs 1 fungus; cytotox./IA vs 1 TCL
885 // N // guignardone L // AB/IA vs 5 bact.; AF/IA vs 1 fungus; cytotox./IA vs 1 TCL
886 // N // guignardone M // AB/IA vs 5 bact.; AF/IA vs 1 fungus; cytotox./IA vs 1 TCL

296. Zhang, H.; Zhao, Z.; Chen, J.; Bai, X.; Wang, H., Tricycloalternarene Analogs from a Symbiotic Fungus *Aspergillus* sp. D and Their Antimicrobial and Cytotoxic Effects. *Molecules* **2018,** 23, (4), 855-861.

- Ascomycota *Aspergillus sp. D* // coastal plant *Edgeworthia chrysantha*

887 // N // guignardone 14b // cytotox./potent vs 1 TCL; AB/weak-mod. vs 3 bact.

7.3 *Biscogniauxia* sp. (7)

297. Zhao, H.; Chen, G. D.; Zou, J.; He, R. R.; Qin, S. Y.; Hu, D.; Li, G. Q.; Guo, L. D.; Yao, X. S.; Gao, H., Dimericbiscognienyne A: A Meroterpenoid Dimer from *Biscogniauxia* sp. with New Skeleton and Its Activity. *Org Lett* **2017,** 19, (1), 38-41.

298. Zhao, H.; Wang, M.; Chen, G.; Hu, D.; Li, E.; Qu, Y.; Zhou, L.; Guo, L.; Yao, X.; Gao, H., Dimericbiscognienynes B and C: New diisoprenyl-cyclohexene-type meroterpenoid dimers from *Biscogniauxia* sp. *Chin Chem Lett* **2019,** 30, (1), 51-54.

- Ascomycota *Biscogniauxia* sp// lichen *Usnea mutabilis* stirt.

888 // N // dimericbiscognienyne A // cytotox./IA vs 3 TCLs; others/potent vs short–term memory enhancement activities // ref. 297
889 // N // dimericbiscognienyne B // ND // ref. 298
890 // N // dimericbiscognienyne C // ND// ref. 298
891 // N // biscognienyne A // cytotox./IA vs 3 TCLs; others/IA vs anti-AD // ref. 297
892 // N // biscognienyne B // cytotox./IA vs 3 TCLs; others/IA vs anti-AD // ref. 297
893 // N // biscognienyne C // cytotox./weak-mod. vs 2 TCLs; others/IA vs anti-AD // ref. 297
894 // N // biscogniacid A // cytotox./IA vs 3 TCLs; others/potent vs short–term memory enhancement activities // ref. 297

7.4 *Boletinus* sp. (5)

299. Yatsu, G.; Kino, Y.; Sasaki, H.; Satoh, J. I.; Kinoshita, K.; Koyama, K., Meroterpenoids with BACE1 Inhibitory Activity from the Fruiting Body of Boletinus asiaticus. *J Nat Prod* **2019,** 82, (7), 1797-1801.

- Basidiomycete *Boletinus asiaticus* // *

895 // N //14′,15′-dihydroasiaticusin A methyl ester // enzyme inhib./IA vs BACE1

896 // N // asiaticusinol A // enzyme inhib./IA vs BACE1

897 // N // asiaticusinol B // enzyme inhib./IA vs BACE1

898 // N // asiaticusinol C // enzyme inhib./weak-mod. vs BACE1

899 // N // asiachromenic acid // enzyme inhib./weak-mod. vs BACE1

7.5 *Boreostereum* sp. (51)

300. Jiang, M. Y.; Zhang, L.; Dong, Z. J.; Yang, Z. L.; Leng, Y.; Liu, J. K., Vibralactones D-F from Cultures of the Basidiomycete Boreostereum vibrans. *Chem Pharm Bull* **2010,** 58, (1), 113-116.

301. Wang, G. Q.; Wei, K.; Feng, T.; Li, Z. H.; Zhang, L.; Wang, Q. A.; Liu, J. K., Vibralactones G-J from cultures of the basidiomycete Boreostereum vibrans. *J Asian Nat Prod Res* **2012,** 14, (2), 115-20.

302. Wang, G. Q.; Wei, K.; Li, Z. H.; Feng, T.; Ding, J. H.; Wang, Q. A.; Liu, J. K., Three new compounds from the cultures of basidiomycete Boreostereum vibrans. *J Asian Nat Prod Res* **2013,** 15, (9), 950-5.

303. Wang, G. Q.; Wei, K.; Zhang, L.; Li, Z. H.; Wang, Q. A.; Liu, J. K., Three new vibralactone-related compounds from cultures of Basidiomycete Boreostereum vibrans. *J Asian Nat Prod Res* **2014,** 16, (5), 447-52.

304. Chen, H. P.; Zhao, Z. Z.; Yin, R. H.; Yin, X.; Feng, T.; Li, Z. H.; Wei, K.; Liu, J. K., Six New Vibralactone Derivatives from Cultures of the Fungus Boreostereum vibrans. *Nat Prod Bioprospect* **2014,** 4, (5), 271-6.

305. Chen, H. P.; Jiang, M. Y.; Zhao, Z. Z.; Feng, T.; Li, Z. H.; Liu, J. K., Vibralactone Biogenesis-Associated Analogues from Submerged Cultures of the Fungus Boreostereum vibrans. *Nat Prod Bioprospect* **2018,** 8, (1), 37-45.

306. Duan, K.-T.; Li, Z.-H.; Wang, W.-X.; Chen, H.-P.; Sun, H.; Huang, R.; Feng, T.; Liu, J.-K., Vibralactones U–W, three vibralactone derivatives from cultures of the basidiomycete Boreostereum vibrans. *J Asia Nat Prod Res* **2018,** 21, (7), 603-609.

307. Duan, K. T.; Li, Z. H.; Yu, X.; Yuan, Q. X.; Wang, W. X.; Li, J.; Chen, H. P.; Feng, T.; Liu, J. K., Vibralactone derivatives containing gamma, delta, epsilon-lactone cores from cultures of the basidiomycete Boreostereum vibrans. *Fitoterapia* **2018,** 128, 7-11.

308. He, J.; Duan, K. T.; Li, Z. H.; Ai, H. L.; Feng, T.; Liu, J. K., Vibralactone Z4, the first chain-like vibralactone derivative from cultures of the basidiomycete Boreostereum vibrans. *Nat Prod Res* **2019,** 33, (19), 2744-2749.

309. Chen, H. P.; Zhao, Z. Z.; Li, Z. H.; Dong, Z. J.; Wei, K.; Bai, X.; Zhang, L.; Wen, C. N.; Feng, T.; Liu, J. K., Novel Natural Oximes and Oxime Esters with a Vibralactone Backbone from the Basidiomycete Boreostereum vibrans. *ChemistryOpen* **2016,** 5, (2), 142-9.

- Basidiomycete *Boreostereum vibrans* // *

900// N // vibralactone D // enzyme inhib./weak-mod. vs HSD // ref. 300

901 // N // vibralactone E // enzyme inhib./IA vs HSD // ref. 300

902 // N // vibralactone F // enzyme inhib./IA vs HSD // ref. 300

903 // N // vibralactone G //ND // ref. 301

904 // N // vibralactone H //ND // ref. 301

905 // N // vibralactone I // ND // ref. 301

906 // N // vibralactone J // ND // ref. 301

907 // N // vibranether // cytotox./IA vs 5 TCLs // ref. 302

908// N // myrrhlalkyldiol // cytotox./IA vs 5 TCLs // ref. 302

909// N // vibralactone H // cytotox./IA vs 5 TCLs // ref. 302

910 // N // vibralactone K // cytotox./IA vs 5 TCLs // ref. 303

911 // N // vibralactone L // cytotox./IA vs 5 TCLs // ref. 303

912 // N // vibralactone M // cytotox. /I A vs 5 TCLs // ref. 303

913 // N // vibralactone N // ND // ref. 304

914 // N // vibralactone O // ND // ref. 304

915 // N // vibralactone P // ND // ref. 304

916 // N // 10–lactyl vibralactone G // ND // ref. 304

917 // N // (3*S**,4*R**)–6–acetoxymethyl–2,2–dimethyl–3,4–dihydro–2H–chromene–3,4–diol // ND // Rel. struc., ref. 304
918 // N // vibralactone Q // ND // ref. 304
919 // N // vibralactamide A // ND // ref. 305
920 // N // vibralactone T// ND // ref. 305
921 // N // 13–*O*–lactyl vibralactone // ND // ref. 305
922 // N // 10–*O*–acetyl vibralactone G // ND // ref. 305
923 // N // (11*R*,12*R*)–vibradiol // ND // ref. 305
924 // N // (11*S*,12*R*)–vibradiol // ND // ref. 305
950 // R // vibralactone B // ND // ref. 305, revised structure
925 // N // vibralactone U // cytotox./IA vs 5 TCLs // ref. 306
926 // N // vibralactone V// cytotox./IA vs 5 TCLs // ref. 306
927 // N // vibralactone W // cytotox ./ IA vs 5 TCLs // ref. 306
928 // N // vibralactone X // cytotox./IA vs 5 TCLs // ref. 307
929 // N // vibralactone Y // cytotox./IA vs 5 TCLs // ref. 307
930 // N // vibralactone Z1 // cytotox./weak-mod. vs 3 TCLs // ref. 307
931 // N // vibralactone Z2 // cytotox./IA vs 5 TCLs // ref. 307
932 // N // vibralactone Z3 // cytotox./weak-mod. vs 3 TCLs // ref. 307
933 // N // vibralactone Z4 // cytotox./weak-mod. vs 1 TCL // ref. 308
934 // N // vibralactoxime A // enzyme inhib./potent vs pancreatic lipase // ref. 309
935 // N // vibralactoxime B // cytotox./IA vs 5 TCLs; enzyme inhib./IA vs pancreatic lipase // ref. 309
936 // N // vibralactoxime C // cytotox./IA vs 5 TCLs; enzyme inhib./IA vs pancreatic lipase // ref. 309
937 // N // vibralactoxime D // cytotox./weak-mod.vs 3 TCLs; enzyme inhib./potent vs pancreatic lipase// ref. 309
938 // N // vibralactoxime E // cytotox./mod.-potent vs 5 TCLs; enzyme inhib./potent vs pancreatic lipase // ref. 309
939 // N // vibralactoxime F // weak-mod. vs 5 TCLs // ref. 309
940 // N // vibralactoxime G // cytotox./mod.-potent vs 5 TCLs; enzyme inhib./potent vs pancreatic lipase // ref. 309
941 // N // vibralactoxime H // cytotox./weak-mod. vs 5 TCLs // ref. 309
942 // N // vibralactoxime I // cytotox./mod.-potent vs 5 TCLs; enzyme inhib./potent vs pancreatic lipase // ref. 309
943 // N // vibralactoxime J // cytotox./mod.-potent vs 5 TCLs; enzyme inhib./potent vs pancreatic lipase // ref. 309
944 // N // vibralactoxime K // cytotox./weak-mod. vs 5 TCLs; enzyme inhib./potent vs pancreatic lipase // ref. 309
945 // N // vibralactoxime L // cytotox./weak-mod. vs 2 TCLs // ref. 309
946 // N // vibralactoxime M // cytotox./IA vs 5 TCLs; enzyme inhib./IA vs pancreatic lipase // ref. 309
947 // N // vibralactoxime N // cytotox./weak-mod. vs 4 TCLs // ref. 309
948 // N // vibralactoxime O // cytotox./weak-mod. vs 4 TCLs // ref. 309
949 // N // vibralactoxime P // cytotox./IA vs 5 TCLs; enzyme inhib./IA vs pancreatic lipase // ref. 309

7.6 *Clitocybe* sp. (9)

310. Sun, Z.; Zhu, N.; Zhou, M.; Huo, X.; Wu, H.; Tian, Y.; Yang, J.; Ma, G.; Yang, Y.-L.; Xu, X., Clavipines A–C, antiproliferative meroterpenoids with a fused azepine skeleton from the basidiomycete Clitocybe clavipes. *Org Chem Front* **2019,** 6, (22), 3759-3765.

- Basidiomycete *Clitocybe clavipes* // *

951 // N // clavipine A // cytotox./potent vs 3 TCLs
952 // N // clavipine B // cytotox./weak-mod. vs 3 TCLs
953 // N // clavipine C // cytotox./weak-mod. vs 3 TCLs
954 // NP // clavilactone F // cytotox./weak-mod. vs 3 TCLs

311. Sun, Z.; Xu, X.; Liang, H.; Xia, X.; Ma, G.; Shi, L., Five New Meroterpenoids from the Fruiting Bodies of the Basidiomycete Clitocybe clavipes with Cytotoxic Activity. *Molecules* **2019,** 24, (22), 4015-4024.

- Basidiomycete *Clitocybe clavipes* // *

955 // N // clavipol A // cytotox./weak-mod. vs 2 TCLs
956 // N // clavipol B // cytotox./weak-mod. vs 2 TCLs

957 // N // clavilactone G // cytotox./weak-mod. vs 1 TCL
958 // N // clavilactone H // cytotox./weak-mod. vs 3 TCLs
959 // N // clavilactone I // cytotox./weak-mod. vs 1 TCL

7.7 *Didymella* sp. (2)

312. Li, C. S.; Hu, Z. Q.; Liu, Q. S.; Wu, X. H.; Cao, S. G., Two new tricycloalternarenes from Hawaiian endophytic fungus Didymella sp FT433. *Tetrahedron Lett* **2018,** 59, (36), 3381-3383.

- Ascomycota *Didymella* sp. FT433 // Hawaiian plants //

960 // N // tricycloalterene M // cytotox./IA vs 2 TCLs; AB/IA vs 4 bact.
961 // N // tricycloalterene N // cytotox./IA vs 2 TCLs; AB/IA vs 4 bact.

7.8 *Favolaschia* sp. (4)

313. Kornsakulkarn, J.; Thongpanchang, C.; Chainoy, R.; Choowong, W.; Nithithanasilp, S.; Thongpanchang, T., Bioactive Metabolites from Cultures of Basidiomycete FaWolaschia tonkinensis. *J Nat Prod* **2010,** 73, 759–762.

- Basidiomycete *Favolaschia tonkinensis* BCC 18689 // *

962 // N // cytotox./weak-mod. vs 1 TCL
963 // N // cytotox./potent vs 1 TCL

314. Chepkirui, C.; Richter, C.; Matasyoh, J. C.; Stadler, M., Monochlorinated calocerins A-D and 9-oxostrobilurin derivatives from the basidiomycete Favolaschia calocera. Phytochemistry **2016**, 132, 95-101.

- Basidiomycete *Favolaschia calocera* // *

964 // N // calocerin A // cytotox./potent vs 1 TCL, AF/IA vs fungi
965 // N // calocerin B // cytotox./potent vs 1 TCL, AF/IA vs fungi

7.9 *Ganoderma* sp. (396)

7.9.1 *Ganoderma ahmadii* (3)

315. Zhao, Y.; Wu, Y.; Ding, Q.; Zhou, L.; Xie, Q.; Kong, F.; Ma, Q.; Guo, J., Meroterpenoids from the Fruiting Bodies of *Ganoderma ahmadii* Steyaret and Their Protein Tyrosine Phosphatase 1B Inhibitory Activities. *Chin J Org Chem* **2019,** 39, (11), 3264-3268.

- Basidiomycete *Ganoderma ahmadii* Steyare

966 // N // ganoduriporol C // enzyme inhib./potent vs PTP1B
967 // N // ganoduriporol D // enzyme inhib./potent vs PTP1B
968 // N // ganoduriporol E // enzyme inhib./potent vs PTP1B

7.9.2 *Ganoderma applanatum* (85)

316. Luo, Q.; Di, L.; Dai, W. F.; Lu, Q.; Yan, Y. M.; Yang, Z. L.; Li, R. T.; Cheng, Y. X., Applanatumin A, a new dimeric meroterpenoid from *Ganoderma applanatum* that displays potent antifibrotic activity. *Org Lett* **2015,** 17, (5), 1110-3.

- Basidiomycete *Ganoderma applanatum* // *

969 // N // applanatumin A // others/potent vs antifibrotic activity

317. Luo, Q.; Wang, Z.; Luo, J.-F.; Tu, Z.-C.; Cheng, Y.-X., (±)-Applanatumines B–D: novel dimeric meroterpenoids from *Ganoderma applanatum* as inhibitors of JAK3. *RSC Adv.* **2017,** 7, (60), 38037-38043.

- Basidiomycete *Ganoderma applanatum* // *

970 // N // (+)-applanatumin B // enzyme inhib./potent vs JAK3 and DDR1, weak-mod. vs BRD4
971 // N // (-)-applanatumin B // enzyme inhib./potent vs JAK3 and DDR1, weak-mod. vs BRD4
972 // N // (+)-applanatumin C // enzyme inhib./potent vs JAK3 and DDR1, weak-mod. vs HDAC1 and BRD4
973 // N // (-)-applanatumin C // enzyme inhib./potent vs JAK3, weak-mod. vs HDAC1 and BRD4
974 // N // (+)-applanatumin D // enzyme inhib./potent vs JAK3, weak-mod. vs HDAC1 and BRD4

975 // N // (-)-applanatumin D // enzyme inhib./potent vs JAK3, weak-mod. vs HDAC1 and BRD4

318. Luo, Q.; Wei, X. Y.; Yang, J.; Luo, J. F.; Liang, R.; Tu, Z. C.; Cheng, Y. X., Spiro Meroterpenoids from *Ganoderma applanatum*. *J Nat Prod* **2017,** 80, (1), 61-70.

- Basidiomycete *Ganoderma applanatum* // *

976 // N // spiroapplanatumine A // enzyme inhib./IA vs JAK3
977 // N // spiroapplanatumine B // enzyme inhib./IA vs JAK3
978 // N // spiroapplanatumine C // enzyme inhib./IA vs JAK3
979 // N // spiroapplanatumine D // enzyme inhib./IA vs JAK3
980 // N // spiroapplanatumine E // enzyme inhib./IA vs JAK3
981 // N // spiroapplanatumine F // enzyme inhib./IA vs JAK3
982 // N // spiroapplanatumine G // enzyme inhib./potent vs JAK3
983 // N // spiroapplanatumine H // enzyme inhib./weak-mod. vs JAK3
984 // N // spiroapplanatumine I // enzyme inhib./IA vs JAK3
985 // N // spiroapplanatumine J // enzyme inhib./IA vs JAK3
986 // N // spiroapplanatumine K // enzyme inhib./IA vs JAK3
987 // N // spiroapplanatumine L // enzyme inhib./IA vs JAK3
988 // N // spiroapplanatumine M // enzyme inhib./IA vs JAK3
989 // N // (+)-spiroapplanatumine N // enzyme inhib./IA vs JAK3
990 // N // (-)-spiroapplanatumine N // enzyme inhib./IA vs JAK3
991 // N // spiroapplanatumine O // enzyme inhib./IA vs JAK3
992 // N // spiroapplanatumine P // enzyme inhib./IA vs JAK3
993 // N // spiroapplanatumine Q // enzyme inhib./IA vs JAK3

319. Luo, Q.; Di, L.; Yang, X.-H.; Cheng, Y.-X., Applanatumols A and B, meroterpenoids with unprecedented skeletons from *Ganoderma applanatum*. *RSC Adv.* **2016,** 6, (51), 45963-45967.

- Basidiomycete *Ganoderma applanatum* // *

994 // N // applanatumol A // others/potent vs renal fibrosis via descreasing ECM
995 // N // (+)-applanatumol B // others/potent vs renal fibrosis via descreasing ECM
996 // N // (-)-applanatumol B // others/weak-mod. vs renal fibrosis via descreasing ECM

320. Luo, Q.; Yang, X.-H.; Yang, Z.-L.; Tu, Z.-C.; Cheng, Y.-X., Miscellaneous meroterpenoids from *Ganoderma applanatum*. *Tetrahedron* **2016,** 72, (30), 4564-4574.

321. Gao, S.; Zhang, P.; Zhang, C.; Bao, F.; Li, H.; Chen, L., Meroterpenoids from *Ganoderma sinense* protect hepatocytes and cardiomyocytes from oxidative stress induced injuries. *Fitoterapia* **2018,** 131, 73-79.

- Basidiomycete *Ganoderma applanatum* // *

997 // N // (+)-applanatumol C // AI/potent vs COX-2
998 // N // (-)-applanatumol C // AI/IA vs COX-1/2
999 // N // (+)-applanatumol D // AI/IA vs COX-1/2
1000 // N // (-)-applanatumol D // AI/IA vs COX-1/2
1001 // N // (+)-applanatumol E // AI/IA vs COX-1/2
1002 // N // (-)-applanatumol E // AI/IA vs COX-1/2
1003 // N // (+)-applanatumol F // AI/IA vs COX-1/2
1004 // N // (-)-applanatumol F // AI/IA vs COX-1/2
1005 // N // (+)-applanatumol G // AI/IA vs COX-1/2
1006// N // (-)-applanatumol G // AI/IA vs COX-1/2
1007 // N // (+)-applanatumol H // AI/IA vs COX-1/2
1008 // N // (-)-applanatumol H // AI/IA vs COX-1/2
1009// N // (+)-applanatumol I // AI/IA vs COX-1/2; others/potent vs protect LO2 cells against oxidative damage via PI3K/Akt-mediated activation of Nrf2/HO-1 pathway // ref. 321
1010 // N // (-)-applanatumol I // AI/IA vs COX-1/2
1011 // N // (±)-applanatumol J // AI/IA vs COX-1/2 // racemate

1012 // N // (+)-applanatumol K // AI/IA vs COX-1/2
1013 // N // (-)-applanatumol K // AI/IA vs COX-1/2
1014 // N // (+)-applanatumol L // AI/IA vs COX-1/2
1015 // N // (-)-applanatumol L // AI/IA vs COX-1/2
1016 // N // (+)-applanatumol M // AI/IA vs COX-1/2
1017 // N // (-)-applanatumol M // AI/IA vs COX-1/2
1018 // N // (+)-applanatumol N // AI/IA vs COX-1/2
1019 // N // (-)-applanatumol N // AI/IA vs COX-1/2
1020 // N // (+)-applanatumol O // AI/IA vs COX-1/2
1021 // N // (-)-applanatumol O // AI/IA vs COX-1/2
1022 // N // (+)-applanatumol P // AI/IA vs COX-1/2
1023 // N // (-)-applanatumol P // AI/IA vs COX-1/2
1024 // N // (+)-applanatumol Q // AI/IA vs COX-1/2
1025 // N // (-)-applanatumol Q // AI/IA vs COX-1/2
1026 // N // (+)-applanatumol R // AI/IA vs COX-1/2
1027 // N // (-)-applanatumol R // AI/IA vs COX-1/2
1028 // N // (+)-applanatumol S // AI/IA vs COX-1/2
1029 // N // (-)-applanatumol S // AI/IA vs COX-1/2
1030 // N // (+)-applanatumol T // AI/IA vs COX-1/2
1031 // N // (+)-applanatumol U // AI/IA vs COX-1/2
1032 // N // (-)-applanatumol U // AI/IA vs COX-1/2
1033 // N // (+)-applanatumol V // AI/IA vs COX-1/2
1034 // N // (-)-applanatumol V // AI/IA vs COX-1/2
1035 // N // (+)-applanatumol W // AI/IA vs COX-1/2
1036 // N // (-)-applanatumol W// AI/IA vs COX-1/2
1037 // N // (+)-applanatumol X // AI/IA vs COX-1/2
1038 // N // (-)-applanatumol X // AI/IA vs COX-1/2
1039 // N // (+)-Applanatumol Y // AI/IA vs COX-1/2
1040 // N // (-)-applanatumol Y // AI/IA vs COX-1/2
1041 // N // (+)-applanatumol Z // AI/IA vs COX-1/2
1042 // N // (-)-applanatumol Z // AI/IA vs COX-1/2
1043 // N // applanatumol Z1 // AI/IA vs COX-1/2
1044 // N // (+)-applanatumol Z2 // AI/IA vs COX-1/2
1045 // N // (-)-applanatumol Z2 // AI/IA vs COX-1/2

322. Luo, Q.; Tu, Z. C.; Cheng, Y. X., Two rare meroterpenoidal rotamers from *Ganoderma applanatum*. *RSC Adv.* **2017,** 7, (6), 3413-3418.

- Basidiomycete *Ganoderma applanatum* // *

1046 // N // (+)-applanatumol Z3 // enzyme inhib./IA vs JAK3 and DDR1
1047 // N // (-)-applanatumol Z3 // enzyme inhib./IA vs JAK3 and DDR1
1048 // N // (+)-applanatumol Z4 // enzyme inhib./IA vs JAK3 and DDR1
1049 // N // (-)-applanatumol Z4 // enzyme inhib./IA vs JAK3 and DDR1

323. Luo, Q.; Yang, X.-H.; Cheng, Y.-X., Unprecedented tetranorsesquiterpenoids from *Ganoderma applanatum* mushrooms. *Phytochem Lett* **2019,** 33, 81-83.

- Basidiomycete *Ganoderma applanatum* // *

1050 // N // (+)-applanatumol Z5 // enzyme inhib./weak-mod. vs AChE
1051 // N // (-)-applanatumol Z5 // enzyme inhib./weak-mod. vs AChE

324. Li, L.; Li, H.; Peng, X. R.; Hou, B.; Yu, M. Y.; Dong, J. R.; Li, X. N.; Zhou, L.; Yang, J.; Qiu, M. H., (+/-)-Ganoapplanin, a Pair of Polycyclic Meroterpenoid Enantiomers from *Ganoderma applanatum*. *Org Lett* **2016,** 18, (23), 6078-6081.

- Basidiomycete *Ganoderma applanatum* // *

1052 // N // (+)-Ganoapplanin// others/potent vs TTCC

1053 // N // (-)-Ganoapplanin// others/potent vs TTCC

7.9.3 *Ganoderma austral* (12)

325. Zhang, J. J.; Dong, Y.; Qin, F. Y.; Cheng, Y. X., Australeols A-F, neuroprotective meroterpenoids from *Ganoderma austral*e. *Fitoterapia* **2019,** 134, 250-255.

- Basidiomycete *Ganoderma austral* // *

1054 // N // australeol A // others/IA vs neuroprotective

1055 // N // australeol B // others/IA vs neuroprotective

1056 // N // australeol D // others/IA vs neuroprotective

1057 // N // (+)-australeol C // others/IA vs neuroprotective

1058 // N // (-)-australeol C // others/IA vs neuroprotective

1059 // N // (+)-australeol E // others/IA vs neuroprotective

1060 // N // (-)-australeol E // others/IA vs neuroprotective

1061 // N // (+)-australeol F // others/IA vs neuroprotective

1062 // N // (-)-australeol F // others/IA vs neuroprotective

326. Zhang, J. J.; Dong, Y.; Qin, F. Y.; Yan, Y. M.; Cheng, Y. X., Meroterpenoids and alkaloids from *Ganoderma austral*e. *Nat Prod Res* **2019**, 1-7.

Basidiomycete *Ganoderma austral* // *

1063 // N // (+)-ganocapensin A // others/potent vs neuroprotective

1064 // N // (-)-ganocapensin A // others/IA vs neuroprotective

1065 // N // ganocapensin B // others/IA vs neuroprotective

7.9.4 *Ganoderma capense* (11)

327. Peng, X.; Li, L.; Wang, X.; Zhu, G.; Li, Z.; Qiu, M., Antioxidant farnesylated hydroquinones from *Ganoderma capense*. *Fitoterapia* **2016,** 111, 18-23.

- Basidiomycete *Ganoderma capense* // *

1066 // N // (±)–ganocapensin A // others/potent vs AO (DPPH assay) // racemates

1067 // N // ganocapensin B // others/potent vs AO (DPPH assay)

1068 // N // (±)–ganomycin E // others/potent vs AO (DPPH assay) // racemates

1069 // N // ganomycin F // others/potent vs AO (DPPH assay)

1070 // N // (±)–fornicin E // others/potent vs AO (DPPH assay) // racemates

328. Liao, G. F.; Wu, Z. H.; Liu, Y.; Yan, Y. M.; Lu, R. M.; Cheng, Y. X., Ganocapenoids A-D: Four new aromatic meroterpenoids from *Ganoderma capense*. *Bioorg Med Chem Lett* **2019,** 29, (2), 143-147.

- Basidiomycete *Ganoderma capense* // *

1071 // N // (+)-ganocapenoid A // others/weak-mod. vs neurite outgrowth–promoting activity; enzyme inhib./IA vs AchE

1072 // N // (-)-ganocapenoid A // others/weak-mod. vs neurite outgrowth–promoting activity; enzyme inhib./IA vs AchE

1073 // N // ganocapenoid B // others/weak-mod. vs neurite outgrowth–promoting activity; enzyme inhib./IA vs AchE

1074 // N // ganocapenoid C // others/weak-mod. vs neurite outgrowth–promoting activity; enzyme inhib./potent vs. AchE

1075 // N // (+)-ganocapenoid D // others/weak-mod. vs neurite outgrowth–promoting activity; enzyme inhib./IA vs AchE

1076 // N // (-)-ganocapenoid D // others/weak-mod. vs neurite outgrowth–promoting activity; enzyme inhib./IA vs AchE

7.9.5 *Ganoderma cochlear* (116)

329. Dou, M.; Di, L.; Zhou, L. L.; Yan, Y. M.; Wang, X. L.; Zhou, F. J.; Yang, Z. L.; Li, R. T.; Hou, F. F.; Cheng, Y. X., Cochlearols A and B, polycyclic meroterpenoids from the fungus *Ganoderma cochlear* that have renoprotective activities. *Org Lett* **2014,** 16, (23), 6064-7.

- Basidiomycete *Ganoderma cochlear* // *

1077 // N // (+)–cochlearol A // others/IA vs renoprotective // racemates exert renoprotective effects

1078 // N // (-)–cochlearol A // others/IA vs renoprotective

1079 // N // (+)–cochlearol B // others/IA vs renoprotective // racemates exert renoprotective effects

1080 // N // (-)–cochlearol B // others/potent vs renoprotective (pSmads inhibitor)

330. Dou, M.; Li, R.-t.; Cheng, Y.-x., Minor Compounds from Fungus *Ganoderma cochlear*. *Chin Herb Med* **2016,** 8, (1), 85-88.

- Basidiomycete *Ganoderma cochlear* // *

1081 // N // cochlearol C // ND

1082 // N // cochlearol D // ND

331. Qin, F.; Dai, W.; Cheng, Y., Two New Compounds from *Ganoderma cochlear*. *Nat Prod Res Dev* **2016,** 28, 821-824.

- Basidiomycete *Ganoderma cochlear* // *

1083 // N // cochlearol E // ND

1084 // N // (+)–cochlearol F // ND

1085 // N // (-)–cochlearol F // ND

332. Wang, X. L.; Wu, Z. H.; Di, L.; Zhou, F. J.; Yan, Y. M.; Cheng, Y. X., Renoprotective meroterpenoids from the fungus *Ganoderma cochlear*. *Fitoterapia* **2019,** 132, 88-93.

- Basidiomycete *Ganoderma cochlear* // *

1086 // N // (+)–cochlearol E // others/IA vs renal protection (TGF-β1)

1087 // N // (-)–cochlearol E // others/IA vs renal protection (TGF-β1)

1088 // N // cochlearol F // others/IA vs renal protection (TGF-β1) // Rel. config. Only

1089 // N // cochlearol G // others/IA vs renal protection (TGF-β1)

1090 // N // cochlearol H // others/IA vs renal protection (TGF-β1) // Rel. config. Only

1091 // N // cochlearol I // others/IA vs renal protection (TGF-β1) // Rel. config. Only

1092 // N // (+)–cochlearol J // others/IA vs renal protection (TGF-β1)

1093 // N // (-)–cochlearol J // others/IA vs renal protection (TGF-β1)

1094 // N // (+)–cochlearol K // others/IA vs potent renal protection (TGF-β1)

1095 // N // (-)–cochlearol K // others/IA vs potent protection (TGF-β1)

1096 // N // (+)–cochlearol L // others/IA vs renal protection (TGF-β1)

1097 // N // (-)–cochlearol L // others/IA vs renal protection (TGF-β1)

1098 // N // cochlearol M // others/IA vs renal protection (TGF-β1)

333. Wang, X. L.; Wu, Z. H.; Di, L.; Zhou, F. J.; Yan, Y. M.; Cheng, Y. X., Renoprotective phenolic meroterpenoids from the mushroom *Ganoderma cochlear*. *Phytochemistry* **2019,** 162, 199-206.

- Basidiomycete *Ganoderma cochlear* // *

1099 // N // cochlearol N // others/IA vs renal protection (TGF-β1)

1100 // N // cochlearol O // others/IA vs renal protection (TGF-β1)

1101 // N // cochlearol P // others/IA vs renal protection (TGF-β1)

1102 // N // cochlearol Q // others/IA vs renal protection (TGF-β1)

1103 // N // (+)–cochlearol R // others/IA vs renal protection (TGF-β1)

1104 // N // (-)–cochlearol R // others/IA vs renal protection (TGF-β1)

1105 // N // (+)–cochlearol S // others/potent vs renal protection (TGF-β1)

1106 // N // (-)–cochlearol S // others/IA vs renal protection (TGF-β1)

1107 // N // (+)–cochlearol T // others/IA vs renal protection (TGF-β1)

1108 // N // (-)–cochlearol T // others/IA vs renal protection (TGF-β1)

1109 // N // (+)–cochlearol U // others/potent vs renal protection (TGF-β1)

1110 // N // (-)–cochlearol U // others/potent vs renal protection (TGF-β1)

1111 // N // cochlearol V // others/IA vs renal protection (TGF-β1)

1112 // N // cochlearol W // others/IA vs renal protection (TGF-β1) //6'*R*,7'*R*

1113 // N // cochlearol W // others/IA vs renal protection (TGF-β1) // 6'*S*,7'*S*

1114 // N // (+)–cochlearol X // others/IA vs renal protection (TGF-β1)

1115 // N // (-)–cochlearol X // others/potent vs renal protection (TGF-β1)

1116 // N // (+)–cochlearol Y // others/potent vs renal protection (TGF-β1)

1117 // N // (-)–cochlearol Y // others/potent vs renal protection (TGF-β1)

334. Peng, X. R.; Liu, J. Q.; Wan, L. S.; Li, X. N.; Yan, Y. X.; Qiu, M. H., Four new polycyclic meroterpenoids from *Ganoderma cochlear*. *Org Lett* **2014,** 16, (20), 5262-5.

- Basidiomycete *Ganoderma cochlear* // *

1118 // N // (+)–ganocin A // enzyme inhib./IA vs AChE // unknown racemates or enantiomers in bioactivity
1119 // N // (-)–ganocin A // enzyme inhib./IA vs AChE
1120 // N // (+)–ganocin B // enzyme inhib./IA vs AChE // unknown racemates or enantiomers in bioactivity
1121 // N // (-)–ganocin B // enzyme inhib./IA vs AChE
1122 // N // (+)–ganocin C // enzyme inhib./IA vs AChE // unknown racemates or enantiomers in bioactivity
1123 // N // (-)–ganocin C // enzyme inhib./IA vs AChE
1124 // N // (+)–ganocin D // enzyme inhib./weak-mod. vs AChE // unknown racemates or enantiomers in bioactivity
1125 // N // (-)–ganocin D // enzyme inhib./weak-mod. vs AChE

335. Peng, X. R.; Lu, S. Y.; Shao, L. D.; Zhou, L.; Qiu, M. H., Structural Elucidation and Biomimetic Synthesis of (+/-)-Cochlactone A with Anti-Inflammatory Activity. *J Org Chem* **2018,** 83, (10), 5516-5522.

- Basidiomycete *Ganoderma cochlear* // *

1126 // N // (+)–cochlactone A // AB/IA vs 1 bact.; AI/IA vs NO // racemates with potent AI (NO)
1127 // N // (-)–cochlactone A // AB/IA vs 1 bact.; AI/potent vs NO

336. Peng, X.; Liu, J.; Wang, C.; Han, Z.; Shu, Y.; Li, X.; Zhou, L.; Qiu, M., Unusual prenylated phenols with antioxidant activities from *Ganoderma cochlear*. *Food Chem* **2015,** 171, 251-7.

- Basidiomycete *Ganoderma cochlear* // *

1128 // N // (±)–ganoderin A // others/potent vs AO (DPPH, ABTS and OH assays) // racemates
1129 // N // (±)–ganocochlearin A // others/potent vs AO (DPPH, ABTS and OH assays) // racemates
1130 // N // ((±)–ganocochlearin B // others/potent vs AO (DPPH, ABTS and OH assays) // racemates
1131 // N // (±)–ganocochlearin C // others/potent vs AO (DPPH, ABTS and OH assays)// racemates
1132 // N // (±)–ganocochlearin D // others/potent vs AO (DPPH, ABTS and OH assays)// racemates
1133 // N // fornicin D // others/potent vs AO (DPPH, ABTS and OH assays)
1134 // N // ganomycin C // others/potent vs AO (DPPH, ABTS and OH assays)

337. Zhou, F. J.; Nian, Y.; Yan, Y.; Gong, Y.; Luo, Q.; Zhang, Y.; Hou, B.; Zuo, Z. L.; Wang, S. M.; Jiang, H. H.; Yang, J.; Cheng, Y. X., Two New Classes of T-Type Calcium Channel Inhibitors with New Chemical Scaffolds from *Ganoderma cochlear*. *Org Lett* **2015,** 17, (12), 3082-5.

- Basidiomycete *Ganoderma cochlear* // *

1135 // N // (+)–cochlearoid A // others/potent vs Cav3.1 TTCC, Cav1.2, Cav2.1, Cav2.2, and Kv11.1 (hERG)channels
1136 // N // (-)–cochlearoid A // others/potent vs Cav3.1 TTCC
1137 // N // (+)–cochlearoid B // others/weak-mod. vs Cav3.1 TTCC
1138 // N // (-)–cochlearoid B // others/weak-mod. vs Cav3.1 TTCC
1139 // N // (+)–cochlearoid C // others/weak-mod. vs Cav3.1 TTCC
1140 // N // (-)–cochlearoid C // others/potent vs Cav3.1 TTCC
1141 // N // (+)–cochlearoid D // others/potent vs Cav3.1 TTCC
1142 // N // (-)–cochlearoid D // others/potent vs Cav3.1 TTCC
1143 // N // (+)– cochlearoid E // others/potent vs Cav3.1 TTCC
1144 // N // (-)– cochlearoid E // others/weak-mod. vs Cav3.1 TTCC
1145 // N // (+)–cochlearine A // ND // racemates significantly inhibited Cav3.1 TTCC
1146 // N // (-)–cochlearine A // ND
1147 // N // (+)–cochlearine B // others/weak-mod. vs Cav3.1 TTCC
1148 // N // (-)–cochlearine B // others/weak-mod. vs Cav3.1 TTCC

338. Wang, X. L.; Zhou, F. J.; Dou, M.; Yan, Y. M.; Wang, S. M.; Di, L.; Cheng, Y. X., Cochlearoids F-K: Phenolic meroterpenoids from the fungus *Ganoderma cochlear* and their renoprotective activity. *Bioorg Med Chem Lett* **2016,** 26, (22), 5507-5512.

- Basidiomycete *Ganoderma cochlear* // *

1149// N // cochlearoid F // others/potent vs renoprotective (fibronectin production)
1150 // N // cochlearoid G // others/potent vs renoprotective (fibronectin production)
1151 // N // cochlearoid H // others/potent vs renoprotective (fibronectin production)
1152 // N // cochlearoid I // others/potent vs renoprotective (fibronectin production)
1153 // N // cochlearoid J // others/IA vs renoprotective (fibronectin production)
1154 // N // cochlearoid K // others/potent vs renoprotective (fibronectin production)

339. Qin, F. Y.; Yan, Y. M.; Tu, Z. C.; Cheng, Y. X., Cochlearoids L and M: Two New Meroterpenoids from the Fungus *Ganoderma cochlear*. *Nat Prod Commun* **2018,** 13, (3), 303-305.

- Basidiomycete *Ganoderma cochlear* // *

1155 // N // cochlearoid L // enzyme inhib./weak-mod. vs BRD4; cytotox./weak-mod. vs 3 TCLs
1156 // N // cochlearoid M // enzyme inhib./IA vs BRD4; cytotox./IA vs 3 TCLs

340. Qin, F. Y.; Yan, Y. M.; Tu, Z. C.; Cheng, Y. X., (+/-) Cochlearoids N-P: three pairs of phenolic meroterpenoids from the fungus *Ganoderma cochlear* and their bioactivities. *J Asian Nat Prod Res* **2019,** 21, (6), 542-550.

- Basidiomycete *Ganoderma cochlear* // *

1157 // N // (+)–cochlearoid N // enzyme inhib./weak-mod. vs BRD4; cytotox./weak vs.3 TCLs; AB/IA vs. 1 bact.
1158 // N // (-)–cochlearoid N // enzyme inhib./weak-mod. vs BRD4; cytotox./weak vs 2 TCLs; potent vs 1 TCL; AB/IA vs. 1 bact.
1159 // N // (+)–cochlearoid O // enzyme inhib./IA vs BRD4; cytotox./IA vs.3 TCLs; AB/weak-mod. vs vs 1 bact.
1160 // N // (-)–cochlearoid O // enzyme inhib./IA vs BRD4; cytotox./IA vs. 3 TCLs; AB/potent vs 1 bact.
1161 // N // (+)–cochlearoid P // enzyme inhib. /IA vs BRD4; cytotox./mod. to potent vs 3 TCLs; AB/potent vs 1 bact.
1162 // N // (-)–cochlearoid P // enzyme inhib./IA vs BRD4; cytotox./weak-mod. vs 3 TCLs; AB/potent vs 1 bact.

341. Peng, X.; Wang, X.; Chen, L.; Yang, H.; Li, L.; Lu, S.; Zhou, L.; Qiu, M., Racemic meroterpenoids from *Ganoderma cochlear*. *Fitoterapia* **2018,** 127, 286-292.

- Basidiomycete *Ganoderma cochlear* // *

1163 // N // (+)–cochlearin A // ND // racemates potent AO in DPPH assay
1164 // N // (-)–cochlearin A // ND
1165 // N // (+)–cochlearin B // ND // racemates potent AO in DPPH assay
1166 // N // (-)–cochlearin B // ND
1167 // N // (+)–cochlearin C // ND // racemates potent AO in DPPH assay
1168 // N // (-)–cochlearin C // ND
1169 // N // (+)–cochlearin D // others/weak-mod. vs TGF-β1-induced HSCs // racemates potent AO in DPPH assay and weak TGF-β1-induced HSCs
1170 // N // (-)–cochlearin D // others/IA vs TGF-β1-induced HSCs
1171 // N // (+)–cochlearin E // ND // racemates potent AO in DPPH assay
1172 // N // (-)–cochlearin E // ND
1173 // N // cochlearin F // others/potent vs AO (DPPH assay)
1174 // N // (+)–cochlearin G // ND // racemates potent AO in DPPH assay
1175 // N // (-)–cochlearin G // ND
1176 // N // cochlearin H // others/potent vs AO (DPPH assay)
1177 // N // cochlearin I // others/potent vs AO (DPPH assay)

342. Qin, F. Y.; Yan, Y. M.; Tu, Z. C.; Cheng, Y. X., (+/-) Gancochlearols A and B: cytotoxic and COX-2 inhibitory meroterpenoids from *Ganoderma cochlear*. *Nat Prod Res* **2018**, 1-7.

- Basidiomycete *Ganoderma cochlear* // *

1178 // N // (+)–gancochlearol A // cytotox./mod. to potent vs 3 TCLs; AI/potent vs COX-2
1179 // N // (-)–gancochlearol A // cytotox./mod. to potent vs 3 TCLs; AI/potent vs COX-2
1180 // N // (+)–gancochlearol B // cytotox./mod. to potent vs 3 TCLs; AI/potent vs COX-2
1181 // N // (-)–gancochlearol B // cytotox./mod. to potent vs 3 TCLs; AI/potent vs COX-2

343. Cheng, L. Z.; Qin, F. Y.; Ma, X. C.; Wang, S. M.; Yan, Y. M.; Cheng, Y. X., Cytotoxic and N-Acetyltransferase Inhibitory Meroterpenoids from *Ganoderma cochlear*. *Molecules* **2018,** 23, (7), 1797-1806.

- Basidiomycete *Ganoderma cochlear* // *

1182 // N // (+)–gancochlearol C // cytotox. /IA vs 3 TCLs; enzyme inhib./potent vs *N*-acetyltransferase

1183 // N // (-)–gancochlearol C // cytotox. /IA vs 3 TCLs; enzyme inhib./potent vs *N*-acetyltransferase

1184 // N // gancochlearol D // cytotox./weak-mod. vs 3 TCLs; enzyme inhib./IA vs *N*-acetyltransferase

1185 // N // (+)–cochlearoid Q // cytotox./IA vs 3 TCLs

1186 // N // (-)–cochlearoid Q // cytotox./IA vs 3 TCLs

344. Qin, F. Y.; Yan, Y. M.; Tu, Z. C.; Cheng, Y. X., Meroterpenoid dimers from *Ganoderma cochlear* and their cytotoxic and COX-2 inhibitory activities. *Fitoterapia* **2018,** 129, 167-172.

- Basidiomycete *Ganoderma cochlear* // *

1187 // N // (+)–Spirocochlealactone A // AI/potent vs COX-2; cytotox./mod. to potent vs 3 TCLs

1188 // N // (-)–Spirocochlealactone A // AI/potent vs COX-2; cytotox./mod. to potent vs 3 TCLs

1189 // N // (+)–Spirocochlealactone B // AI/potent vs COX-2; cytotox./mod. to potent vs 3 TCLs

1190 // N // (-)–Spirocochlealactone B // AI/potent vs COX-2; cytotox./weak-mod. vs 3 TCLs

1191 // N // (+)–Spirocochlealactone C // AI/potent vs COX-2; cytotox./mod. to potent vs 3 TCLs

1192 // N // (-)–Spirocochlealactone C // AI/potent vs COX-2; cytotox./mod. to potent vs 3 TCLs

7.9.6 *Ganoderma colossum* (1)

345. El Dine, R. S.; El Halawany, A. M.; Ma, C. M.; Hattori, M., Inhibition of the dimerization and active site of HIV-1 protease by secondary metabolites from the Vietnamese mushroom *Ganoderma colossum*. *J Nat Prod* **2009,** 72, (11), 2019-23.

346. Tran, P. T.; Dat, N. T.; Dang, N. H.; Van Cuong, P.; Lee, S.; Hwangbo, C.; Van Minh, C.; Lee, J. H., Ganomycin I from *Ganoderma lucidum* attenuates RANKL-mediated osteoclastogenesis by inhibiting MAPKs and NFATc1. *Phytomedicine* **2019,** 55, 1-8.

347. Chen, X.; Chen, L.; Li, S.; Zhao, J., Meroterpenoids from the fruiting bodies of higher fungus *Ganoderma resinaceum*. *Phytochem Lett* **2017,** 22, 214-218.

- Basidiomycete *Ganoderma colossum* // *

1193 // N // ganomycin I // AV/potent vs HIV–1 protease; enzyme inhib./potent vs a-glucosidase and HMG-CoA reductase; others/potent vs anti-diabetic effects in vivo, potent vs decreasing RANKL–mediated osteoclastogenesis by inhibiting MAPKs and NFATc1 signalling pathways // revised as (+)-ganomycin I (1'*R*), ref. 347

7.9.7 *Ganoderma duripora* (2)

348. Liu, J. Q.; Lian, C. L.; Hu, T. Y.; Wang, C. F.; Xu, Y.; Xiao, L.; Liu, Z. Q.; Qiu, S. Q.; Cheng, B. H., Two new farnesyl phenolic compounds with anti-inflammatory activities from *Ganoderma duripora*. *Food Chem* **2018,** 263, 155-162.

- Basidiomycete *Ganoderma duripora* // *

1194 // N // ganoduriporol A //AI/potent vs TNF-α, IL-6, IL-1β, and PGE2 via COX–2/MAPK/ NF–κB signalling pathway

1195 // N // ganoduriporol B // AI/potent vs TNF-α, IL-6, IL-1β, and PGE2

7.9.8 *Ganoderma leucocontextum* (10)

349. Wang, K.; Bao, L.; Xiong, W.; Ma, K.; Han, J.; Wang, W.; Yin, W.; Liu, H., Lanostane Triterpenes from the Tibetan Medicinal Mushroom *Ganoderma leucocontextum* and Their Inhibitory Effects on HMG-CoA Reductase and alpha-Glucosidase. *J Nat Prod* **2015,** 78, (8), 1977-89.

- Basidiomycete *Ganoderma leucocontextum* // *

1196 // N // ganoleucoin M // enzyme inhib./potent vs α-glucosidase and HMG-CoA reductase, cytotox./weak-mod. vs 2 TCLs

1197 // N // ganoleucoin N // enzyme inhib./potent vs α-glucosidase and HMG-CoA reductase; cytotox./weak-mod. vs 2 TCLs

1198 // N // ganoleucoin O // enzyme inhib./IA vs α-glucosidase and HMG-CoA reductase; cytotox./IA vs 2 TCLs

1199 // N // ganoleucoin P // enzyme inhib./potent vs α-glucosidase, IA vs HMG-CoA reductase; cytotox./IA vs 2 TCLs

350. Wang, K.; Bao, L.; Ma, K.; Zhang, J.; Chen, B.; Han, J.; Ren, J.; Luo, H.; Liu, H., A novel class of alpha-glucosidase and HMG-CoA reductase inhibitors from *Ganoderma leucocontextum* and the anti-diabetic properties of ganomycin I in KK-A(y) mice. *Eur J Med Chem* **2017,** 127, 1035-1046.

- Basidiomycete *Ganoderma leucocontextum* // *

1200 // N // ganoleucin A // enzyme inhib./potent vs *α*–glucosidase in both yeast and rat small intestinal mucosa, IA vs HMG-CoA reductase

1201 // N // ganoleucin B // enzyme inhib./IA vs *α*-glucosidase and HMG-CoA reductase

1202 // N // ganoleucin C // enzyme inhib./potent vs *α*–glucosidase in both yeast and rat small intestinal mucosa, IA vs HMG-CoA reductase

351. Zhang, J.; Ma, K.; Chen, H.; Wang, K.; Xiong, W.; Bao, L.; Liu, H., A novel polycyclic meroterpenoid with aldose reductase inhibitory activity from medicinal mushroom *Ganoderma leucocontextum*. *J Antibiot (Tokyo)* **2017,** 70, (8), 915-917.

- Basidiomycete *Ganoderma leucocontextum* // *

1203 // N // ganoleucin D // enzyme inhib./mod. to potent vs aldose reductase and HMG–CoA reductase, cytotox./IA vs 2 TCLs

352. Chen, H.-P.; Zhao, Z.-Z.; Zhang, Y.; Bai, X.; Zhang, L.; Liu, J.-K., (+)- and (−)-ganodilactone, a pair of meroterpenoid dimers with pancreatic lipase inhibitory activities from the macromycete *Ganoderma leucocontextum*. *RSC Adv.* **2016,** 6, (69), 64469-64473.

- Basidiomycete *Ganoderma leucocontextum* // *

1204 // N // (+)-ganodilactone // enzyme inhib./potent vs pancreatic lipase // racemates also with mod. pancreatic lipase

1205 // N // (−)-ganodilactone // enzyme inhib./potent vs pancreatic lipase

7.9.9 *Ganoderma lingzhi* (23)

353. Yan, Y. M.; Wang, X. L.; Luo, Q.; Jiang, L. P.; Yang, C. P.; Hou, B.; Zuo, Z. L.; Chen, Y. B.; Cheng, Y. X., Metabolites from the mushroom *Ganoderma lingzhi* as stimulators of neural stem cell proliferation. *Phytochemistry* **2015,** 114, 155-62.

- Basidiomycete *Ganoderma lingzhi* // *

1206 // N //(+)- spirolingzhine A // others/potent vs promoted NSC proliferation

1207 // N // (-)- spirolingzhine A // others/potent vs promoted NSC proliferation

1208// N // (+)-spirolingzhine B // others/potent vs promoted NSC proliferation

1209 // N // (-)- spirolingzhine B // others/potent vs promoted NSC proliferation

1210 // N // (+)- spirolingzhine C // others/potent vs promoted NSC proliferation

1211 // N // (-)- spirolingzhine C // others/potent vs promoted NSC proliferation

1212 // N // spirolingzhine D // others/potent vs promoted NSC proliferation

1213 // N // (+)-lingzhine A // others/IA vs promoted NSC proliferation

1214 // N // (-)-lingzhine A // others/IA vs promoted NSC proliferation

1215 // N // (+)-lingzhine B // others/IA vs promoted NSC proliferation

1216 // N // (-)-lingzhine B // others/IA vs promoted NSC proliferation

1217 // N // lingzhine C // others/IA vs promoted NSC proliferation

1218 // N // lingzhine D // others/potent vs promoted NSC proliferation

1219 // N // (+)-lingzhine E // others/potent vs promoted NSC proliferation

1220 // N // (-)-lingzhine E // others/potent vs promoted NSC proliferation

1221 // N // (+)-lingzhine F // others/potent vs promoted NSC proliferation

1222 // N // (-)-lingzhine F // others/potent vs promoted NSC proliferation

354 . Yan, Y. M.; Wang, X. L.; Zhou, L. L.; Zhou, F. J.; Li, R.; Tian, Y.; Zuo, Z. L.; Fang, P.; Chung, A. C.; Hou, F. F.; Cheng, Y. X., Lingzhilactones from *Ganoderma lingzhi* ameliorate adriamycin-induced nephropathy in mice. *J Ethnopharmacol* **2015,** 176, 385-93.

- Basidiomycete *Ganoderma lingzhi* // *

1223 // N // (+)-lingzhilactone A // others/IA vs renoprotection

1224 // N // (-)-lingzhilactone A // others/IA vs renoprotection

1225 // N // (+)-lingzhilactone B // others/potent vs renoprotection via inhib. antioxidants and inflammation in vivo and in vitro

1226 // N // (-)-lingzhilactone B // others/potent vs renoprotection via inhib. antioxidants and inflammation in vivo and in vitro

1227 // N // (+)-lingzhilactone C // ND

1228 // N // (-)-lingzhilactone C // ND

7.9.10 *Ganoderma lucidum* (40)

355. Yan, Y. M.; Ai, J.; Zhou, L. L.; Chung, A. C.; Li, R.; Nie, J.; Fang, P.; Wang, X. L.; Luo, J.; Hu, Q.; Hou, F. F.; Cheng, Y. X., Lingzhiols, unprecedented rotary door-shaped meroterpenoids as potent and selective inhibitors of p-Smad3 from *Ganoderma lucidum*. *Org Lett* **2013,** 15, (21), 5488-91.

- Basidiomycete *Ganoderma lucidum* // *

1229 // N // (+)-lingzhiol // others/potent vs renoprotection via inhib. antioxidants and inflammation, p-Smad3 inhibitor

1230 // N // (-)-lingzhiol // others/potent vs renoprotection via inhib. antioxidants and inflammation, p-Smad3 inhibitor

356. Luo, Q.; Wang, X.-L.; Di, L.; Yan, Y.-M.; Lu, Q.; Yang, X.-H.; Hu, D.-B.; Cheng, Y.-X., Isolation and identification of renoprotective substances from the mushroom *Ganoderma lucidum*. *Tetrahedron* **2015,** 71, (5), 840-845.

- Basidiomycete *Ganoderma lucidum* // *

1231 // N // (+)-chizhine A // others/weak-mod. vs renoprotective (MCP–1)

1232 // N // (-)-chizhine A // others/weak-mod. vs renoprotective (MCP–1)

1233 // N // (+)-chizhine B // others/IA vs renoprotective (MCP–1)

1234 // N // (-)-chizhine B // others/IA vs renoprotective (MCP–1)

1235 // N // (+)-chizhine C // ND

1236 // N // (-)-chizhine C // ND

1237 // N // (+)-chizhine D // others/IA vs renoprotective (MCP–1)

1238 // N // (-)-chizhine D // others/IA vs renoprotective (MCP–1)

1239 // N // (+)-chizhine E // others/IA vs renoprotective (MCP–1)

1240 // N // (-)-chizhine E // others/IA vs renoprotective (MCP–1)

1241 // N // (+)-chizhine F // others/potent. vs renoprotective (MCP–1 and fibronectin)

1242 // N // (-)-chizhine F // others/potent. vs renoprotective (MCP–1 and fibronectin)

357. Ding, W.-Y.; Ai, J.; Wang, X.-L.; Qiu, F. G.; Lv, Q.; Fang, P.; Hou, F.-F.; Yan, Y.-M.; Cheng, Y.-X., Isolation of lingzhifuran A and lingzhilactones D–F from *Ganoderma lucidum* as specific Smad3 phosphorylation inhibitors and total synthesis of lingzhifuran A. *RSC Adv.* **2016,** 6, (81), 77887-77897.

- Basidiomycete *Ganoderma lucidum* // *

1243 // N // lingzhifuran A // others/potent vs renoprotective (selective p-Smad3 and fibronectin)

1244 // N // (+)-lingzhilactone D // others/potent vs renoprotective (selective p-Smad3 and fibronectin)

1245 // N // (-)-lingzhilactone D // ND

1246 // N // lingzhilactone E // ND

1247 // N // lingzhilactone F // ND

358. Chen, B.; Tian, J.; Zhang, J.; Wang, K.; Liu, L.; Yang, B.; Bao, L.; Liu, H., Triterpenes and meroterpenes from *Ganoderma lucidum* with inhibitory activity against HMGs reductase, aldose reductase and alpha-glucosidase. *Fitoterapia* **2017,** 120, 6-16.

- Basidiomycete *Ganoderma lucidum* // *

1248 // N // ganolucinin A // enzyme inhib./weak-mod. vs *α*-glucosidase, maltase, sucrose, aldose reductase, HMG-CoA reductase; cytotox./IA vs. 3 TCLs

1249 // N // ganolucinin B // enzyme inhib./IA vs *α*-glucosidase, maltase, sucrose, aldose reductase, HMG-CoA reductase, PTP1B; cytotox./IA vs. 3 TCLs

1250 // N // ganolucinin C // enzyme inhib./IA vs *α*-glucosidase, maltase, sucrose, aldose reductase, HMG-CoA reductase, PTP1B; cytotox./IA vs. 3 TCLs

1251// NP // ganomycin J // enzyme inhib./mod. to potent vs *α*-glucosidase, maltase, sucrose, aldose reductase, HMG-CoA reductase

359. Luo, Q.; Yang, Z.-L.; Cheng, Y.-X., Dayaolingzhiols A−E, AchE inhibitory meroterpenoids from *Ganoderma lucidum*. *Tetrahedron* **2019,** 75, (20), 2910-2915.

- Basidiomycete *Ganoderma lucidum* // *

1252 // N // (+)-dayaolingzhiol A // enzyme inhib./IA vs AChE

1253 // N // (-)-dayaolingzhiol A // enzyme inhib./IA vs AChE

1254 // N // (+)-dayaolingzhiol B // enzyme inhib./IA vs AChE

1255 // N // (-)-dayaolingzhiol B // enzyme inhib./weak-mod. vs AChE
1256 // N // (+)-dayaolingzhiol C // enzyme inhib./weak-mod. vs AChE
1257 // N // (-)-dayaolingzhiol C // enzyme inhib./weak-mod. vs AChE
1258 // N // (+)-dayaolingzhiol D // enzyme inhib./potent vs AChE
1259 // N // (-)-dayaolingzhiol D // enzyme inhib./weak-mod. vs AChE
1260 // N // (+)-dayaolingzhiol E // ND // racemates potent anti-AChE activity
1261 // N // (-)-dayaolingzhiol E // ND

360. Xin, Q. H.; Luo, Q.; Wu, Z. H.; Zhang, J. J.; Liu, L. Z.; Cheng, Y. X., New Unsaturated Lactones and a Meroterpenoid from *Ganoderma lucidum*. *Nat Prod Commun* **2019,** 14, (7), 1-5.

- Basidiomycete *Ganoderma lucidum* // *

1262 // N // (+)-dayaolingzhiol H // enzyme inhib./weak-mod. vs AChE
1263 // N // (-)-dayaolingzhiol H // enzyme inhib./weak-mod. vs AChE

361. Wang, X. F.; Yan, Y. M.; Wang, X. L.; Ma, X. J.; Fu, X. Y.; Cheng, Y. X., Two new compounds from *Ganoderma lucidum*. *J Asian Nat Prod Res* **2015,** 17, (4), 329-32.

- Basidiomycete *Ganoderma lucidum* // *

1264 // N // (+)-lucidulactone B // ND
1265 // N // (-)-lucidulactone B // ND

362. FJ, Z.; XL, W.; SM, W.; YX, C., A New Meroterpenoid from *Ganoderma lucidum*. *Nat Prod Res Dev* **2015,** 27, 22-25.

- Basidiomycete *Ganoderma lucidum* // *

1266 // N // chizhiol A // ND

363. Yan, Y. M.; Zhang, H. X.; Liu, H.; Wang, Y.; Wu, J. B.; Li, Y. P.; Cheng, Y. X., (+/-)-Lucidumone, a COX-2 Inhibitory Caged Fungal Meroterpenoid from *Ganoderma lucidum*. *Org Lett* **2019,** 21, (21), 8523-8527.

- Basidiomycete *Ganoderma lucidum* // *

1267 // N // (+)-lucidumone // IA/weak-mod. vs COX-1, potent vs COX–2
1268 // N // (-)-lucidumone // IA/weak-mod. vs COX-1, potent vs COX–2

7.9.11 *Ganoderma oregonense* (3)

364. Kim, J. Y.; Woo, E. E.; Ha, L. S.; Kim, Y. H.; Lee, I. K.; Yun, B. S., Oregonensins A and B, new meroterpenoids from the culture broth of *Ganoderma oregonense* and their antioxidant activity. *J Antibiot (Tokyo)* **2020,** 73, (2), 112-115.

- Basidiomycete *Ganoderma oregonense* // *

1269/1270 // N // (±)-oregonensin A // others/potent vs AO (ABTS and DPPH assays) // racemates
1269 // N // (+)-oregonensin A // ND
1270 // N // (-)-oregonensin A // ND
1271 // N // (±)-oregonensin B // others/weak-mod. vs AO (ABTS and DPPH assays) // racemates

7.9.12 *Ganoderma petchii* (8)

365. Gao, Q.; Guo, P.; Luo, Q.; Yan, H.; YX, C., Petchienes A–E, Meroterpenoids from *Ganoderma petchii*. *Nat Prod Commun* **2015,** 10, 2019-2022.

- Basidiomycete *Ganoderma petchii* // *

1272 // N // petchiene A // others/IA vs intracellular Ca^{2+} concentration
1273 // N // petchiene B // others/potent vs intracellular Ca^{2+} concentration
1274 // N // petchiene C // others/IA vs intracellular Ca^{2+} concentration
1275 // N // (+)-petchiene D // others/IA vs intracellular Ca^{2+} concentration
1276 // N // (-)-petchiene D // others/potent vs intracellular Ca^{2+} concentration
1277 // N // petchiene E // others/IA vs intracellular Ca^{2+} concentration

366. Li, C.-G.; Luo, Q.; Guo, P.-X.; Chen, L.-L.; Cheng, Y.-X., Petchiethers A and B, novel meroterpenoids with a 14- or 15-membered ring from *Ganoderma petchii*. *Phytochem Lett* **2016,** 18, 14-18.

367. You, Y. K.; Luo, Q.; Wu, W. F.; Zhang, J. J.; Zhu, H. J.; Lao, L.; Lan, H. Y.; Chen, H. Y.; Cheng, Y. X., Petchiether A attenuates obstructive nephropathy by suppressing TGF-beta/Smad3 and NF-kappaB signalling. *J Cell Mol Med* **2019,** 23, (8), 5576-5587.

- Basidiomycete *Ganoderma petchii* // *

1278 // N // petchiether A // others/potent vs renoprotective (inhibit fibronectin production via TGF-β/Smad3 and NF-κB signalling pathways) // ref. 366-367

1279 // N // petchiether B // others/potent vs renoprotective (inhibit fibronectin production via TGF-β/Smad3 and NF-κB signalling pathways) // ref. 366

7.9.13 *Ganoderma pfeifferi* (1)

368. Niedermeyer, T. H. J.; Jira, T.; Lalk, M.; Lindequist, U., Isolation of farnesylhydroquinones from the basidiomycete *Ganoderma pfeifferi*. *Nat Prod Bioprospect* **2013,** 3, (4), 137-140.

- Basidiomycete *Ganoderma pfeifferi* // *

1280 // N // ganomycin K // AB/weak-mod. vs 1 bact.

7.9.14 *Ganoderma resinaceum* (7)

347. Chen, X.; Chen, L.; Li, S.; Zhao, J., Meroterpenoids from the fruiting bodies of higher fungus *Ganoderma resinaceum*. Phytochemistry Letters 2017, 22, 214-218.

- Basidiomycete *Ganoderma resinaceum* // *

1281 // N // (+)- ganoresinain A // ND

1282 // N // (-)-ganoresinain A // ND

1283 // N // ganoresinain B // ND

1284 // N // ganoresinain C // ND

1285 // N // ganoresinain D // ND

1286 // N // ganoresinain E // ND

369. Yang, Q.; Hu, Q.; Ma, Z.; Chen, Y.; Sun, Y.; Dong, M.; Ye, Y.; Zhou, M., A new meroterpenoid from *Ganoderma resinaceum*. *Chin Trad Herb Drugs* **2019,** 50, 1902-1905

- Basidiomycete *Ganoderma resinaceum* // *

1287 // N // ganoresinain F // ND

7.9.15 *Ganoderma sinense* (11)

370. Wang, M.; Wang, F.; Xu, F.; Ding, L. Q.; Zhang, Q.; Li, H. X.; Zhao, F.; Wang, L. Q.; Zhu, L. H.; Chen, L. X.; Qiu, F., Two pairs of farnesyl phenolic enantiomers as natural nitric oxide inhibitors from *Ganoderma sinense*. *Bioorg Med Chem Lett* **2016,** 26, (14), 3342-3345.

- Basidiomycete *Ganoderma sinense* // *

1288 // N // ganosinensol A // AI/potent vs NO

1289 // N // ganosinensol B // AI/potent vs NO

1290 // N // ganosinensol C // AI/potent vs NO

1291 // N // ganosinensol D // AI/potent vs NO

371. Gao, Y.; Zhu, L. H.; Guo, J.; Yuan, T.; Wang, L. Q.; Li, H.; Chen, L. X., Farnesyl phenolic enantiomers as natural MTH1 inhibitors from *Ganoderma sinense*. *Oncotarget* **2017,** 8, (56), 95865-95879.

- Basidiomycete *Ganoderma sinense* // *

1292 // N // ganosinensol E // enzyme inhib./potent vs MTH1 enzyme; cytotox./weak-mod. vs 3 TCLs

1293 // N // ganosinensol F // enzyme inhib./potent vs MTH1 enzyme; cytotox./weak-mod. vs 3 TCLs

1294 // N // ganosinensol G // enzyme inhib./weak-mod. vs MTH1 enzyme; cytotox./weak-mod. vs 3 TCLs

1295 // N // ganosinensol H // enzyme inhib./weak-mod. vs MTH1 enzyme; cytotox./weak-mod. vs 3 TCLs

1296 // N // ganosinensol I // enzyme inhib./weak-mod. vs MTH1 enzyme; cytotox./weak-mod. vs 3 TCLs

1297 // N // ganosinensol J // enzyme inhib./potent vs MTH1 enzyme; cytotox./weak-mod. vs 3 TCLs

372. Wang, D.; Wang, Y.-L.; Zhang, P.; Li, X.-Z.; Li, H.; Chen, L.-X., New sesquiterpenoid derivatives from *Ganoderma sinense* with nitric oxide inhibitory activity. *Phytochem Lett* **2020,** 35, 84-87.

- Basidiomycete *Ganoderma sinense* // *

1298 // N // (±)-ganosinensol K // AI/potent vs NO

7.9.16 *Ganoderma sinensis* (30)

373. Cao, W. W.; Luo, Q.; Cheng, Y. X.; Wang, S. M., Meroterpenoid enantiomers from *Ganoderma sinensis*. *Fitoterapia* **2016,** 110, 110-5.

- Basidiomycete *Ganoderma sinense* // *

1299 // N // (+)-zizhine A // others/IA vs renoprotective (inhibit fibronectin)
1300 // N // (-)-zizhine A // others/IA vs renoprotective (inhibit fibronectin)
1301 // N // (+)-zizhine B // others/IA vs renoprotective (inhibit fibronectin)
1302 // N // (-)-zizhine B // others/IA vs renoprotective (inhibit fibronectin)
1303 // N // (+)-zizhine C // others/IA vs renoprotective (inhibit fibronectin)
1304 // N // (-)-zizhine C // others/IA vs renoprotective (inhibit fibronectin)
1305 // N // (+)-zizhine D // others/IA vs renoprotective (inhibit fibronectin)
1306 // N // (-)-zizhine D // others/IA vs renoprotective (inhibit fibronectin)
1307 // N // (+)-zizhine E // others/IA vs renoprotective (inhibit fibronectin)
1308 // N // (-)-zizhine E // others/IA vs renoprotective (inhibit fibronectin)
1309 // N // (-)-zizhine F // others/IA vs renoprotective (inhibit fibronectin)
1310 // N // (-)-zizhine F // others/IA vs renoprotective (inhibit fibronectin)

374. Luo, Q.; Cao, W. W.; Wu, Z. H.; Wang, S. M.; Cheng, Y. X., Zizhines G-O, AchE inhibitory meroterpenoids from *Ganoderma sinensis*. *Fitoterapia* **2019,** 134, 411-416.

- Basidiomycete *Ganoderma sinense* // * //

1311 // N // (+)-zizhine G // enzyme inhib./potent vs AchE
1312 // N // (-)-zizhine G // enzyme inhib./potent vs AchE
1313 // N // (+)-zizhine H // enzyme inhib./weak-mod. vs AchE // revised as 1'–*epi*–zizhine T, weak vs. 2 TCLs
1314 // N // (-)-zizhine H // enzyme inhib./weak-mod. vs AchE // revised as zizhine T, weak vs. 2 TCLs
1315 // N // (±)- zizhine I // enzyme inhib./potent vs AchE // racemates
1316 // N // (±)- zizhine J // enzyme inhib./potent vs AchE // racemates
1317 // N // zizhine K // enzyme inhib./potent vs AchE
1318 // N // (±)- zizhine L // enzyme inhib./potent vs AchE // racemates
1319 // N // zizhine M // enzyme inhib./weak-mod. vs AchE
1320 // N // zizhine N // enzyme inhib./weak-mod. vs AchE
1321 // N // (±)-zizhine O // enzyme inhib./weak-mod. vs AchE // racemates

375. Yin, Y. J.; Huang, D. L.; Qiu, B.; Cai, D.; Zhang, J. J.; Wang, S. X.; Qin, D. P.; Cheng, Y. X., Meroterpenoids from the Fungus *Ganoderma sinensis* and First Absolute Configuration Clarification of Zizhine H. *Molecules* **2019,** 25, (1), 158-168.

- Basidiomycete *Ganoderma sinense* // *

1322 // N // (+)-zizhine P // cytotox./IA vs 4 TCLs
1323 // N // (-)-zizhine P // cytotox./IA vs 4 TCLs
1324 // N // (+)-zizhine Q // cytotox./IA vs 4 TCLs
1325 // N // (-)-zizhine Q // cytotox./IA vs 4 TCLs
1326 // N // zizhine R // cytotox./IA vs 4 TCLs
1327 // N // zizhine S // cytotox./weak-mod. vs 1 TCL, IA vs 3 TCLs
1328 // N // zizhine U // cytotox./IA vs 4 TCLs

7.9.17 *Ganoderma theaecolum* (33)

376. Luo, Q.; Li, M.-K.; Luo, J.-F.; Tu, Z.-C.; Cheng, Y.-X., COX-2 and JAK3 inhibitory meroterpenoids from the mushroom *Ganoderma theaecolum*. *Tetrahedron* **2018,** 74, (31), 4259-4265.

- Basidiomycete *Ganoderma theaecolum* // *

1329 // N // ganotheaecolumol A // AI/IA vs COX–2; enzyme inhib./IA vs JAK3; cytotox./IA vs 3 TCLs
1330 // N // ganotheaecolumol B // AI/IA vs COX–2; enzyme inhib./IA vs JAK3; cytotox./IA vs 3 TCLs
1331 // N // ganotheaecolumol C // AI/potent vs COX–2
1332 // N // ganotheaecolumol D // AI/potent vs COX–2
1333 // N // (+)-ganotheaecolumol E // AI/IA vs COX–2; enzyme inhib./IA vs JAK3; cytotox./IA vs 3 TCLs
1334 // N // (-)-ganotheaecolumol E // AI/IA vs COX–2; enzyme inhib./IA vs JAK3; cytotox./IA vs 3 TCLs
1335 // N // ganotheaecolumol F // AI/potent vs COX–2; enzyme inhib./potent vs JAK3
1336 // N // (+)-ganotheaecolumol G // AI/potent vs COX–2; enzyme inhib./potent vs JAK3
1337 // N // (-)-ganotheaecolumol G // AI/potent vs COX–2
1338 // N // (+)-ganotheaecolumol H // AI/potent vs COX–2; enzyme inhib./potent vs JAK3
1339 // N // (-)-ganotheaecolumol H // AI/IA vs COX–2; enzyme inhib./IA vs JAK3; cytotox./IA vs. 3 TCLs
1340 // N // ganotheaecolumol I // AI/potent vs COX–2; enzyme inhib./potent vs JAK3
1341 // N // ganotheaecolumol J // AI/potent vs COX–2; enzyme inhib./potent vs JAK3
1342 // N // ganotheaecolumol K // AI/potent vs COX–2; enzyme inhib./potent vs JAK3

377. Luo, Q.; Tu, Z. C.; Yang, Z. L.; Cheng, Y. X., Meroterpenoids from the fruiting bodies of *Ganoderma theaecolum*. *Fitoterapia* **2018,** 125, 273-280.

- Basidiomycete *Ganoderma theaecolum* // *

1343 // N // ganotheaecoloid A // AI/IA vs COX–2
1344 // N // ganotheaecoloid B // AI/IA vs COX–2
1345 // N // (+)-ganotheaecoloid C // AI/IA vs COX–2 // Abs. config. Not determined
1346 // N // (-)-ganotheaecoloid C // AI/IA vs COX–2 // Abs. config. Not determined
1347 // N // ganotheaecoloid D // AI/IA vs COX–2
1348 // N // ganotheaecoloid E // AI/IA vs COX–2
1349 // N // ganotheaecoloid F // AI/IA vs COX–2
1350 // N // (+)-ganotheaecoloid G // AI/IA vs COX–2 // Abs. config. Not determined
1351 // N // (-)-ganotheaecoloid G // AI/IA vs COX–2 // Abs. config. Not determined
1352 // N // (+)-ganotheaecoloid H // AI/IA vs COX–2 // Abs. config. Not determined
1353 // N // (-)-ganotheaecoloid H // AI/IA vs COX–2 // Abs. config. Not determined
1354 // N // (+)-ganotheaecoloid I // AI/IA vs COX–2 // Abs. config. Not determined
1355 // N // (-)-ganotheaecoloid I // AI/IA vs COX–2 // Abs. config. Not determined
1356 // N // ganotheaecoloid J // AI/potent vs COX–2
1357 // N // ganotheaecoloid K // AI/IA vs COX–2
1358 // N // (+)-ganotheaecoloid L // AI/IA vs COX–2
1359 // N // (-)-ganotheaecoloid L // AI/IA vs COX–2
1360 // N // ganotheaecoloid M // AI/IA vs COX–2
1361 // N // ganotheaecoloid N // AI/IA vs COX–2

7.10 *Guignardia* sp. (42)

378. Sommart, U.; Rukachaisirikul, V.; Trisuwan, K.; Tadpetch, K.; Phongpaichit, S.; Preedanon, S.; Sakayaroj, J., Tricycloalternarene derivatives from the endophytic fungus Guignardia bidwellii PSU-G11. *Phytochem Lett* **2012,** 5, (1), 139-143.

- Ascomycota *Guignardia bidwellii* PSU-G11 // the leaves of *Guignardia* hombroniana

1362 // N // guignarenone A // cytotox./weak vs 2TCLs
1363 // N // guignarenone B // ND
1364 // N // guignarenone C // cytotox./IA vs 2TCLs // (+)-guignardone H-(+)-guignarenone C,
1365 // N // guignarenone D // ND

379. Yuan, W. H.; Liu, M.; Jiang, N.; Guo, Z. K.; Ma, J.; Zhang, J.; Song, Y. C.; Tan, R. X., Guignardones A-C: Three Meroterpenes from Guignardia mangiferae. *Eur J Org Chem* **2010,** 2010, (33), 6348-6353.

380. Han, W. B.; Dou, H.; Yuan, W. H.; Gong, W.; Hou, Y. Y.; Ng, S. W.; Tan, R. X., Meroterpenes with toll-like receptor 3 regulating activity from the endophytic fungus Guignardia mangiferae. *Planta Med* **2015,** 81, (2), 145-51.

- Ascomycota *Guignardia mangiferae* IFB-GLP-4 // the leaves of *ormal Ilex cornuta*

1366 // N // guignardone A // ND // ref. 379

1367 // N // guignardone B // AF/potent vs *C. albicans*, obvious synergistic inhibition on *C. albicans* growth and biofilms with fluconazole, AB/weak-mod. vs 3 bact. // ref. 379 and 384

1368 // N // guignardone C // ND // ref. 379

1377 // N // guignardone J // others/potent vs upregulated TLR3 expression // ref. 380; copublication ref. 384, rename as guignardone J-1

1378 // N // guignardone K // others/potent vs upregulated TLR3 expression // ref. 380; copublication ref. 384, rename as guignardone K-1

1379 // N // guignardone L // others/potent vs upregulated TLR3 expression // ref. 380; copublication ref. 384, rename as guignardone L-1

381. Guimarães, D. O.; Lopes, N. P.; Pupo, M. T., Meroterpenes isolated from the endophytic fungus Guignardia mangiferae. *Phytochem Lett* **2012,** 5, (3), 519-523.

- Ascomycota *Guignardia mangiferae* // the leaves of *Viguiera arenaria* (Asteraceae)

1379 // N // guignardone D // ND

1370 // N // guignardone E // ND

1371 // N // tricycloalternarene F // ND // (–), revised as (–)–guignardone H

382. Zheng, B.; Zeng, Y. B.; Dai, H. F.; Zuo, W. J.; Guo, Z. K.; Yang, T.; Zhong, H. M.; Mei, W. L., Two new meroterpenes from endophytic fungus A1 of Scyphiphora hydrophyllacea. *J Asian Nat Prod Res* **2012,** 14, (8), 776-9.

383. Mei, W. L.; Zheng, B.; Zhao, Y. X.; Zhong, H. M.; Chen, X. L.; Zeng, Y. B.; Dong, W. H.; Huang, J. L.; Proksch, P.; Dai, H. F., Meroterpenes from endophytic fungus A1 of mangrove plant Scyphiphora hydrophyllacea. *Mar Drugs* **2012,** 10, (9), 1993-2001.

- Ascomycota *Guignardia* sp A1 // mangrove plant *Scyphiphora hydrophyllacea* Gaertn. F

1372 // N // guignardone D // ND // ref. 382, copublication ref. 381, rename as guignardone D-1

1373 // N // guignardone E // ND // ref. 382, copublication ref. 381, rename as guignardone E-1

1374 // N // guignardone F // AB/IA vs 2 bact. // ref. 382

1375 // N // guignardone G // AB/IA vs 2 bact. // ref. 382

1364/**1371** // N // guignardone H // AB/IA vs 2 bact. // ref. 382; revised (–)–guignardone H= (–)–tricycloalternarene F, (+)–guignardone H-(+)–guignarenone C, ref. 384

1376 // N // guignardone I // AB/weak vs 2 bact. // ref. 382 and 384

384. Kobayashi, T.; Takizawa, I.; Shinobe, A.; Kawamoto, Y.; Abe, H.; Ito, H., Asymmetric Synthesis and Structure Revision of Guignardone H and I: Development of a Chiral 1,3-Diketone Possessing C2 Symmetry. *Org Lett* **2019,** 21, (9), 3008-3012.

385. Li, T. X.; Yang, M. H.; Wang, X. B.; Wang, Y.; Kong, L. Y., Synergistic Antifungal Meroterpenes and Dioxolanone Derivatives from the Endophytic Fungus Guignardia sp. *J Nat Prod* **2015,** 78, (11), 2511-20.

- Ascomycota *Guignardia* sp // the fresh leaves of *Euphorbia sieboldiana*

1380 // N // guignardone J // AB/weak-mod. vs 1 bact.; AF/IA vs synergistic antifungal activity; cytotox./IA vs. 3 TCLs // relative stereochemistry maybe incorrect, ref. 384

1381 // N // guignardone K // AB/weak-mod. vs 1 bact.; AF/IA vs synergistic antifungal activity; cytotox./IA vs. 3 TCLs // relative stereochemistry maybe incorrect, ref. 384

1382 // N // guignardone L // AB/weak-mod. vs 1 bact.; AF/IA vs synergistic antifungal activity; cytotox./IA vs. 3 TCLs // relative stereochemistry maybe incorrect, ref. 384

1383 // N // guignardone M // AB/IA vs 4 bact.; AF/IA vs synergistic antifungal activity; cytotox./IA vs. 3 TCLs

1384 // N // guignardone N // AB/weak-mod. vs 2 bact.; AF/ potent vs *C. albicans* and synergistic inhibition on *C. albicans* growth and biofilms with fluconazole, cytotox./IA vs 3TCLs

1385 // N // guignardone O // AB/IA vs 4 bact.; AF/potent vs synergistic inhibition on *C. albicans* growth and biofilms with fluconazole, cytotox./IA vs 3TCLs

1386 // N //17-hydroxylated guignardone A // AB/IA vs 4 bact.; AF/IA vs synergistic antifungal activity; cytotox./IA vs 3TCLs

1387 // N // 13-hydroxylated guignardone A // AB/weak-mod. vs 4 bact.; AF/potent vs synergistic inhibition on *C. albicans* growth and biofilms with fluconazole; cytotox./IA vs 3TCLs

1388 // N // 12-hydroxylated guignardone A // AB/IA vs 4 bact.; AF/potent vs synergistic inhibition on *C. albicans* growth and biofilms with fluconazole; cytotox./IA vs 3TCLs

386. Sun, Z. H.; Liang, F. L.; Wu, W.; Chen, Y. C.; Pan, Q. L.; Li, H. H.; Ye, W.; Liu, H. X.; Li, S. N.; Tan, G. H.; Zhang, W. M., Guignardones P-S, New Meroterpenoids from the Endophytic Fungus Guignardia mangiferae A348 Derived from the Medicinal Plant Smilax glabra. *Molecules* **2015,** 20, (12), 22900-7.

- Ascomycota *Guignardia mangiferae* A348 // medicinal Plant *Smilax glabra*

1389 // N // guignardone P // cytotox./IA vs 3 TCLs

1390 // N // guignardone Q // cytotox./weak-mod. vs MCF–7

1391 // N // guignardone R // cytotox./IA vs 3 TCLs // relative stereochemistry maybe incorrect, ref. 384

1392 // N // guignardone S // cytotox./weak-mod. vs MCF–7 // relative stereochemistry maybe incorrect, ref. 384

387. Chen, K.; Zhang, X.; Sun, W.; Liu, J.; Yang, J.; Chen, C.; Liu, X.; Gao, L.; Wang, J.; Li, H.; Luo, Z.; Xue, Y.; Zhu, H.; Zhang, Y., Manginoids A-G: Seven Monoterpene-Shikimate-Conjugated Meroterpenoids with a Spiro Ring System from Guignardia mangiferae. *Org Lett* **2017,** 19, (21), 5956-5959.

388. Chen, K.; Chen, C.; Guo, J.; Sun, W.; Liu, J.; Yang, J.; Liu, X.; Wang, J.; Luo, Z.; Zhu, H.; Zhang, Y., Mangiterpenes A-C and 2',3'-seco-manginoid C, four sesquiterpene/monoterpene-shikimate-conjugated spirocyclic meroterpenoids from Guignardia mangiferae. *Phytochemistry* **2019,** 164, 236-242.

- Ascomycota *Guignardia mangiferae* (TJ414) // leaves of *Dendrobium nobile*

1393 // N // manginoid A // enzyme inhib./potent vs 11*β*–HSD1 // ref. 387

1394 // N // manginoid B // enzyme inhib./potent vs 11*β*–HSD1 // ref. 387

1395 // N // manginoid C // enzyme inhib./weak-mod. vs 11*β*–HSD1 // ref. 387

1396 // N // manginoid D // enzyme inhib./weak-mod. vs 11*β*–HSD1 // ref. 387

1397 // N // manginoid E // enzyme inhib./IA vs 11*β*–HSD1 // ref. 387

1398 // N // manginoid F // enzyme inhib./weak-mod. vs 11*β*–HSD1 // ref. 387

1399 // N // manginoid G // enzyme inhib./weak-mod. vs 11*β*–HSD1 // ref. 387

1400 // N // mangiterpene A // AI/weak-mod. vs NO // ref. 388

1401 // N // mangiterpene B // AI/weak-mod. vs NO // ref. 388

1402 // N // mangiterpene C // AI/potent vs NO via NF–*κ*B signalling to inflammatory mediators (IL–1*β*, IL–6, iNOS and COX–2) // ref. 388

1403 // N // 2′,3′-seco-manginoid C // AI/potent vs NO // ref. 388

7.11 *Heterobasidion* sp. (2)

389. Hansson, D.; Wubshet, S.; Olson, Å.; Karlsson, M.; Staerk, D.; Broberg, A., Secondary metabolite comparison of the species within the *Heterobasidion* annosum s.l. complex. *Phytochemistry* **2014,** 108, 243-251.

- Basidiomycete *Heterobasidion annosum* // *

1404 // N // * // ND

1405 // N // * // ND

7.12 *Hexagonia* sp. (12)

390. Jiang, M. Y.; Zhang, L.; Liu, R.; Dong, Z. J.; Liu, J. K., Speciosins A-K, oxygenated cyclohexanoids from the basidiomycete Hexagonia speciosa. *J Nat Prod* **2009,** 72, (8), 1405-9.

- Basidiomycete *Hexagonia speciosa* // *

1406 // N // speciosin C // ND

1407 // N // speciosin H // ND

1408 // N // speciosin I // cytotox./IA vs 4 TCLs

1409 // N // speciosin J // ND

1410 // N // speciosin K // cytotox./IA vs 4 TCLs

391. Jiang, M. Y.; Li, Y.; Wang, F.; Liu, J. K., Isoprenylated cyclohexanoids from the basidiomycete Hexagonia speciosa. *Phytochemistry* **2011,** 72, (9), 923-8.

- Basidiomycete *Hexagonia speciosa* // *

1411 // N // speciosin M // cytotox./IA vs 4 TCLs
1412 // N // speciosin N // cytotox./IA vs 4 TCLs
1413 // N // speciosin O // ND
1414 // N // speciosin Q // cytotox./IA vs 4 TCLs
1415 // N // speciosin R // ND
1416 // N // speciosin S // ND
1417 // N // speciosin T // ND

7.13 *Isaria* sp. (12)

392. Smetanina, O. F.; Yurchenko, A. N.; Afiyatullov, S. S.; Kalinovsky, A. I.; Pushilin, M. A.; Khudyakova, Y. V.; Slinkina, N. N.; Ermakova, S. P.; Yurchenko, E. A., Oxirapentyns B–D produced by a marine sediment-derived fungus Isaria felina (DC.) Fr. *Phytochem Lett* **2012,** 5, (1), 165-169.

393. Yurchenko, A. N.; Smetanina, O. F.; Khudyakova, Y. V.; Kirichuk, N. N.; Chaikina, E. L.; Anisimov, M. M.; Afiyatullov, S. S., New Oxirapentyn E from Marine Isolate of the Fungus Isaria felina. *Chem Nat Compd+* **2013,** 49, (5), 857-860.

394. Yurchenko, A. N.; Smetanina, O. F.; Kalinovsky, A. I.; Pushilin, M. A.; Glazunov, V. P.; Khudyakova, Y. V.; Kirichuk, N. N.; Ermakova, S. P.; Dyshlovoy, S. A.; Yurchenko, E. A.; Afiyatullov, S., Oxirapentyns F-K from the marine-sediment-derived fungus Isaria felina KMM 4639. *J Nat Prod* **2014,** 77, (6), 1321-8.

395. Smetanina, O. F.; Yurchenko, A. N.; Ivanets, E. V.; Kalinovsky, A. I.; Khudyakova, Y. V.; Dyshlovoy, S. A.; von Amsberg, G.; Yurchenko, E. A.; Afiyatullov, S. S., Unique prostate cancer-toxic polyketides from marine sediment-derived fungus Isaria felina. *J Antibiot (Tokyo)* **2017,** 70, (7), 856-858.

396. Anisimov, M. M.; Chaikina, E. L.; Smetanina, O. F.; Afiyatullov, S. S., Oxirapentyns A, B and E from the Marine-Derived Strain of Isaria felina KMM 4639 as Stimulators of Initial Stages of Development of Agricultural Plants. *Nat Prod Commun* **2014,** 9, (6), 835-836.

- Acomycota *Isaria felina* 4639 // coast of Vietnam, S. China Sea

1418 // oxirapentyn B // N // others/potent vs plant growth stimulators, cytotox./IA vs 3 TCLs; AB/IA vs 3 bact.; AF/IA vs 1 fungus // ref. 392 and 396
1419 // oxirapentyn C // N // ND // ref. 392
1420 // oxirapentyn D // N // cytotox./IA vs 3 TCLs; AF/IA vs 1 fungus; AB/weak-mod. vs 2 bact. // ref. 392 and 396
1421 // oxirapentyn E // N // others/potent vs plant growth stimulators // ref. 393 and 396
1422 // oxirapentyn F // N // cytotox./IA vs 5 TCLs; AB/IA vs 4 bact.; AF/IA vs 1 fungus // ref. 394
1423 // oxirapentyn G // N // ND // ref. 394
1424 // oxirapentyn H // N // ND // ref. 394
1425 // oxirapentyn I // N // cytotox./IA vs 5 TCLs; AB/IA vs 4 bact.; AF/IA vs 1 fungus // ref. 394
1426 // oxirapentyn J // N // cytotox./IA vs 5 TCLs; AB/IA vs 4 bact.; AF/IA vs 1 fungus // ref. 394
1427 // oxirapentyn K // N // cytotox./IA vs 5 TCLs; AB/IA vs 4 bact.; AF/IA vs 1 fungus // ref. 394
1428 // oxirapentyn L // N // cytotox./IA vs 1 TCL // ref. 395
1429 // acremine S // N // ND // ref. 394

7.14 *Lentinus* sp. (2)

397. Isaka, M.; Palasarn, S.; Sappana, M.; Srichomthong, K.; Karunarathna, S. C.; Hyde, K. D., Prenylhydroquinone-Derived Secondary Metabolites from Cultures of the Basidiomycete Lentinus similis BCC 52578. *Nat Prod Commun* **2015,** 10, (8), 1391-3.

- Basidiomycete *Lentinus similis* BCC 52578

1430 // N // lentinospirol // cytotox./IA vs 3 TCLs
1431 // N // 1-(2,5-dihydroxyphenyl)-4-hydroxy-3-methyl-1-butanone // cytotox./IA vs 3 TCLs

7.15 *Montagnula* sp. (1)

398. Zhao, Z. Z.; Zhao, K.; Chen, H. P.; Bai, X.; Zhang, L.; Liu, J. K., Terpenoids from the mushroom-associated fungus Montagnula donacina. *Phytochemistry* **2018,** 147, 21-29.

- Basidiomycete *Montagnula donacina* // *

1432 // N // (*Z*)-4-hydroxy-3-(3-hydroxy-3-methylbut-1-en-1-yl)-benzoic acid // AB/weak-mod. vs 1 bact.; cytotox./IA vs vs 5 TCLs

7.16 *Neosartorya* sp. (7)

399. Prompanya, C.; Dethoup, T.; Gales, L.; Lee, M.; Pereira, J. A.; Silva, A. M.; Pinto, M. M.; Kijjoa, A., New Polyketides and New Benzoic Acid Derivatives from the Marine Sponge-Associated Fungus Neosartorya quadricincta KUFA 0081. *Mar Drugs* **2016,** 14, (7), 134-159.

- Ascomycota *Neosartorya quadricincta* KUFA 0081 // sponge, *Clathria reinwardti*)Samae San Is., Chonburi Province, Thailand

1433 // N // quadricinctapyran A // AB/IA vs bact.; AF/IA vs fungi; cytotox./IA vs TCLs
1434 // N // quadricinctapyran B // AB/IA vs bact.; AF/IA vs fungi; cytotox./IA vs TCLs
1435 // N // quadricinctoxepine // AB/IA vs bact.; AF/IA vs fungi; cytotox./IA vs TCLs
1436 // N // quadricinctone B // AB/IA vs bact.; AF/IA vs fungi; cytotox./IA vs TCLs
1437 // N // quadricinctafuran A // AB/IA vs bact.; AF/IA vs fungi; cytotox./IA vs TCLs
1438 // N // quadricinctafuran B // AB/IA vs bact.; AF/IA vs fungi; cytotox./IA vs TCLs
1439 // N // quadricinctone D // AB/IA vs bact.; AF/IA vs fungi; cytotox./IA vs TCLs

7.17 *Parastagonospora* sp. (7)

400. El-Demerdash, A.; Genta-Jouve, G.; Barenstrauch, M.; Kunz, C.; Baudouin, E.; Prado, S., Highly oxygenated isoprenylated cyclohexanoids from the fungus *Parastagonospora* nodorum SN15. *Phytochemistry* **2019,** 166, 112056-63.

- Ascomycota *Parastagonospora nodorum* SN15 // wheat plant

1440 // N // stagonosporyne A // LT/IA vs herbicidal *Arabidopsis thaliana*
1441 // N // stagonosporyne B // LT/IA vs herbicidal *Arabidopsis thaliana*
1442 // N // stagonosporyne C // LT/IA vs herbicidal *Arabidopsis thaliana*
1443 // N // stagonosporyne D // LT/IA vs herbicidal *Arabidopsis thaliana*
1444 // N // stagonosporyne E // LT/IA vs herbicidal *Arabidopsis thaliana*
1445 // N // stagonosporyne F // LT/IA vs herbicidal *Arabidopsis thaliana*
1446 // N // stagonosporyne G // LT/potent vs herbicidal *Arabidopsis thaliana*

7.18 *Perenniporia* sp. (3)

401. Kim, J. Y.; Woo, E. E.; Ha, L. S.; Ki, D. W.; Lee, I. K.; Yun, B. S., Three new meroterpenoids from culture broth of *Perenniporia* medulla-panis and their antioxidant activities. *J Antibiot (Tokyo)* **2019,** 72, (8), 625-628.

- Ascomycota *Perenniporia medulla–panis* KACC43440 // wood

1447 // N // perennipin A // others/weak-mod. vs AO (ABTS assay)
1448 // N // perennipin B // others/weak-mod. vs AO (ABTS assay) // Relative configuration
1449 // N // perennipin C // others/potent vs AO (ABTS assay)

7.19 *Pestalotiopsis* sp. (40)

402. Liu, L.; Liu, S.; Chen, X.; Guo, L.; Che, Y., Pestalofones A-E, bioactive cyclohexanone derivatives from the plant endophytic fungus *Pestalotiopsis* fici. *Bioorg Med Chem* **2009,** 17, (2), 606-13.

403. Liu, S.; Ye, X.; Guo, L.; Liu, L., Cytotoxic Isoprenylated Epoxycyclohexanediols from the Plant Endophyte *Pestalotiopsis* fici. *Chin J Nat Med* **2011,** 9, 0374−0379.

404. Liu, L.; Tian, R.; Liu, S.; Chen, X.; Guo, L.; Che, Y., Pestaloficiols A-E, bioactive cyclopropane derivatives from the plant endophytic fungus *Pestalotiopsis* fici. *Bioorg Med Chem* **2008,** 16, (11), 6021-6.

405. Liu, L.; Liu, S.; Niu, S.; Guo, L.; Chen, X.; Che, Y., Isoprenylated chromone derivatives from the plant endophytic fungus *Pestalotiopsis* fici. *J Nat Prod* **2009,** 72, (8), 1482-6.

406. Liu, S. C.; Liu, L., Isoprenylated chromones from the plant endophytic fungus *Pestalotiopsis* fici. *Mycosystema* **2010,** 29, 582-587.

407. Liu, S.; Guo, L.; Che, Y.; Liu, L., Pestaloficiols Q-S from the plant endophytic fungus *Pestalotiopsis* fici. *Fitoterapia* **2013,** 85, 114-8.

408. Liu, L.; Zhao, C.; Li, L.; Guo, L.; Che, Y., Pestalotriols A and B, new spiro[2.5]octane derivatives from the endophytic fungus *Pestalotiopsis* fici. *RSC Adv.* **2015,** 5, (96), 78708-78711.

- Ascomycota *Pestalotiopsis fici* W106-1 // Plant *Camellia sinensis* (Theaceae)//

1450 // N // pestalofone A // AV/weak-mod. vs HIV-1, AF/IA vs 3 fungi // ref. 402
1474 // N // pestalofone B // AV/weak-mod. vs HIV-1, AF/IA vs 3 fungi // ref. 402
1475 // N // pestalofone C // AV/IA vs HIV-1, AF/potent vs 1 fungus // ref. 402
1451 // N // pestalodiol A // cytotox./IA vs 2 TCLs // ref. 403
1452 // N // pestalodiol B // cytotox./IA vs 2 TCLs // ref. 403
1453 // N // pestalodiol C // cytotox./weak-mod. vs 2 TCLs // ref. 403
1454 // N // pestalodiol D // cytotox./IA vs 2 TCLs // ref. 403
1455 // N // pestaloficiol A // AV/weak-mod. vs HIV-1 // ref. 404
1456 // N // pestaloficiol B // AV/weak-mod. vs HIV-1 // ref. 404
1457 // N // pestaloficiol C // ND // ref. 404
1458 // N // pestaloficiol D // AV/weak-mod. vs HIV-1 // ref. 404
1459 // N // pestaloficiol E // ND // ref. 404
1460 // N // pestaloficiol F // AV/IA vs HIV-1; cytotox./IA vs 2 TCLs // ref. 405
1461 // N // pestaloficiol G/H // AV/weak-mod. vs HIV-1; cytotox./IA vs 2 TCLs // an *E/Z* mixture; ref. 405
1462 // N // pestaloficiol I // AV/ IA vs HIV-1; cytotox./IA vs 2 TCLs // ref. 405
1463 // N // pestaloficiol J // AV/potent vs HIV-1; cytotox./weak-mod. vs 1 TCL // ref. 405
1464 // N // pestaloficiol K // AV/weak-mod. vs HIV-1; cytotox./weak-mod. vs 1 TCL // ref. 406
1465 // N // pestaloficiol M // AV/IA vs HIV-1; cytotox./IA vs 1 TCL; AF/IA vs 1 fungus // ref. 406
1466 // N // pestaloficiol N // AV/weak-mod. vs HIV-1; cytotox./IA vs 1 TCL; AF/IA vs 1 fungus // ref. 406
1467 // N // pestaloficiol O // cytotox./weak-mod. vs 1 TCL; AF/potent vs 1 fungus // ref. 406
1468 // N // pestaloficiol P // AV/weak-mod. vs HIV-1; cytotox./weak-mod. vs 1 TCL; AF/IA vs 1 fungus // ref. 406
1469 // N // pestaloficiol Q // cytotox./IA vs 2 TCLs // ref. 407
1470 // N // pestaloficiol R // cytotox./IA vs 2 TCLs // ref. 407
1471 // N // pestaloficiol S // cytotox./IA vs 2 TCLs // ref. 407
1472 // N // pestalotriol A // cytotox./IA vs 4 TCLs // ref. 408
1473 // N // pestalotriol B // cytotox./weak-mod. vs 1 TCL // ref. 408

409. Wu, G.; Zhou, H.; Zhang, P.; Wang, X.; Li, W.; Zhang, W.; Liu, X.; Liu, H. W.; Keller, N. P.; An, Z.; Yin, W. B., Polyketide Production of Pestaloficiols and Macrodiolide Ficiolides Revealed by Manipulations of Epigenetic Regulators in an Endophytic Fungus. *Org Lett* **2016,** 18, (8), 1832-5.

410. Zheng, Y.; Ma, K.; Lyu, H.; Huang, Y.; Liu, H.; Liu, L.; Che, Y.; Liu, X.; Zou, H.; Yin, W. B., Genetic Manipulation of the COP9 Signalosome Subunit PfCsnE Leads to the Discovery of Pestaloficins in *Pestalotiopsis* fici. *Org Lett* **2017,** 19, (17), 4700-4703.

411. Pan, Y.; Liu, L.; Guan, F.; Li, E.; Jin, J.; Li, J.; Che, Y.; Liu, G., Characterization of a Prenyltransferase for Iso-A82775C Biosynthesis and Generation of New Congeners of Chloropestolides. *ACS Chem Biol* **2018,** 13, (3), 703-711.

- Ascomycota *Pestalotiopsis fici* W106-1 mutant // plant *Camellia sinensis* (Theaceae)

1476 // N // pestaloficiol V // ND // ref. 409
1477 // N // pestaloficiol W // ND // ref. 409
1478 // N // pestaloficin A // ND // ref. 410
1479 // N // pestaloficin B // ND // ref. 410

1480 // N // pestaloficin C // ND // ref. 410
1481 // N // pestaloficin D // ND // ref. 410
1482 // N // pestalodiol E // ND // ref. 411
1483 // N // pestalodiol F // ND // ref. 411

412. Qin, S.; Krohn, K.; Hussain, H.; Schulz, B.; Draeger, S., Pestalotheols E-H: Antimicrobial Metabolites from an Endophytic Fungus Isolated from the Tree Arbutus unedo. *Eur J Org Chem* **2011,** 2011, (26), 5163-5166.

- Ascomycota unidentified, possible *Pestalotiopsis sp* // plant Tre*e Arbutus unedo*

1484 // N // pestalotheol E // AF/potent vs 1 fungus; AB/potent vs 2 bact.; LT/potent vs 1 microalgae
1485 // N // pestalotheol F // AF/potent vs 1 fungus; AB/potent vs 2 bact.; LT/potent vs 1 microalgae
1486 // N // pestalotheol G // AF/potent vs 1 fungus; AB/potent vs 2 bact.; LT/potent vs 1 microalgae
1487 // N // pestalotheol H // AF/potent vs 1 fungus; AB/potent vs 2 bact.; LT/potent vs 1 microalgae

413. Kanno, K.; Tsurukawa, Y.; Kamisuki, S.; Shibasaki, H.; Iguchi, K.; Murakami, H.; Uchiyama, J.; Kuramochi, K., Novel neuroprotective hydroquinones with a vinyl alkyne from the fungus, *Pestalotiopsis* microspora. *J Antibiot (Tokyo)* **2019,** 72, (11), 793-799.

- Ascomycota *Pestalotiopsis microspore* // plant leaves

1488 // N // pestalotioquinol A // others/potent vs neuroprotective effects
1489 // N // pestalotioquinol B // others/potent vs neuroprotective effects

7.20 *Phaeosphaeria* sp. (1)

414. Elsebai, M. F.; Kehraus, S.; Gutschow, M.; Konig, G. M., Spartinoxide, a new enantiomer of A82775C with inhibitory activity toward HLE from the marine-derived Fungus Phaeosphaeria spartinae. *Nat Prod Commun* **2010,** 5, (7), 1071-6.

- Ascomycota *Phaeosphaeria spartinae* // marine alga *Ceramium* sp.

1490 // N // spartinoxide // enzyme inhib./potent vs HLE

7.21 *Phomopsis* sp. (1)

415. Cimmino, A.; Andolfi, A.; Zonno, M. C.; Troise, C.; Santini, A.; Tuzi, A.; Vurro, M.; Ash, G.; Evidente, A., Phomentrioloxin: A phytotoxic pentasubstituted geranylcyclohexentriol produced by Phomopsis sp., a potential mycoherbicide for Carthamus lanatus Biocontrol. *J Nat Prod* **2012,** 75, (6), 1130-7.

- Ascomycota *Phomopsis* sp. // *

1491 // N // phomentrioloxin // LT/potent vs phytotoxic properties; without antibacterial, fungicidal, or zootoxic activities

7.22 Phyllosticta sp. (5)

416. Ma, K.-L.; Wei, W.-J.; Li, H.-Y.; Song, Q.-Y.; Dong, S.-H.; Gao, K., Meroterpenoids with diverse ring systems and dioxolanone-type secondary metabolites from Phyllosticta capitalensis and their phytotoxic activity. *Tetrahedron* **2019,** 75, (33), 4611-4619.

- Ascomycota *Phyllosticta capitalensis* //*Cephalotaxus fortunei* Hook

1492 // N // phyllostictone A // AB/IA vs 3 bact.; LT/IA vs phytotoxic effects 2 plants
1493 // N // phyllostictone B // AB/IA vs 3 bact.; LT/IA vs phytotoxic effects 2 plants
1494 // N // phyllostictone C // AB/IA vs 3 bact.; LT/IA vs phytotoxic effects 2 plants
1495 // N // phyllostictone D // AB/IA vs 3 bact.; LT/IA vs phytotoxic effects 2 plants
1496 // N // phyllostictone E // AB/IA vs 3 bact.; LT/IA vs phytotoxic effects 2 plants

7.23 *Pycnoporus* sp. (3)

417. Molinar, E.; Rios, N.; Spadafora, C.; Arnold, A. E.; Coley, P. D.; Kursar, T. A.; Gerwick, W. H.; Cubilla-Rios, L., Coibanoles, a new class of meroterpenoids produced by Pycnoporus sanguineus. *Tetrahedron Lett* **2012,** 53, (8), 919-922.

- Ascomycota *Pycnoporus sanguineus* // leaf of *Desmotes incomparabilis* (Rutaceae)
  1497 // N // coibanole A // ND
  1498 // N // coibanole B // ND
  1499 // N // coibanole C // ND

7.24 *Rhizopogon* sp. (1)

418. Lang, M.; Jagers, E.; Polborn, K.; Steglich, W., Structure and absolute configuration of the fungal ansabenzoquinone rhizopogone. *J Nat Prod* **2009,** 72, (2), 214-7.

- Basidiomycete *Rhizopogon pumilionus* // *
  1500 // N // ansabenzoquinone rhizopogone // ND

7.25 *Stereum* sp. (6)

419. Duan, Y. C.; Meng, X. X.; Yang, Y. L.; Yang, Y. H.; Zhao, P. J., Two new phenol derivatives from Stereum hirsutum FP-91666. *J Asian Nat Prod Res* **2015,** 17, (4), 324-8.

420. Zhou, Z.; Duan, Y.; Li, J.; Zhao, P., Vibralactone derivatives from Stereum hirsutum FP-91666. *Guihaia* **2017,** 37, 617-620.

- Basidiomycete *Stereum hirsutum* FP–91666 // *
  1501 // N // * // ND // ref. 419
  1502 // N // *// ND // ref. 419
  1503 // N // vibralactone R // ND // ref. 420

421. Kang, H. S.; Kim, J. P., Ostalactones A-C, beta- and epsilon-Lactones with Lipase Inhibitory Activity from the Cultured Basidiomycete Stereum ostrea. *J Nat Prod* **2016,** 79, (12), 3148-3151.

- Basidiomycete *Stereum ostrea* // *
  1504 // N // ostalactone A // enzyme inhib./potent vs human pancreatic lipase
  1505 // N // ostalactone B // enzyme inhib./potent vs human pancreatic lipase
  1506 // N // ostalactone C // enzyme inhib./IA vs pancreatic lipase

7.26 *Tricholoma* sp. (4)

422. Yin, X.; Feng, T.; Li, Z. H.; Dong, Z. J.; Li, Y.; Liu, J. K., Highly oxygenated meroterpenoids from fruiting bodies of the mushroom Tricholoma terreum. *J Nat Prod* **2013,** 76, (7), 1365-8.

- Basidiomycete *Tricholoma terreum* // *
  1507 // N // terreumol A // cytotox./potent vs 5 TCLs
  1508 // N // terreumol B // ND
  1509 // N // terreumol C // cytotox./mod. to potent vs 4 TCLs
  1510 // N // terreumol D // cytotox./mod. to potent vs 4 TCLs

7.27 *Trichothecium* sp. (2)

423. Yang, H. X.; Ai, H. L.; Feng, T.; Wang, W. X.; Wu, B.; Zheng, Y. S.; Sun, H.; He, J.; Li, Z. H.; Liu, J. K., Trichothecrotocins A-C, Antiphytopathogenic Agents from Potato Endophytic Fungus *Trichothecium* crotocinigenum. *Org Lett* **2018,** 20, (24), 8069-8072.

- Ascomycota *Trichothecium crotocinigenum* // potato
  1511 // N // (+)-trichothecrotocin C // AF/potent vs 2 potato pathogens fungi; AB/weak vs 2 potato pathogen
  1512 // N // (-)-trichothecrotocin C // AF/potent vs 2 potato pathogens fungi; AB/weak vs 2 potato pathogen

7.28 *Truncatella* sp. (22)

424. Zhao, Y.; Si, L.; Liu, D.; Proksch, P.; Zhou, D.; Lin, W., Truncateols A–N, new isoprenylated cyclohexanols from the sponge-associated fungus Truncatella angustata with anti-H1N1 virus activities. *Tetrahedron* **2015,** 71, (18), 2708-2718.

425. Zhao, Y.; Liu, D.; Proksch, P.; Zhou, D.; Lin, W., Truncateols O-V, further isoprenylated cyclohexanols from the sponge-associated fungus Truncatella angustata with antiviral activities. *Phytochemistry* **2018,** 155, 61-68.

- Ascomycota *Truncatella angustata* // Porifera, *Amphimedon* sp., Yongxing Is., China

1513 // N // truncateol A // AV/IA vs H1N1 // ref. 424
1514 // N // truncateol B // AV/IA vs H1N1 // ref. 424
1515 // N // truncateol C // AV/weak-mod. vs H1N1 // ref. 424
1516 // N // truncateol D // AV/IA vs H1N1 // ref. 424
1517 // N // truncateol E // AV/weak-mod. vs H1N1 // ref. 424
1518 // N // truncateol F // AV/IA vs H1N1 // ref. 424
1519 // N // truncateol G // AV/IA vs H1N1 // ref. 424
1520 // N // truncateol H // AV/IA vs H1N1 // ref. 424
1521 // N // truncateol I // AV/IA vs H1N1 // ref. 424
1522 // N // truncateol J // AV/IA vs H1N1 // ref. 424
1523 // N // truncateol K // AV/IA vs H1N1 // ref. 424
1524 // N // truncateol L // AV/IA vs H1N1 // ref. 424
1525 // N // truncateol M // AV/potent vs H1N1 // ref. 424
1526 // N // truncateol N // AV/IA vs H1N1 // ref. 424
1527 // N // truncateol O // AV/potent vs H1N1, weak-mod. vs HIV // ref. 425
1528 // N // truncateol P // AV/ IA vs H1N1, weak-mod. vs HIV// ref. 425
1529 // N // truncateol Q // AV/IA vs H1N1 and HIV // ref. 425
1530 // N // truncateol R // AV/IA vs H1N1 and HIV // ref. 425
1531 // N // truncateol S // AV/IA vs H1N1 and HIV // ref. 425
1532 // N // truncateol T // AV/IA vs H1N1 and HIV // ref. 425
1533 // N // truncateol U // AV/IA vs H1N1 and HIV // ref. 425
1534 // N // truncateol V // AV/IA vs H1N1 and HIV // ref. 425

7.29 *Ulocladium* sp. (3)

426. Wang, Q. X.; Bao, L.; Yang, X. L.; Guo, H.; Ren, B.; Guo, L. D.; Song, F. H.; Wang, W. Z.; Liu, H. W.; Zhang, L. X., Tricycloalternarenes F-H: three new mixed terpenoids produced by an endolichenic fungus Ulocladium sp. using OSMAC method. *Fitoterapia* **2013,** 85, 8-13.

- Ascomycota *Ulocladium sp*// the lichen *Everniastrum* sp. // *

1535 // N // tricycloalternarene F // cytotox./IA vs 2 TCLs; AB./IA vs 4 bact.; AF./IA vs 1 fungus
1536 // N // tricycloalternarene G // cytotox./IA vs 2 TCLs; AB./IA vs 4 bact.; AF./IA vs 1 fungus
1537 // N // tricycloalternarene H // cytotox./IA vs 2 TCLs; AB./IA vs 4 bact.; AF./IA vs 1 fungus

7.30 *Xylaria* sp. (4)

427. Cho, T. Y.; Wang, G. J.; Ju, Y. M.; Chen, M. C.; Lee, T. H., Chemical Constituents from Termite-associated Xylaria acuminatilongissima YMJ623. *J Chin Chem Soc-Taip* **2016,** 63, (5), 404-409.

- Ascomycota *Xylaria acuminatilongissima* // termite nest

1538 // N // acumifuran A // AI/IA vs NO
1539 // N // acumifuran B // AI/IA vs NO
1540 // N // acumifuran C // AI/IA vs NO
1541 // NP // * // AI/IA vs NO

7.31 Unidentified fungus **(Stereaceae, Basidiomycete) (3)**

428. Schwenk, D.; Brandt, P.; Blanchette, R. A.; Nett, M.; Hoffmeister, D., Unexpected Metabolic Versatility in a Combined Fungal Fomannoxin/Vibralactone Biosynthesis. *J Nat Prod* **2016,** 79, (5), 1407-14.

- Basidiomycete Stereaceae family unidentified // *

  1542 // N // vibralactone R // AF/weak-mod. vs 2 fungi

  1543 // N // vibralactone S // AF/weak-mod. vs 1 fungus

  1544 // N // methyl seco–fomannoxinate // AF/mod. to potent vs 3 fungi

8. Miscellaneous meroterpenoids (41, 1545-1585)

8.1 *Aspergillus* sp. (1)

429. He, Y.; Zheng, M. Z.; Li, Q.; Hu, Z. X.; Zhu, H. C.; Liu, J. J.; Wang, J. P.; Xue, Y. B.; Li, H.; Zhang, Y. H., Asperspiropene A, a novel fungal metabolite as an inhibitor of cancer-associated mutant isocitrate dehydrogenase 1. *Org Chem Front* **2017,** 4, (6), 1137-1144.

- Ascomycota *Aspergillus* sp. Z23 // soil sample

  1545 // N // asperspiropene A // enzyme inhib./potent vs IDH1; cytotox./IA vs 5 TCLs

8.2 *Eutypella* sp. (4)

431. Zhang, Y. X.; Yu, H. B.; Xu, W. H.; Hu, B.; Guild, A.; Zhang, J. P.; Lu, X. L.; Liu, X. Y.; Jiao, B. H., *Eutypella*cytosporins A-D, Meroterpenoids from the Arctic Fungus *Eutypella* sp. D-1. *J Nat Prod* **2019,** 82, (11), 3089-3095.

- Ascomycota *Eutypella* sp. D–1 // marine green algae *Enteromorpha prolifera*

  1546// N // *Eutypella*cytosporin A // cytotox./weak-mod. vs 4 TCLs

  1547 // N // *Eutypella*cytosporin B // cytotox./weak-mod. vs 4 TCLs

  1548 // N // *Eutypella*cytosporin C // cytotox./weak-mod. vs 4 TCLs

  1549 // N // *Eutypella*cytosporin D // cytotox./weak-mod. vs 4 TCLs

8.3 *Ganoderma* sp. (2)

432. Luo, Q.; Tian, L.; Di, L.; Yan, Y. M.; Wei, X. Y.; Wang, X. F.; Cheng, Y. X., (+/-)-Sinensilactam A, a pair of rare hybrid metabolites with Smad3 phosphorylation inhibition from *Ganoderma sinensis*. *Org Lett* **2015,** 17, (6), 1565-8.

- Basidiomycete *Ganoderma sinensis* // *

  1550 // N // (+)-sinensilactam A // others/potent vs renoprotection (p-Smad3)

  1551 // N // (-)-sinensilactam A // others/potent vs renoprotection (p-Smad3)

8.4 *Penicillium* sp. (3)

433. Tang, J. W.; Kong, L. M.; Zu, W. Y.; Hu, K.; Li, X. N.; Yan, B. C.; Wang, W. G.; Sun, H. D.; Li, Y.; Puno, P. T., Isopenicins A-C: Two Types of Antitumor Meroterpenoids from the Plant Endophytic Fungus Penicillium sp. sh18. *Org Lett* **2019,** 21, (3), 771-775.

- Ascomycota *Penicillium* sp. sh18 // plant *Isodon*

  1552 // N // isopenicin A // cytotox./potent vs 6 TCLs via Wnt/β-catenin signaling pathway

  1553 // N // isopenicin B // cytotox./weak-mod. vs 6 TCLs

  1554 // N // isopenicin C // cytotox./IA vs 6TCLs

8.5 *Pestalotiopsis* sp. (27)

402. Liu, L.; Liu, S.; Chen, X.; Guo, L.; Che, Y., Pestalofones A-E, bioactive cyclohexanone derivatives from the plant endophytic fungus *Pestalotiopsis* fici. *Bioorg Med Chem* **2009,** 17, (2), 606-13.

403. Liu, S.; Ye, X.; Guo, L.; Liu, L., Cytotoxic Isoprenylated Epoxycyclohexanediols from the Plant Endophyte *Pestalotiopsis* fici. *Chin J Nat Med* **2011,** 9, 0374−0379.

434. Wang, B.; Zhang, Z.; Guo, L.; Liu, L., New Cytotoxic Meroterpenoids from the Plant Endophytic Fungus*Pestalotiopsis* fici. *Helv Chim Acta* **2016,** 99, (2), 151-156.

405. Liu, L.; Liu, S.; Niu, S.; Guo, L.; Chen, X.; Che, Y., Isoprenylated chromone derivatives from the plant endophytic fungus *Pestalotiopsis* fici. *J Nat Prod* **2009,** 72, (8), 1482-6.

435. Liu, L.; Liu, S.; Jiang, L.; Chen, X.; Guo, L.; Che, Y., Chloropupukeananin, the first chlorinated pupukeanane derivative, and its precursors from *Pestalotiopsis* fici. *Org Lett* **2008,** 10, (7), 1397-400.

436. Liu, L.; Niu, S.; Lu, X.; Chen, X.; Zhang, H.; Guo, L.; Che, Y., Unique metabolites of *Pestalotiopsis* fici suggest a biosynthetic hypothesis involving a Diels-Alder reaction and then mechanistic diversification. *Chem Commun* **2010,** 46, (3), 460-2.

437. Liu, L.; Bruhn, T.; Guo, L.; Gotz, D. C.; Brun, R.; Stich, A.; Che, Y.; Bringmann, G., Chloropupukeanolides C-E: cytotoxic pupukeanane chlorides with a spiroketal skeleton from *Pestalotiopsis* fici. *Chem Eur J* **2011,** 17, (9), 2604-13.

438. Liu, L.; Li, Y.; Liu, S.; Zheng, Z.; Chen, X.; Zhang, H.; Guo, L.; Che, Y., Chloropestolide A, an antitumor metabolite with an unprecedented spiroketal skeleton from *Pestalotiopsis* fici. *Org Lett* **2009,** 11, (13), 2836-9.

439. Liu, L.; Li, Y.; Li, L.; Cao, Y.; Guo, L.; Liu, G.; Che, Y., Spiroketals of *Pestalotiopsis* fici provide evidence for a biosynthetic hypothesis involving diversified Diels-Alder reaction cascades. *J Org Chem* **2013,** 78, (7), 2992-3000.

- Ascomycota *Pestalotiopsis fici* W106-1 // plant *Camellia sinensis* (Theaceae)

1555 // N // pestalofone D // AV/IA vs HIV-1; AF/IA vs 3 fungi // ref. 402

1556 // N // pestalofone E // AV/ weak-mod. vs HIV-1; AF/potent vs 1 fungus // ref. 402

1557// N // pestalofone F // cytotox./weak-mod. vs 2 TCLs // ref. 403

1558 // N // pestalofone G/H // cytotox./weak-mod. vs 2 TCLs // a mixture of two isomers; ref. 403

1559 // N // pestalofone I // cytotox./IA vs 4 TCLs // ref. 434

1560 // N // pestalofone J // cytotox./weak-mod. vs 4 TCLs // ref. 434

1561 // N // pestalofone K // cytotox./weak-mod. vs 4 TCLs // ref. 434

1562 // N // pestaloficiol L // cytotox./mod. to potent vs 2 TCLs; AV/IA vs HIV-1 // ref.405

1564 // N // chloropupukeananin // AV/potent vs HIV-1; AB/weak-mod. vs *S. aureus*; cytotox./potent vs 2 TCLs // ref. 435

1565// N // chloropupukeanone A // cytotox./weak-mod. vs 3 TCLs // ref. 436

1566 // N // chloropupukeanolide A // AV/potent vs HIV-1; cytotox./potent vs 3 TCLs // ref. 436

1567 // N // chloropupukeanolide B // cytotox./weak-mod. vs 2 TCLs // ref. 436

1568 // N // chloropupukeanolide C // cytotox./potent vs 2 TCLs; others/weak-mod. vs pathogens of tropical diseases // ref. 437

1569 // N // chloropupukeanolide D // cytotox./potent vs 2 TCLs; others/weak-mod. vs pathogens of tropical diseases // ref. 437

1570 // N // chloropupukeanolide E // cytotox./weak-mod. vs 1 TCL; others/weak-mod. vs pathogens of tropical diseases // ref. 437

1571 // N // chloropestolide A // AV/weak-mod. vs HIV-1; cytotox./potent vs 2 TCLs // ref. 438

1572 // N // chloropestolide B // cytotox./mod. to potent vs 3 TCLs // ref. 439

1573 // N // chloropestolide C // cytotox./IA vs 3 TCLs // ref. 439

1574 // N // chloropestolide D // cytotox./IA vs 3 TCLs // ref. 439

1575 // N // chloropestolide E // cytotox./IA vs 3 TCLs // ref. 439

1576 // N // chloropestolide F // cytotox./IA vs 3 TCLs // ref. 439

1577 // N // chloropestolide G // cytotox./IA vs 3 TCLs // ref. 439

409. Wu, G.; Zhou, H.; Zhang, P.; Wang, X.; Li, W.; Zhang, W.; Liu, X.; Liu, H. W.; Keller, N. P.; An, Z.; Yin, W. B., Polyketide Production of Pestaloficiols and Macrodiolide Ficiolides Revealed by Manipulations of Epigenetic Regulators in an Endophytic Fungus. *Org Lett* **2016,** 18, (8), 1832-5.

411. Pan, Y.; Liu, L.; Guan, F.; Li, E.; Jin, J.; Li, J.; Che, Y.; Liu, G., Characterization of a Prenyltransferase for Iso-A82775C Biosynthesis and Generation of New Congeners of Chloropestolides. *ACS Chem Biol* **2018,** 13, (3), 703-711.

- Ascomycota *Pestalotiopsis fici* W106-1 mutant // plant *Camellia sinensis* (Theaceae)

1563 // N // pestaloficiol U // ND // ref. 409

1578 // N // chloropestolide H // cytotox./IV vs 3 TCLs; AB/IV vs 2 bact. // ref.411

1579 // N // chloropestolide I // cytotox./IV vs 3 TCLs; AB/IV vs 2 bact. // ref.411

1580 // N // chloropestolide J // cytotox./weak-mod. vs 3 TCLs; AB/potent vs 2 bact. // ref.411

1581 // N // chloropestolide K // cytotox./IV vs 3 TCLs; AB/IV vs 2 bact. // ref.411

8.6 *Phyllosticta* sp. (3)

440. Yang, H. G.; Zhao, H.; Li, J. J.; Chen, S. M.; Mou, L. M.; Zou, J.; Chen, G. D.; Qin, S. Y.; Wang, C. X.; Hu, D.; Yao, X. S.; Gao, H., Phyllomeroterpenoids A-C, Multi-biosynthetic Pathway Derived Meroterpenoids from the TCM Endophytic Fungus Phyllosticta sp. and their Antimicrobial Activities. *Sci Rep* **2017,** 7, (1), 12925-32.

- Ascomycota *Phyllosticta* sp. J13–2–12Y // plant *Acorus tatarinowii*
  1582 // N // phyllomeroterpenoid A // AB/IA vs 1 virus; AF/IA vs 1 fungus
  1583 // N // phyllomeroterpenoid B // AB/IA vs 1 virus; AF/IA vs 1 fungus
  1584 // N // phyllomeroterpenoid C // AB/IA vs 1 virus; AF/IA vs 1 fungus

8.7 *Trichoderma* sp. (1)

441. Kusakabe, K.; Honmura, Y.; Uesugi, S.; Tonouchi, A.; Maeda, H.; Kimura, K.; Koshino, H.; Hashimoto, M., Neomacrophorin X, a [4.4.3]Propellane-Type Meroterpenoid from Trichoderma sp 1212-03. *J Nat Prod* **2017,** 80, (5), 1484-1492.

- Ascomycota *Trichoderma* sp. 1212–03 // fruiting body of *Daedaleopsis tricolor*
  1585 // N // neomacrophorin X // cytotox./weak-mod. vs 1 TCL