

Law Yuen Kwan



Position : Associate Professor
Faculty : State Key Laboratory of Quality
Research in Chinese Medicine
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Teaching and Research Areas :

Molecular and Chemical Biology; Autophagy in neurodegenerative disorders&Cancer.

Educated and obtained Ph.D. degree in The University of Hong Kong. Currently working as an associate professor in the Macau University of Science and Technology (State Key Laboratory of Quality Research in Chinese Medicines). Research focuses includes the identification of novel autophagic enhancers from Chinese medicinal herbs, for example, the rhizome of *Alisma orientale* and *Radix Polygalae*, which may work as a potential therapeutic agent via the induction of autophagic signaling pathway; study on the therapeutic applications of the identified autophagic modulators by using both *in vitro* and *in vivo* approaches; identification of novel autophagic enhancers to modulate neurodegenerative disorders through the removal of mutant or mis-folded proteins by autophagy. Research findings published in SCI journals included *International Journal of Molecular Sciences (IJMS)*, *Evidence-Based Complementary and Alternative Medicine (ECAM)*, *Cell Death & Diseases*, *Molecular Cancer Therapeutics*, *Molecules*, *Scientific Reports*, *Oncotarget* and *Autophagy*.

Academic Qualifications

2009. 10 Ph.D., The University of Hong Kong, Hong Kong
2003. 12 M.Sc., Hong Kong University of Science and Technology, Hong Kong
2001. 6 B.Sc., Hong Kong University of Science and Technology, Hong Kong

Teaching Experiences

- 2017.7- present Associate Professor, Macau University of Science and Technology
2011.9 - 2017.6 Assistant Professor, Macau University of Science and Technology
2011.3 - 2011.8 Postdoctoral Fellow, Hong Kong Baptist University
2010.5 - 2011.2 Research Associate, The University of Hong Kong
2010.5 - 2011.2 Honorary Research Associate, The Chinese University of HK
2009.11- 2010.4 Research Assistant I, The University of Hong Kong

Representative Publications

Journal Articles:

1. Lu Yu, An-Guo Wu, Vincent Kam-Wai Wong, Da-Lian Qin, Bin Tang, Hui-Miao Wang, Qiong Wang*, **Betty Yuen-Kwan Law***. The new application of UHPLC-DAD-TOF/MS in identification of inhibitors on β -amyloid fibrillation from *Scutellaria baicalensis*. ***Frontiers in Pharmacology*** Feb 15, 2019.
2. Xiaobo Zhou#, Yuan Qing Qu#, Zhiyuan Zheng, **Betty Yuen Kwan Law**, Simon Wing Fai Mok, Zhi-Hong Jiang*, Vincent Kam Wai Wong*, Li-Ping Bai*. Novel Dauricine Derivatives Suppress Cancer via Autophagy-dependent Cell Death. ***Bioorganic Chemistry***. Volume 83, March 2019, Pages 450-460.
3. Zhou L, Ren JH, Cheng ST, Xu HM, Chen WX, Chen DP, Wong VKW, **Law BYK**, Liu Y, Cai XF, Tang H, Yu HB, Hu JL, Hu Y, Zhou HZ, Ren F, He L, Hu ZW, Jiang H, Xu HY, Huang AL, Chen J. A functional variant in UBE2L3 contributes to HBV infection and maintains cccDNA stability by inducing degradation of APOBEC3A protein; ***Hepatology***. 2019 Jan 7. doi: 10.1002/hep.30497.
4. XiaoLing Luo, Di Yang, WeiJun Wu, Fen Long, ChenXi Xiao, Ming Qin, **Betty Yuen Kwan Law**, Rinkiko Suguro, Xin Xu, LeFeng Qu, XinHua Liu, Yi Zhun Zhu. Critical role of histone demethylase Jumonji domain-containing protein 3 in the regulation of neointima formation following vascular injury. ***Cardiovascular Research***. Volume 114, Issue 14, 01 December 2018, Pages 1894-1906.
5. Rao M, Gao C, Guo M, **Law BYK***, Xu Y*. Effects of metformin treatment on radiotherapy efficacy in patients with cancer and diabetes: a systematic review and meta-analysis. ***Cancer Manag Res***. 2018 Oct 24;10:4881-4890. doi: 10.2147/CMAR.S174535. eCollection 2018. PMID: 30425579.
6. Guan-Jun Yang, Wanhe Wang, Simon Wing Fai Mok, Chun Wu, **Betty Yuen Kwan Law**, Xiang-Min Miao, Ke-Jia Wu, Hai-Jing Zhong, Chun-Yuen Wong, Vincent Kam Wai Wong*, Dik-Lung Ma,* and Chung-Hang Leung*. Selective inhibition of lysine-specific demethylase 5A (KDM5A) using a rhodium(III)

complex for triple-negative breast cancer therapy. *Angewandte Chemie International Edition*. 2018 Jul 1. doi: 10.1002/anie.201807305.

7. Simon Wing Fai Mok, Wu Zeng, Yuzhen Niu, Paolo Coghi, Yujun Wu, Wai Man Sin, Sio Ian Ng, Flora Gordillo-Martinez, Jia Ying Gao, **Betty Yuen Kwan Law**, Liang Liu* , Xiao Jun Yao* and Vincent Kam Wai Wong*. A Method for Rapid Screening of Anilide-containing AMPK Modulators Based on Computational Docking and Biological Validation. *Frontiers in Pharmacology*. 2018, 12 June doi: 10.3389/fphar.2018.00710
8. Ren JH, Hu JL, Cheng ST, Yu HB, Wong VKW, **Law BYK**, Yang YF, Huang Y, Liu Y, Chen WX, Cai XF, Tang H, Hu Y, Zhang WL, Liu X, Long QX, Zhou L, Tao NN, Zhou HZ, Yang QX, Ren F, He L, Gong R, Huang AL, Chen J. SIRT3 restricts HBV transcription and replication via epigenetic regulation of cccDNA involving SUV39H1 and SETD1A histone methyltransferases. *Hepatology*. 2018 Apr 6. doi: 10.1002/hep.29912.
9. Yuan Qing Qu*, Flora Gordillo-Martinez*, **Betty Yuen Kwan Law**, Yu Han, Anguo Wu, Wu Zeng, Simon Wing Fai Mok, Vincent Kam Wai Wong*, Renxiao Wang*. 2-aminoethoxydiphenylborane (2-APB) suppresses bortezomib (BZM)-induced protective autophagy and sensitizes the anti-tumor effect of BZM *in vivo*. *Cell death & Disease*. 2018 9:361 DOI 10.1038/s41419-018-0397-0
10. Ivo Ricardo de Seabra Rodrigues Dias#, Simon Wing Fai Mok#, Flora Gordillo Martínez, Imran Khan, Wendy Wen Luen Hsiao, **Betty Yuen Kwan Law**, Vincent Kam Wai Wong* and Liang Liu*. The calcium-induced regulation in the molecular and transcriptional circuitry of human inflammatory response and autoimmunity. *Frontiers in Pharmacology*. 2018 Jan 8;8:962. doi: 10.3389/fphar.2017.00962.
11. Xiao Lei Sun, **Betty Yuen Kwan Law**, Ivo Ricardo de Seabra Rodrigues Dias, Simon Wing Fai Mok, Yan-zheng He*, Vincent Kam-Wai Wong*. Pathogenesis of thromboangiitis obliterans: Gene polymorphism and immunoregulation of human vascular endothelial cells. *Atherosclerosis* 2017 Aug 18. pii: S0021-9150(17)31231-5. doi: 10.1016
12. **Betty Yuen Kwan Law**#, Yuan Qing Qu#, Simon Wing Fai Mok, Hauwei Liu, Zeng Wu, Yu Han, Flora Gordillo-Martinez, Wai-Kit Chan, Keith Man-Chung Wong*, Vincent Kam Wai Wong*. New perspectives of cobalt tris(bipyridine) system: Anti-cancer effect and its collateral sensitivity towards multidrug-resistant (MDR) cancers. *Oncotarget*. 2017 Jul 5. doi: 10.18632/oncotarget.18991.)
13. **Betty Yuen Kwan Law**#, An Guo Wu, Min Jun Wang and Yi Zhun Zhu*. Chinese Medicine: A Hope for Neurodegenerative Diseases? *Journal of Alzheimer's Disease*. 2017 Jun 28. doi: 10.3233/JAD-170374. (IF: 3.731)
14. **Betty Yuen Kwan Law**#, Simon Wing Fai Mok#, Juan Chen, Francesco Michelangeli, Zhi-Hong Jiang, Yu Han, Yuan Qing Qu, Alena Cong Ling Qiu, Su-Wei Xu, Wei-Wei Xue, Xiao-Jun Yao, Jia Ying Gao, Masood-ul-Hassan Javed, Paolo Coghi, Liang Liu* and Vincent Kam Wai Wong*. N-desmethyldauricine

- induces autophagic cell death in apoptosis-defective cells via Ca^{2+} mobilization. *Frontiers in Pharmacology*. 2017 Jun 16;8:388. doi: 10.3389/fphar.2017.00388.
15. Onat Kadioglu, [Betty Yuen Kwan Law](#), Simon Wing Fai Mok, Su-Wei Xu, Thomas Efferth*, Vincent Kam Wai Wong*. Mode of action analyses of neferine, a bisbenzylisoquinoline alkaloid of Lotus (Nelumbo nucifera) against multidrug-resistant tumor cells. *Frontiers in Pharmacology* 2017 May 5;8:238. doi: 10.3389/fphar.2017.00238.
 16. Vincent Kam Wai Wong, Wu Zeng, Juan Chen, Xiao Jun Yao, Elaine Lai Han Leung, Qian Qian Wang, Pauline Chiu*, Ben C.B. Ko*, [Betty Yuen Kwan Law*](#). Tetrandrine, an activator of autophagy, induces autophagic cell death via PKC- α inhibition and mTOR-dependent mechanisms. *Frontiers in Pharmacology*. May 2017 | Volume 8 | Article 351. (IF: 4.4)
 17. Shanshan Luo, Tran Ba Hieu, Fenfen Ma, Ying Yu, Zhonglian Cao, Minjun Wang, Weijun Wu, Yicheng Mao, Peter Rose, [Betty Yuen-Kwan Law](#) and Yi Zhun Zhu*. ZYZ-168 alleviates cardiac fibrosis after myocardial infarction through inhibition of ERK1/2-dependent ROCK1 activation. *Scientific Report* 7 Mar 2017 s | 7:43242 | DOI: 10.1038/srep43242. (IF: 5.228; Q1).
 18. Vincent Kam Wai Wong, Simon Wing Fai Mok, [Betty Yuen Kwan Law*](#). Perspective: Traditional Chinese medicine in autophagy and neurodegenerative diseases. *Journal of Neuroinfectious Diseases*. 2017 Volume 8, Issue 1; DOI: 10.4172/2314-7326.1000239.
 19. [Betty Yuen Kwan Law[#]](#), Flora Gordillo-Martínez, Yuan Qing Qu, Ni Zhang, Su Wei Xu, Paolo Saul Coghi, Simon Wing Fai Mok, Jianru Guo, Wei Zhang, Elaine Lai Han Leung, Xing Xing Fan, An Guo Wu, Wai Kit Chan, Xiao Jun Yao, Jing Rong Wang, Liang Liu* and Vincent Kam Wai Wong*. Thalidezine, A Novel AMPK Activator, Eliminates Apoptosis-resistant Cancer Cells Through Energy-mediated Autophagic Cell Death. *Oncotarget*. 2017 Feb 16; 7(7): 8090–8104. (IF: 5.0; Q1).
 20. Frederic K.C. Fung, [Betty Yuen Kwan Law](#), Amy C.Y. Lo. Lutein not only attenuates apoptosis but also alleviates autophagosome formation upon cobalt (II) chloride-induced hypoxia in rat Müller cells. *PLOS ONE* DOI:10.1371/journal.pone.0167828 December 9, 2016. (IF: 3.057; Q1)
 21. Chenfangyuan DUAN, Kam Wai WONG, [Betty Yuen Kwan Law*](#). Analysis of the Medication Safety Knowledge among College Students in Macau. *Journal of Macau University of Science and Technology* Vol.10 No. 2, Dec 30, 2016.
 22. An-Guo Wu, Wu Zeng, Vincent Kam-Wai Wong, Yi-Zhun Zhu, Amy C.Y. Lo, Liang Liu & [Betty Yuen-Kwan Law*](#). Hederagenin and α -hederin promote degradation of proteins in neurodegenerative disease and improve motor deficits in MPTP-mice. *Pharmacological research* 115 (2017) 25-44. 9 Nov 2016. (IF: 4.816; Q1)
 23. Simon Wing Fai Mok, Vincent Kam-Wai Wong, [Betty Yuen Kwan Law*](#). Comment: New Potential Pharmacological Functions of Chinese Herbal Medicines via Regulation of Autophagy: The Search of Reliable Pharmaceutical

Candidates for Chronic Disorders Therapy. *Journal of Neurology and Neuromedicine* (2016) 1(7): 6-9.

24. Vincent Kam-Wai Wong[#], [Betty Yuen-Kwan Law[#]](#), Xiao-Jun Yao, Xi Chen, Su Wei Xu, Liang Liu* and Elaine Lai-Han Leung*. Advanced research technology for discovery of new effective compounds from Chinese herbal medicine and their molecular targets. *Pharmacological research*. 2016 Sept. Volume 111, Pages 546–555. [#]Authors with equal contribution. (IF: 4.816; Q1)
25. Su-Wei Xu, [Betty Yuen Kwan Law](#), Simon Wing Fai Mok, Elaine Lai Han Leung, Xing Xing Fan, Paolo Saul Coghi, Wu Zeng, Chung-Hang Leung, Dik-Lung Ma, Liang Liu, Vincent Kam Wai Wong. Autophagic Degradation of Epidermal Growth Factor Receptor in Gefitinib-resistant Lung Cancer by Celastrol. *International Journal of Oncology*. 2016; June. DOI: 10.3892/ijo.2016.3644. (IF: 3.257; Q2)
26. Ean-Jeong Seo, Mohamed Saeed, [Betty Yuen Kwan Law](#), An Guo Wu, Onat Kadioglu, Henry Johannes Greten, Thomas Efferth. Pharmacogenomics of Scopoletin in Tumor Cells. *Molecules*. 2016; 21(4), 496. (IF: 2.465; Q2)
27. [Betty Yuen Kwan Law[#]](#), Simon Wing Fai Mok, An Guo Wu, Christopher Wai Kei Lam, Margaret Sum Yee Yu and Vincent Kam Wai Wong*. New Potential Pharmacological Functions of Chinese Herbal Medicines via Regulation of Autophagy. *Molecules*. 2016, 21, 359. (IF: 2.465; Q2)
28. Klionsky DJ, Abdelmohsen K, Abe A, Abedin MJ, Abeliovich H, Acevedo Arozena A,, [Betty Yuen Kwan Law, etal](#). Guidelines for the use and interpretation of assays for monitoring autophagy (3rd edition). *Autophagy*. 2016 Jan 2;12(1):1-222. (IF: 9.108; Q1)
29. [Betty Yuen Kwan Law[#]](#), Simon Wing Fai Mok, Wai Kit Chan, Su Wei Xu, An Guo Wu, Xiao Jun Yao, Jing Rong Wang, Liang Liu* and Vincent Kam Wai Wong*. Hernandezine, a Novel AMPK Activator Induces Autophagic Cell Death in Drug-resistant Cancers. *Oncotarget*. 2016 Jan 22. doi: 10.18632/oncotarget.6980. (IF: 5.0; Q1)
30. Vincent Kam Wai Wong, Hang Dong, Xu Liang, Li Ping Bai, Zhi-Hong Jiang, Yue Guo, Tony A.-N Kong, Rui Wang, Richard Kin Ting Kam, [Betty Yuen Kwan Law](#), Wendy Wen Luen Hsiao, Ka Man Chan, Jingrong Wang, Rick Wai Kit Chan, Jianru Guo, Wei Zhang, Feng Gen Yen, Hua Zhou, Elaine, Lai Han Leung, Zhiling Yu, Liang Liu*. Rh2E2, a Novel Metabolic Modulator, Specifically Suppresses Tumor Cell Growth by Inhibiting Energy-based Metabolism. *Oncotarget*. 2016 Jan 18; doi: 10.18632/oncotarget.6934. (IF: 5.0; Q1)
31. An Guo Wu, Vincent Kam Wai Wong, Wu Zeng, Liang Liu* and [Betty Yuen Kwan Law^{*}](#). Identification of novel autophagic Radix Polygalae fraction by cell membrane chromatography and UHPLC-(Q)TOF-MS for degradation of neurodegenerative disease proteins. *Scientific Reports*. 2015 Nov 24; 5:17199. (IF: 5.228; Q1)

32. Wong VK, Wu AG, Wang JR, Liu L*, **Betty Yuen Kwan Law***. Neferine attenuates the protein level and toxicity of mutant huntingtin in PC-12 cells via induction of autophagy. *Molecules*. 2015, 20, 3496-3514. (IF: 2.465; Q2)
33. **Betty Yuen Kwan Law[#]**, Mo KF, Wong VK*. Autophagic effects of Chaihu (dried roots of Bupleurum Chinense DC or Bupleurum scorzoneraefolium WILD). *Chinese Medicines*. 2014 Sep 11;9:21. (IF: 1.58; Q2)
34. **Betty Yuen Kwan Law[#]**, Chan WK, Xu SW, Wang JR, Bai LP, Liu L* & Wong VK*. Natural small-molecule enhancers of autophagy induce autophagic cell death in apoptosis-defective cells. *Scientific Reports*. 2014, 4, 5510. (IF: 5.228; Q1)
35. Wu AG, Wong VK, Xu SW, Chan WK, Ng CI, Liu L* and **Betty Yuen Kwan Law***. Onjisaponin B derived from Radix Polygalae enhances autophagy and accelerates the degradation of mutant α -synuclein and huntingtin in PC-12 cells. *Int. J. Mol. Sci*. 2013, 14, 22618-22641. (IF: 3.257; Q2)
36. Wong VK, Li T, **Betty Yuen Kwan Law**, Ma EDL, Nga CY, Francesco M, Law CKM, Zhang M, Lam YC, Chan PL and Liu L. Saikosaponin-d, a novel SERCA inhibitor induces autophagic cell death in apoptosis-defective cells. *Cell Death & Diseases*, 2013 Jul 11;4:e720. (IF: 5.378; Q1)
37. Wong VK, C.B. Ko and **Betty Yuen Kwan Law***. TRI001 is a novel activator of autophagy via an mTOR-dependent mechanisms. *European Journal of Cancer*, 2013; vol. 49, Suppl. 1, S4.
38. Chan GH[#], **Betty Yuen Kwan Law[#]**, Chu JM, Yue KK, Jiang ZH, Lau CW, Huang Y, Chan SW, Ying-Kit Yue P, Wong RN. Ginseng extracts restore high-glucose induced vascular dysfunctions by altering triglyceride metabolism and downregulation of atherosclerosis-related genes. *Evid Based Complement Alternat Med*. 2013;2013:797310. [#]Authors with equal contribution. (IF: 1.931; Q2)
39. **Betty Yuen Kwan Law[#]**, Mingfu Wang, Dik-Lung Ma, Fawaz Al-Mousa, Francesco Michelangeli, Alice Wong, Margaret Ng, Ka-Fai To, Anthony Y.F. Mok, Rebecca Y. Y. Ko, Sze Kui Lam, Feng Chen, Chi-Ming Che, Pauline Chiu, and Ben C.B. Ko. Alisol B, a novel inhibitor of the SERCA pump, induces autophagy, ER-stress and apoptosis. *Molecular Cancer Therapeutics*, 9(3), 718-730, 2010. (IF: 5.579; Q1)

Academic texts:

1. **Betty Yuen Kwan Law[#]**, Vincent Wong Kam Wai. **Book title:** Autophagy in Current Trends in Cellular Physiology and Pathology; **Chapter title:** Autophagy In Multidrug-Resistant Cancers (MDR) *Chapter 20 Page 435-454*; ISBN 978-953-51-2726-0; InTech Publishing, Croatia. June 2016.
2. Simon Wing Fai Mok, **Betty Yuen Kwan Law**, Vincent Kam Wai Wong and Liang Liu* (2018). Immunotherapeutic approaches of rheumatoid arthritis and the implication on novel interventions for refractoriness, Immunotherapy, Dr. Seyyed Shamsadin Athari (Ed.), InTech, ISBN 978-953-51-6100-4.

Research Grants/Projects

2012- 2015 Discovery of novel autophagic enhancers from Chinese medicinal herbs as

potential candidate agents for the treatment of neurodegenerative conditions.

2014- 2017 Characterization and isolation of active autophagy components from *Radix*

Polygalae (Yuan Zhi) for the modulation of age-related neurodegenerative diseases.

2018-2019 The new application of using analytical method (UHPLC-DAD-TOF/MS)

in identifying novel compounds for binding of β -amyloids.

2019- **Now** Targeting the complement system by autophagic active herbal fraction for modulating neurodegenerative diseases.

2019- **Now** Screening of Natural compounds targeted to Hepatitis B Virus Surface Antigen (HBsAg): Pharmacodynamic Study of *Peristrophe japonica* on

Anti-Hepatitis B Virus

Academic and Professional Membership

- ✧ Member of the Macau Laboratory Technologist Association (MLTA, Macao)
- ✧ Member of Organisation for Oncology and Translational Research (OOTR, HK)
- ✧ Executive Council Member of the Board of Specialty Committee of Immunology of Traditional Chinese Medicine of the World Federation of Chinese Medicine Societies.
- ✧ Executive Council Member of Council of the International Consortium for Rheumatology Research

Professional Qualifications and Awards

- ✧ Eli Lilly Asia Outstanding Graduate Thesis Award
- ✧ Bank of China (BOC, Macau Branch) Excellent Research Award Zhongzhu Awards for Life Science Recognizing First Prize in Research
- ✧ Zhongzhu Awards for Life Science Recognizing First Prize in Service