

トランスレーショナルリサーチ推進部門

Translational Research

天然薬物開発分野

Natural Drug Discovery

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◆ 原著

- 1) Nguyen NT, Nguyen MT, Nguyen HX, Dang PH, Dibwe DF, Esumi H, Awale S. Constituents of the Rhizomes of *Boesenbergia pandurata* and Their Antiausterity Activities against the PANC-1 Human Pancreatic Cancer Line. *J Nat Prod.* 2017 Jan 27; 80(1): 141-8.
- 2) Jeyalakshmi K, Haribabu J, Balachandran C, Bhuvanesh N, Emi N, Karvembu R. Synthesis of Ru(II)-benzene complexes containing aroylthiourea ligand, and their binding with biomolecules and in vitro cytotoxicity through apoptosis. *RSC New J Chem.* 2017 Feb 21; 41: 2672-86.
- 3) Fujiwara H, Han Y, Ebihara K, Awale S, Araki R, Yabe T, Matsumoto K. Daily administration of yokukansan and keishito prevents social isolation-induced behavioral abnormalities and down-regulation of phosphorylation of neuroplasticity-related signaling molecules in mice. *BMC Complement Altern Med.* 2017 Apr 4; 17(1): 195.
- 4) Fujiwara H, Tsushima R, Okada R, Awale S, Araki R, Yabe T, Matsumoto K. Sansoninto, a traditional herbal medicine, ameliorates behavioral abnormalities and down-regulation of early growth response-1 expression in mice exposed to social isolation stress. *J Tradit Complement Med.* 2017 Apr 12; 8(1): 81-8.
- 5) Yuvapriya MK, Selvakumar P, Balachandran C. Novel synthetic unnatural beta amino acids via acid hydrolysis of diazepinones as synthons for antibiotics. *Am J PharmTech Res.* 2017; 7: 1.
- 6) Dang PH, Nguyen HX, Duong TTT, Tran TKT, Nguyen PT, Vu TKT, Vuong HC, Phan NHT, Nguyen MTT, Nguyen NT, Awale S. α -Glucosidase Inhibitory and Cytotoxic Taxane Diterpenoids from the Stem Bark of *Taxus wallichiana*. *J Nat Prod.* 2017 Apr 28; 80(4): 1087-95.
- 7) Awale S, Tawila AM, Dibwe DF, Ueda JY, Sun S, Athikomkulchai S, Balachandran C, Saiki I, Matsumoto K, Esumi H. Highly oxygenated antiausterity agents from the leaves of *Uvaria dac*. *Bioorg Med Chem Lett.* 2017 May 1; 27(9): 1967-71.
- 8) Sudhapriya N, Balachandran C, Awale S, Perumal PT. Sn(II)-mediated facile approach for the synthesis of 2-aryl-2H-indazole-3-phosphonates and their anticancer activity. *New J Chem.* 2017 May 15; 41: 5582-94.
- 9) Tshitenge DT, Feineis D, Awale S, Bringmann G. Gardenifolins A-H, Scalemic Neolignans from *Gardenia ternifolia*: Chiral Resolution, Configurational Assignment, and Cytotoxic Activities against the HeLa Cancer Cell Line. *J Nat Prod.* 2017 May 26; 80(5): 1604-14.
- 10) Mayakrishnan S, Arun Y, Balachandran C, Awale S, Maheswari NU, Perumal PT. Ru(II)-Catalyzed Regiospecific C-H/O-H Oxidative Annulation to Access Isochromeno[8,1-ab]phenazines: Far-Red Fluorescence and Live Cancer Cell Imaging. *ACS Omega.* 2017 Jun 17; 2(6): 2694-705.
- 11) Nguyen KDH, Dang PH, Nguyen HX, Nguyen MTT, Awale S, Nguyen NT. Phytochemical and cytotoxic studies on the leaves of *Calotropis gigantea*. *Bioorg Med Chem Lett.* 2017 Jul 1; 27(13): 2902-6.
- 12) Nguyen HX, Nguyen MTT, Nguyen NT, Awale S. Chemical Constituents of Propolis from Vietnamese *Trigona minor* and Their Antiausterity Activity against the PANC-1 Human Pancreatic Cancer Cell Line. *J Nat Prod.* 2017 Aug 25; 80(8): 2345-52.
- 13) Mahendran P, Rajendran J, Balachandran C, Stalin A, Rangan S, Kothandapani L, Rao KC, Awale S, Hiteshkumar BN. Synthesis of novel β -amino alcohols from phenylacetylcarbinol: cytotoxicity activity against A549 cells and molecular docking. *Res Chem Intermediat.* 2017 Sep 4; 44: 535-52.
- 14) Balachandran C, Arun Y, Sangeetha B, Duraipandiyam V, Awale S, Emi N, Ignacimuthu S, Perumal PT. In vitro and in vivo anticancer activity of 2-acetyl-benzylamine isolated from *Adhatoda vasica* L. leaves. *Biomed Pharmacother.* 2017 Sep; 93: 796-806.

- 15) Chang H, Wang Y, Gao X, Song Z, Awale S, Han N, Liu Z, Yin J. Lignans from the root of *Wikstroemia indica* and their cytotoxic activity against PANC-1 human pancreatic cancer cells. *Fitoterapia*. 2017 Sep; 121: 31-7.
- 16) Ebihara K, Fujiwara H, Awale S, Dibwe DF, Araki R, Yabe T, Matsumoto K. Decrease in endogenous brain allopregnanolone induces autism spectrum disorder (ASD)-like behavior in mice: A novel animal model of ASD. *Behav Brain Res*. 2017 Sep 15; 334: 6-15.
- 17) Rahman KNA, Haribabu J, Balachandran C, Bhuvanesh NSP, Karvembu R, Sreekanth A. Copper, nickel and zinc complexes of 3-acetyl coumarin thiosemicarbazone: Synthesis, characterization and in vitro evaluation of cytotoxicity and DNA/protein binding properties. *Polyhedron*. 2017 Oct 15; 135: 26-35.
- 18) Li J, Seupel R, Bruhn T, Feineis D, Kaiser M, Brun R, Mudogo V, Awale S, Bringmann G. Jozilebomines A and B, Naphthylisoquinoline Dimers from the Congolese Liana *Ancistrocladus ileboensis*, with Antiausterity Activities against the PANC-1 Human Pancreatic Cancer Cell Line. *J Nat Prod*. 2017 Oct 27; 80(10): 2807-17.
- 19) Dibwe DF, Sun S, Ueda JY, Balachandran C, Matsumoto K, Awale S. Discovery of potential antiausterity agents from the Japanese cypress *Chamaecyparis obtusa*. *Bioorg Med Chem Lett*. 2017 Nov 1; 27(21): 4898-903.
- 20) Fathy M, Awale S, Nikaido T. Phosphorylated Akt Protein at Ser473 Enables HeLa Cells to Tolerate Nutrient-Deprived Conditions. *Asian Pac J Cancer Prev*. 2017 Dec 29; 18(12): 3255-60.

◆ 学会報告

- 1) Awale S. Application of NMR metabolomics in understanding the physiological target of Kampo medicine. 第7回和漢研・熱研ジョイントセミナー ; 2017 Dec 4 ; Nagasaki.
- 2) Sun S, Dibwe DF, Balachandran C, Phrutivorapongkul A, Awale S. Bergamottin, an anti-austerity agent from *Citrus hystrix* induced autophagy mediated PANC-1 cell death. International Symposium on Scientific Research of Traditional Medicine; 2017 Nov 10; Toyama.
- 3) Pongterdsak N, Chaitatwatthana K, Phrutivorapongkul A, Sun S, Tawila AM, Omar AM, Balachandran C, Dibwe DF, Awale S. Study on the anti-austerity activity of *Derris scandens* extract against the PANC-1 human pancreatic cancer cell line. International Symposium on Scientific Research of Traditional Medicine; 2017 Nov 10; Toyama.
- 4) Chaitatwatthana K, Pongterdsak N, Phrutivorapongkul A, Sun S, Omar AM, Tawila AM, Balachandran C, Dibwe DF, Awale S. Anti-austerity activity of *Piper betle* extract against the PANC-1 human pancreatic cancer cell line. International Symposium on Scientific Research of Traditional Medicine; 2017 Nov 10; Toyama.
- 5) Maruyama T, Okada T, Okada T, Takahara S, Balachandran C, Dibwe DF, Awale S, Toyooka N. Synthesis and evaluation of preferential cytotoxicity under nutrient-deprived conditions of plumbagin derivatives. The 35th Medicinal Chemistry Symposium; 2017 Oct 25-27; Nagoya.
- 6) Awale S. Discovery of potential anticancer agents from the Japanese cypress “Hinoki”. Toyama Academic GALA 2017; 2017 Sep 27; Toyama.
- 7) Dibwe DF, Awale S. Chemical Constituents of *Piper longum* and their Antiausterity activity. Toyama Academic GALA 2017; 2017 Sep 27; Toyama.
- 8) Sun S, Dibwe DF, Balachandran C, Phrutivorapongkul A, Awale S. Discovery of antiausterity strategy based anticancer agents from *Citrus hystrix* DC. Toyama Academic GALA 2017; 2017 Sep 27; Toyama.
- 9) 海老原健, 藤原博典, Suresh Awale, Dya Fita Dibwe, 荒木良太, 矢部武士, 松本欣三. 神経ステロイド allopregnanolone の生合成阻害によって生じる自閉症スペクトラム様症状について. Toyama Academic GALA 2017 ; 2017 Sep 27 ; Toyama.
- 10) 松本欣三, 郭 青雲, 海老原健, Awale Suresh, 荒木良太, 矢部武士, 藤原博典. 自閉症スペクトラム (ASD) 様症状発現における脳内神経ステロイドの役割と加味逍遙散による発現抑制. 16th Annual Conference of Japan-China Joint Society for Clinical and Traditional Medicines; 2017 Sep 23; Saitama.
- 11) Guo Q, Ebihara K, Fujiwara H, Dibwe DF, Awale S, Araki R, Yabe T, Matsumoto K. Improvement effect of kami-shoyo-san on sociability disorder induced by biosynthesis inhibition of neurosteroid allopregnanolone. The 34th Congress of the medical and pharmaceutical Society for Wakan-yaku; 2017 Aug 26-27; Fukuoka.
- 12) Awale S. Discovery of natural anti-cancer agents targeting cancer cells' tolerance to nutrition starvation. The 1st International Conference on Natural Medicine (ICNM2017); 2017 Aug 5-6; Bangkok, Thailand. (Invited lecture)
- 13) Ebihara K, Fujiwara H, Awale S, Dibwe DF, Araki R, Yabe T, Matsumoto K. SKF105111 Induced Autism Spectrum Disorder

(ASD)-like Behavior May Offer a Novel Animal Model to Explore Therapeutic Drugs for ASD. The 1st International Conference on Natural Medicine (ICNM2017); 2017 Aug 5-6; Bangkok, Thailand.

- 14) Tantipongpiradet A, Monthakantirat O, Matsumoto K, Awale S, Boonyarat C, Daodee S, Musigavong N, Pitiporn S, Chulikhit Y. Effect of Thai Herbal Formula for Menopause on Depressive-like Behavior in Ovariectomized Mice Model. The 1st International Conference on Natural Medicine (ICNM2017); 2017 Aug 5-6; Bangkok, Thailand.
- 15) Matsumoto K, Fujiwara H, Han Y, Ebihara K, Awale S. Experimental approach to developmental disorder treatment from traditional medicine. The 1st International Conference on Natural Medicine (ICNM2017); 2017 Aug 5-6; Bangkok, Thailand.
- 16) Awale S, Ueda J, Dibwe DF, Nguyen HX, Nguyen MTT. ベトナム産スオウ *Caesalpinia sappan* 種子の新規 cassane 型ジテルペン. 日本薬学会第 137 年会 ; 2017 Mar 26-29 ; 仙台.
- 17) Sun S, Phrutivorapongkul A, Dibwe DF, Awale S. Chemical constituents of *Citrus hystrix* and their antiausterity activity against the PANC-1 human pancreatic cancer cell line. 日本薬学会第 137 年会 ; 2017 Mar 26-29 ; 仙台.
- 18) Dibwe DF, Sun S, Ueda J, Matsumoto K, Awale S. Cadinane-type sesquiterpenes from *Chamaecyparis obtusa* and their antiausterity activity. 日本薬学会第 137 年会 ; 2017 Mar 26-29 ; 仙台.
- 19) Awale S. The story of arctigenin: a leading anti-pancreatic cancer agent from Kampo medicine. The 90th Annual meeting of the Japanese Pharmacological Society; 2017 Mar 15-17; Nagasaki.
- 20) Phrutivorapongkul A, Dibwe DF, Sun S, Awale S. Thai indigenous vegetables and condiments as a potential source of anti-pancreatic cancer agents. The 2nd International Conference on Herbal and Traditional Medicine; 2017 Jan 25-27; Bangkok, Thailand.
- 21) Awale S, Dibwe DF. Discovery of natural anti-cancer agents targeting cancer cells' tolerance to nutrition starvation. The 19th Takeda Science Foundation Symposium on Bioscience; 2017 Jan 20-22; Osaka.
- 22) Dibwe DF, Sun S, Ueda J, Awale S. Brazilian Green Propolis as the Source for anti-pancreatic cancer agents. The 19th Takeda Science Foundation Symposium on Bioscience; 2017 Jan 20-22; Osaka.

◆ その他

- 1) Awale S. 抗膵臓がん活性を有する有望な植物資源としての富山県産檜に関する天然物化学研究. 平成 29 年度富山第一銀行奨学財団の研究成果発表会 ; 2017 Jul 7 ; 富山.
- 2) Awale S. Structure Elucidation of Natural Products: Tips and Techniques. 応用天然物化学特論 ; 2017 Jul 5 ; 富山.
- 3) Awale S. Continued Importance of Natural Product Drugs in the 21st Century. 応用天然物化学特論 ; 2017 Jun 6 ; 富山.
- 4) Awale S. Discovery of natural anti-cancer agents targeting cancer cells' tolerance to nutrition starvation. 和漢医薬学総合研究所_東西医薬学交流セミナー ; 2017 Jun 13 ; 富山.