

研究開発部門
Department of Research and Development
資源開発分野
Division of Medicinal Resources
天然物創薬学領域
Section of Natural Products & Drug Discovery

天然物化学ユニット

Natural Products Chemistry

教 授	森田 洋行	Hiroyuki Morita
助 教	児玉 猛	Takeshi Kodama
助 教	中嶋 優	Yu Nakashima

◆ 著 書

- 1) Nwet nwet Win, Hiroyuki Morita. Progress in the Chemistry of Organic Natural Products 114. Kinghorn AD, Falk H, Gibbons S, Kobayashi J, Asakawa Y, Liu J-K. Singapore: Springer; 2020. Bioactive Compounds from Medicinal Plants in Myanmar; p. 135-251.

◆ 原 著

- 1) Lee Y-E*, Kodama T, Win NN, Ki D, Hoang NN, Wong CP, Lae KZW, Ngwe H, Dairi T, Morita H. Flavonoids from *Woodfordia fruticosa* as potential SmI₂D inhibitors in the alternative biosynthetic pathway of peptidoglycan. *Bioorg Med Chem Lett*. 2021 Mar; 36: 127787. doi: 10.1016/j.bmcl.2021.127787.
- 2) Shin MK*, Sasaki F, Ki DW, Win NN, Morita H, Hayakawa Y. Identification of *Ophiocordyceps graciloides* by its anti-tumor effects through targeting the NF κB-STAT3-IL-6 inflammatory pathway. *Biol Pharm Bull*. 2021 May; 44: 686-690. doi: 10.1248/bpb.b20-01032.
- 3) Win NN, Kodama T, Htoo ZP, Hnin SYY, Ngwe H, Abe I, Morita H. Shanpanootols A-F, diterpenoids from *Kaempferia pulchra* rhizomes collected in Myanmar and their Vpr inhibitory activities. *Fitoterapia*. 2021 Jun; 151: 104870. doi: 10.1016/j.fitote.2021.104870.
- 4) Brasnett A, Pfeffer I, Brewitz L, Chowdhury R, Nakashima Y, Tumber A, McDonough MA, Schofield CJ. Human oxygenase variants employing a single protein FeII ligand are catalytically active. *Angew Chem Int Ed*. 2021 Jun; 60: 14657-14663. doi: 10.1002/anie.202103711.
- 5) Prema*, Kodama T, Nyunt HHW, Ngwe H, Abe I, Morita H. Anti-Vpr activities of sesqui- and diterpenoids from the roots and rhizomes of *Kaempferia candida*. *J Nat Med*. 2021 Jun; 75: 489-498. doi: 10.1007/s11418-020-01480-z.
- 6) Brewitz L, Nakashima Y, Tumber A, Salah E, Schofield CJ. Fluorinated derivatives of pyridine-2,4-dicarboxylate are potent inhibitors of human 2-oxoglutarate dependent oxygenases. *J Fluor Chem*. 2021 Jul; 247: 109804. doi: 10.1016/j.jfluchem.2021.109804.
- 7) Figg Jr WD, McDonough MA, Chowdhury R, Nakashima Y, Zhang Z, Holt-Martyn JP, Krajnc A, Schofield CJ. Structural basis of prolyl hydroxylase domain inhibition by Molidustat. *ChemMedChem*. 2021 Jul; 16: 2082-2088. doi: 10.1002/cmde.202100133.
- 8) Win NN, Kodama T, Aye AA, Lae KZW, Ngwe H, Han NM, Abe I, Morita H. Pyrrolactams from marine sponge *Styliissa massa* collected from Myanmar and their anti-Vpr activities. *Chem Pharm Bull*. 2021 Jul; 69: 702-705. doi: 10.1248/cpb.c21-00227.
- 9) Choucry M, Shalabi A, El-Halawany A, El-Sakhawy F, Zaiter A, Morita H, Chaimbault P, Abdel-Sattar E. New pregnane glycosides isolated from *Caralluma hexagona* Lavranos as inhibitors of α-glucosidase, pancreatic lipase and advanced glycation end products formation. *ACS Omega*. 2021 Jul; 6: 18881-18889. doi: 10.1021/acsomega.1c02056.

- 10) Mori T, Wanibuchi K, Morita H, Abe I. Amide bond formation using 4-coumarate:CoA ligase from *Arabidopsis thaliana*. *Chem Pharm Bull.* 2021 Aug; 69: 717-720. doi: 10.1248/cpb.c21-00404.
- 11) Shin M, Sasaki F, Ki D, Win NN, Morita H, Hayakawa Y. Anti-metastatic effect of ergosterol peroxide from an entomopathogenic fungus *Ophocordyceps gracilioides* on 4T1 breast cancer cells. *J Nat Med.* 2021 Sep; 75: 824-832. doi: 10.1007/s11418-021-01520-2.
- 12) Abdellatef AA*, Fathy M, Mohammed AEI, Bakr MSA, Ahmed AH, Abbass HS, El-Desoky AH, Morita H, Nikaido T, Hayakawa Y. Inhibition of cell-intrinsic NF- κ B activity and metastatic abilities of breast cancer by aloe-emodin and emodic-acid isolated from *Asphodelus microcarpus*. *J Nat Med.* 2021 Sep; 75: 840-853. doi: 10.1007/s11418-021-01526-w.
- 13) Win NN, Kodama T, Htoo ZP, Hnin SYY, Ngwe H, Abe I, Morita H. Shanpanootols G and H, diterpenoids from the rhizomes of *Kaempferia pulchra* collected in Myanmar and their Vpr inhibitory activities. *Chem Pharm Bull.* 2021 Sep; 69: 913-917. doi: 10.1248/cpb.c21-00326.
- 14) Tabakam GT, Kodama T, Donfack ARN, Nguekeu YMM, Nomin-Erdene B, Htoo ZP, Do KM, Ngouela SA, Tene M, Morita H, Awouafack MD. A new caffeic acid ester and a new ceramide from the roots of *Eriosema glomeratum*. *Phytochem Lett.* 2021 Oct; 45: 82-87. doi: 10.1016/j.phytol.2021.07.019.
- 15) Bui HTB, Do KM, Nguyen HTD, Mau HV, Danh TLD, Tran DQ, Morita H. Efficient One-pot tandem synthesis and cytotoxicity evaluation of 2,3-disubstituted quinazolin-4(3H)-one derivatives. *Tetrahedron.* 2021 Oct; 98: 132426. doi: 10.1016/j.tet.2021.132426.
- 16) Hoang NN*, Kodama T, Win NN, Prema, Do KM, Abe I, Morita H. A new monoterpenoid isolated from the rhizomes of *Alpinia galanga* and its anti-Vpr activity. *Chem Biodivers.* 2021 Oct; 18: 2100401. doi: 10.1002/cbdv.202100401.
- 17) Mbopi PY, Fozeng HDS, Nguekeu YMM, Bitchagno GTM, Ngantchouko CBN, Awouafack MD, Opatz T, Ngouela Sere A, Morita H, Tenea M. Chemical constituents, total phenolic content, antioxidant activity and bactericidal effect of *Dicliptera verticillata* (Acanthaceae). *S Afr J Bot.* 2021 Nov; 142: 216-221. doi: 10.1016/j.sajb.2021.07.001.
- 18) Nakashima Y, Brewitz L, Tumber A, Salah E, Schofield CJ. 2-Oxoglutarate derivatives can selectively enhance or inhibit the activity of human oxygenases. *Nat Commun.* 2021 Nov; 12: 6478. doi: 10.1038/s41467-021-26673-2.
- 19) Jaisi A, Prema, Madla S, Lee Y-E, Septama A, Morita H. Investigation of HIV-1 Viral protein R inhibitory activities of twelve Thai medicinal plants and their commercially available major constituents. *Chem Biodivers.* 2021 Dec; 18: 2100540. doi: 10.1002/cbdv.202100540.
- 20) Okada T, Wu N, Takashima K, Ishimura J, Morita H, Ito T, Kodama T, Yamasaki Y, Akanuma S, Kubo Y, Hosoya K, Tsuneki H, Wada T, Sasaoka T, Shimizu T, Sakai H, Dwoskin L, Hussaini SR, Saporito RA, Toyooka N. Total synthesis of decahydroquinoline poison frog alkaloids ent-cis-195A and cis-211A. *Molecules.* 2021 Dec; 26: 7529. doi: 10.3390/molecules26247529.

◆ 学会報告

- 1) LeeY-E*, Kodama T, Ki D, Dairi T, Morita H. Flavonoids from *Woodfordia fruticosa* as potential SmldD inhibitors in the alternative biosynthetic pathway of peptidoglycan. 6th Toyama-Basel Joint Symposium 2021; 2021 Sep 15; Basel (オンライン).
- 2) Do KM*, Shin M-K, Kodama T, Hayakawa Y, Morita H. Flavanols and flavanones from *Crinum asiaticum* and their effects on LPS signaling pathway through the inhibition of NF- κ B activation. 6th Toyama-Basel Joint Symposium 2021; 2021 Sep 15; Basel (オンライン).
- 3) Hoang NN*, Kodama T, Wi n NN , Prema, Do KM , Abe I, Morita H. A new monoterpenoid isolated from the rhizomes of *Alpinia galanga* and its anti -Vpr activity. 第11回日中韓生薬学合同シンポジウム;2021 Sep 18-19;東京(オンライン).
- 4) 西浦菜摘, Muslimin R, Wong CP, Prema, 森田洋行, Ayoub AT, 荒川賢治. 計算機シミュレーションを用いたランカサイジンの抗腫瘍活性向上. 2021年度（第35回）日本放線菌学会；2021 Sep 18-19 ; オンライン.
- 5) 内山 駿, 丸山千登勢, Hamdy SA MA, 中嶋 優, 森田洋行, 濱野吉十. Streptothrin類縁生合成遺伝子群に見出したaminoacyl-tRNA依存型アミド合成酵素の変異解析. 2021年度（第35回）日本放線菌学会；2021 Sep 18-19 ; オンライン.
- 6) Lee Y-E*, 小玉 猛, Ki D, 大利 徹, 森田洋行. Flavonoids from *Woodfordia fruticosa* as potential SmldD inhibitors in the alternative biosynthetic pathway of peptidoglycan. 日本生薬学会大67回年会; 2021 Sep 19-20; 東京(オンライン).
- 7) Do KM*, Shin M-K, Kodama T, Hayakawa Y, Morita H. Flavanols and flavanones from *Crinum asiaticum* and their effects on

- LPS signaling pathway through the inhibition of NF- κ B activation. 日本生薬学会大67回年会；2021 Sep 19-20；東京（オンライン）。
- 8) 新屋和花, 丸 卓郎, 峠 隆之, 林 茂樹, 安食菜穂子, 高浦（島田）佳代子, 椎塚高志, 森田洋行, 川原信夫, 小松かつ子, 高橋京子, 木内文之. インドジャボク及び同属植物における含有成分の多様性解析. 日本生薬学会大67回年会；2021 Sep 19-20；東京（オンライン）.
 - 9) Lee Y-E*, Nakashima Yu, Kodama T, Chen X, Morita H. Dual engineering of olivetolic acid cyclase and tetraketide synthase to generate longer alkyl-chain olivetolic acid analogs. 日本薬学会北陸支部第133回例会；2021 Oct 14；金沢（オンライン）.
 - 10) 中嶋 優, Hamdy SAMA, 内山 駿, 丸山千登勢, 濱野吉十, 森田洋行. X線結晶構造解析に基づく抗生物質 glycyllthricin 生合成酵素に見られる基質特異性の解明. 日本薬学会北陸支部第133回例会；2021 Oct 14；金沢（オンライン）.
 - 11) 棚谷綾介, 児玉 猛, 森田洋行, Awale S, 田浦太志. 大麻プレニル移酵素CsPT4 が合成する非天然型新規カンナビノイド. 第23回天然薬物の開発と応用シンポジウム；2021 Oct 16-17；札幌（オンライン）.
 - 12) Lee Y-E*, 児玉 猛, Ki D, 大利 徹, 森田洋行. 新奇ペプチドグリカン生合成経路中のSmltDに対する阻害剤としての可能性を秘めた*Woodfordia fruticosa* 由来フラボノイド. 第23回天然薬物の開発と応用シンポジウム；2021 Oct 16-17；札幌（オンライン）.
 - 13) 内山 駿, 丸山千登勢, Hamdy SAMA, 中嶋 優, 森田洋行, 濱野吉十. Streptothrin類縁生合成遺伝子群に見いだしたaminoacyl-tRNA 依存型アミド合成酵素の変異解析. 第73回日本生物工学会大会；2021 Oct 27-29；オンライン.
 - 14) 森田洋行. 植物ポリケタイド骨格生合成酵素鍵酵素の機能解析と改変. 第16回国際伝統医薬シンポジウム富山 2021 セッション4（特別セミナー）；2021 Dec 1；富山（オンライン）.