Jia-Hong LU

Jiahong Lu 路嘉宏

Associate Professor

Deputy Director (Academic Affairs and Education)

Academic Qualifications

- B.M., Xiangya School of Medicine, Central South University
- M.S., State key lab of Medical genetics, Central South University
- Ph.D., Hong Kong Baptist University

Teaching

CMED7012-Targets and Models for Drug Screen

GEST 1017-Modern Drug Discovery Drugs and Health

CMED 7017-Across the Gap between Science and Industry

CMED8010-Advanced pharmacology

Research

Research Interests

- 1) Regulatory mechanisms and biological functions of autophagy in human diseases: physiological and translational studies.

- 2) Neuroprotective TCM compounds discovery and target identification by functional genomics and proteomics approaches.

Dr. Lu got his PhD in Hong Kong Baptist University. He spent 3 years in Icahn School of medicine at Mount Sinai for postdoctoral training before joining University of Macau as an assistant professor. Dr. Lu is an expert in neurobiology, cell biology and pharmacology. His major research interests are autophagy in human diseases and pharmacological study on traditional Chinese medicine. Dr. Lu tries to combine biochemistry, cell biology and neurobiology approaches, and apply cell, fruit fly and transgenic mouse models to identify small molecular autophagy modulators with therapeutic potential for human diseases including neurodegenerative diseases, cancer and inflammatory diseases. Dr. Lu has published more than 60 papers in high profile journal as corresponding author: *Nature Biomedical Engineering, Advanced Science, EMBO molecular medicine, Autophagy (6 articles), Molecular neurodegeneration, Cell discovery, Acta Pharmaceutica Sinica B, …*, with a total citation of over 10,000 times .

Dr. Lu's group has open position for Postdoc, postgraduate students and research assistants who are interested in autophagy and pharmacological research. For further information, please contact Dr. Lu at jiahonglu@um.edu.mo

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Selected Publications

1. Han R, Ren Z, Wang Q, Zha H, Wang E, Wu M, Zheng Y[#], **Lu JH[#]**. Synthetic Biomimetic Liposomes Harness Efferocytosis Machinery for Highly Efficient Macrophages-Targeted Drug Delivery to Alleviate Inflammation. ***Advanced Science.*** 2024 May 24:e2308325. doi: 10.1002/advs.202308325 (Impact factor: 14.3)
2. Mingyue Wu, Yunjun Ge, Erjin Wang, Qi-Wen Liao, Zhaoxiang Bian, Jin Chai, Richard D. Ye[#], **Lu JH[#]**. Enhancement of efferocytosis through biased FPR2 signaling attenuates intestinal inflammation. [#]Co-corresponding author. ***EMBO molecular medicine***, 2023, Dec 7;15(12):e17815. doi: 10.15252/emmm.202317815. [#]Co-corresponding author (Impact factor: 11.1)

3 Zhang SQ, Deng Q, Zhu Q, Hu ZL, Long LH, Wu PF, He JG, Chen HS, Yue Z, **Lu JH**[#], Wang F[#], Chen JG[#]. Cell type-specific NRBF2 orchestrates autophagic flux and adult hippocampal neurogenesis in chronic stress-induced depression**.** ***Cell Discovery***, 2023 Aug 29;9(1):90. [#]Co-corresponding author (Impact factor: 38.1)

4 Dong Y, Zhuang XX, Wang YT, Tan J, Feng D, Li M, Zhong Q, Song Z, Shen HM, Fang EF, **Lu JH**[#]. Chemical mitophagy modulators: Drug development strategies and novel regulatory mechanisms. ***Pharmacol Res.*** 2023 Jun 20;194:106835. doi: 10.1016/j.phrs.2023.106835. (Impact factor: 10.5)

5 Xie C, Zhuang XX, Niu Z, Ai R, Lautrup S, Zheng S, Jiang Y, Han R, Gupta TS, Cao S, Lagartos-Donate MJ, Cai CZ, Xie LM, Caponio D, Wang WW, Schmauck-Medina T, Zhang J, Wang HL, Lou G, Xiao X, Zheng W, Palikaras K, Yang G, Caldwell KA, Caldwell GA, Shen HM, Nilsen H, **Lu JH**[#], Fang EF[#]. Amelioration of Alzheimer's disease pathology by mitophagy inducers identified via machine learning and a cross-species workflow. ***Nat Biomed Eng***. 2022 Jan 6. doi: 10.1038/s41551-021-00819-5. PMID: 34992270. [#]Co-corresponding author (Impact factor: 29.2)

6 Dong Y, Zhu G, Wang SF, Keon KA, Rubinstein JL, Zeng SX, Zhang S, Chen QL, Fu J, Li M, Shen HM, Lu JJ, Chen XP, **Lu JH**[#]. Toosendanin, a novel potent vacuolar-type H+-translocating ATPase inhibitor, sensitizes cancer cells to chemotherapy by blocking protective autophagy. ***Int J Biol Sci.*** 2022 Mar 28;18(7):2684-2702. doi: 10.7150/ijbs.71041. (Impact factor: 10.8)

7 Cai CZ, Zhuang XX, Zhu Q, Wu MY, Su HX, Wang XJ, Iyaswamy A, Yue ZY, Wang Q, Zhang B, Xue Y, Tan JQ, Li M, He HH[#], **Lu JH**[#]. Enhancing autophagy maturation with CCZ1-MON1A complex alleviates neuropathology and memory defects in Alzheimer disease models. ***Theranostics.*** 2022; 12(4):1738-1755. doi:10.7150/thno.64148. (Impact factor: 11.6)

8 Ai R, Zhuang XX, Anisimov A, **Lu JH**[#], Fang EF[#]. A synergized machine learning plus cross-species wet-lab validation approach identifies neuronal mitophagy inducers inhibiting Alzheimer disease. ***Autophagy.*** 2022 Apr;18(4):939-941. doi: 10.1080/15548627.2022.2031382. [#]Co-corresponding author (Impact factor: 13.4).

9 Deng ZQ, Dong Y, Zhou XT, **Lu JH**[#], Yue ZY[#]. Pharmacological modulation of autophagy for Alzheimer's disease therapy: Opportunities and obstacles. ***Acta Pharmaceutica Sinica B.*** 2022 Apr;12(4):1688-1706.. doi.org/10.1016/j.apsb.2021.12.009. [#]Co-corresponding author (Invited Review, Back cover story) (Impact factor: 14.9)

10 Ming-Yue Wu, Er-Jin Wang, Du Feng, Min Li, Richard D. Ye, **Lu JH**[#]. Pharmacological insights into autophagy modulation in autoimmune diseases. ***Acta Pharmaceutica Sinica B***. 2021 Nov;11(11):3364-3378. doi.org/10.1016/j.apsb.2021. 03.026. (Impact factor: 14.9)

11 Cai CZ, Yang C, Zhuang XX, Yuan NN, Wu MY, Tan JQ, Song JX, Cheung KH, Su H, Wang YT, Tang BS, Behrends C, Durairajan SSK, Yue Z, Li M[#] & **Lu JH**[#]. NRBF2 is a RAB7 effector required for autophagosome maturation and mediates the association of APP-CTFs with active form of RAB7 for degradation. ***Autophagy.*** 2021 May;17(5):1112-1130. DOI: 10.1080/15548627.2020.1760623. (Impact factor: 13.4)

12 Wu MY, Liu L, Wang EJ, Xiao HT, Cai CZ, Wang J, Su H, Wang Y, Tan J, Zhang Z, Wang J, Yao M, Ouyang DF, Yue Z, Li M[#], Chen Y[#], Bian ZX[#], **Lu JH**[#]. PI3KC3 complex subunit NRBF2 is required for apoptotic cell clearance to restrict intestinal inflammation. ***Autophagy***. 2021 May;17(5):1096-1111. doi:10.1080/15548627.2020.1741332. (Impact factor: 13.4)

13 Yu Dong, Yuanjia Hu, Sovan Sarkar, Wei-Xing Zong, Min Li, Du Feng, Ju-Xian Song, Min Li, Diego L. Medina, Jieqiong Tan, Zhuohua Zhang, zhenyu Yue and **Lu JH**[#]. "Autophagy Modulator Scoring System: a User-friendly Tool for Quantitative Analysis of Methodological Integrity of Chemical Autophagy Modulator Studies." ***Autophagy***. 2020 Feb;16(2):195-202. doi: 10.1080/15548627.2019.1704119. (Impact factor: 13.4)

14 Lachance V, Wang Q, Sweet E, Choi I, Cai CZ, Zhuang XX, Zhang Y, Jiang JL, Blitzer RD, Bozdagi-Gunal O, Zhang B, **Lu JH**[#], Yue Z[#]. Autophagy protein NRBF2 has reduced expression in Alzheimer's brains and modulates memory and amyloid-beta homeostasis in mice. ***Mol Neurodegener***. 2019 Nov 27;14(1):43. doi:10.1186/s13024-019-0342-4. [#]co-corresponding author (Impact factor: 18.9)

15 Zhuang XX, Wang SF, Tan Y, Song JX, Zhu Z, Wang ZY, Wu MY, Cai CZ, Huang ZJ, Tan JQ, Su HX[#], Li M[#], **Lu JH**[#]. Pharmacological enhancement of TFEB-mediated autophagy alleviated neuronal death in oxidative stress-induced Parkinson's disease models. ***Cell Death Dis.*** 2020 Feb 18;11(2):128. doi: 10.1038/s41419-020-2322-6. (Impact factor: 9.7)

16 Chen JY, Zhu Q, Zhang S, OuYang D, **Lu JH**[#]. Resveratrol in experimental Alzheimer's disease models: A systematic review of preclinical studies. **Pharmacol Res**. 2019 Dec;150:104476. doi: 10.1016/j.phrs.2019.104476. (Impact factor: 10.3)

17 Yang C, Cai CZ, Song JX, Tan JQ, Durairajan SSK, Iyaswamy A, Wu MY, Chen LL, Yue Z, Li M, **Lu JH**[#]. NRBF2 is involved in the autophagic

degradation process of APP-CTFs in Alzheimer disease models. ***Autophagy***. 2017;13(12):2028-2040. (Impact factor: 13.4)

18 Chong CM, Ke M, Tan Y, Huang Z, Zhang K, Ai N, Ge W, Qin D, **Lu JH**[#], Su H[#]. Presenilin 1 deficiency suppresses autophagy in human neural stem cells through reducing γ-secretase-independent ERK/CREB signaling. ***Cell Death Dis***. 2018 Aug 29;9(9):879. [#]co-corresponding author (Impact factor: 9.7)

19 **Lu JH***, He L*, Behrends C, Araki M, Araki K, Jun Wang Q, Catanzaro JM, Friedman SL, Zong WX, Fiel MI, Li M, Yue Z. NRBF2 regulates autophagy and prevents liver injury by modulating Atg14L-linked phosphatidylinositol-3 kinase III activity. ***Nature Communications***. 2014; 5:3920, DOI: 10.1038/ncomms4920. (Impact factor: 14.9)

20 **Lu JH**, Tan JQ, Durairajan SS, Liu LF, Zhang ZH, Ma L, Shen HM, Chan HY, Li M. Isorhynchophylline, a natural alkaloid, promotes the degradation of alpha-synuclein in neuronal cells via inducing autophagy. ***Autophagy***. 2012; 8(1):98-108. (Erratum in Autophagy. 2012; 8(5): 864-866.) (Impact factor: 13.4)

For full list of Publications, please visit Scopus:

https://www.scopus.com/authid/detail.uri?authorId=56962968600

Book Chapters

- **路嘉宏**，巫明月，嶽振宇。(2019) 自噬與帕金森病. In 樂衛東 (Eds). 自噬:生物學與疾病·臨床卷(第 3 版) (pp.1-42). 科學出版社。
- **Lu, JH.,** Wu, M, Yue, Z. (2019) Autophagy and Parkinson's disease. Autophagy: Biology and Diseases (Clinic Volume) (The 3rd edition) (pp.1-42). Springer.
- **Jiahong Lu,** Min Li, Mingyue Wu, Cuizan Cai (2016), Book Chapter, "Chinese medicine in neurological disease: pharmacological perspective", in Book "Evidence-based research methods for Chinese medicine"
- **路嘉宏**，嶽振宇。(2015) 自噬與帕金森病. In 樂衛東 (Eds). 自噬:生物學與疾病·臨床卷(第 2 版) (pp.234-255). 科學出版社

Patents:

- 路嘉宏,郑颖,韩润,任政宇。一种炎症靶向性仿生脂质体的制备及其应用. 中國專利申請號：2024103503241
- 路嘉宏，陳修平，董雨，駱瑋瑋。川楝素在腫瘤治療中的應用。中國專利申請號：ZL 201910622457.9
- Li M., Durairajan S.S.K., Liu L.F., Lu J.H. "Berberine Alkaloid as a Medicament for Prophylaxis and Treatment of Alzheimer's Disease" U.S. Provisional Patent Application No.61/609917, 2013.

Awards

2023 斯坦福大學全球前 2%科學家榜

2022 ICMS Incentive Scheme for Outstanding Academic Staff, University of Macau.

2022 傑出青年學者（年度唯一），第四屆中醫腦科學大會，北京。

2020 粤港澳大湾区高价值专利培育布局大赛，优秀奖。

2014 Future of Science Fund Scholarship, Keystone Symposia, Austin, USA

2013 Best Poster Prize, EMBO Conference Autophagy: Molecular mechanism, physiology and pathology. Oslo, Norway.

Community Service

- Council member, the China genetic association (理事 中國遺傳學會)
- Council member, Asia-Pacific association of medicine and bio-immunology (理事 亞太醫學和生物免疫學會)

- Committee member, China anti-cancer association cancer immunology and metabolism group （委員 中國抗癌協會腫瘤代謝專委會免疫代謝學組)
- Committee member, Chinese association of pathophysiology protein modification and disease committee (委員 中國病理生理學會蛋白質修飾與疾病專業委員會)

- Associate editor, Frontiers in pharmacology
- Editorial board, Neurochemistry International
- Guest editor, Journal of leukocyte biology
- Guest editor, Burns and trauma

External reviewer for *Medical Research Council (MRC) United Kingdom* (英國醫學研究委員會專案), *Natural Science Foundation of China (NSFC)* (中國自然科學基金), and *Czech Science Foundation* (捷克科學基金)

News

- 澳大研究揭自噬基因調控炎症性腸病機制（澳門日報 20200420）https://appimg.modaily.cn/amucsite/web/index.html#/detail/9735401
- 澳大港浸大研究失智症新發現(澳門日報 20200630）https://xiangyu-macau.oss-cn-hongkong.aliyuncs.com/app/szb/pc/content/202006/30/content_54372.html
- 澳大抗瘤研究獲灣區專利獎(澳門日報 20200907）http://www.macaodaily.com/html/2020-09/07/content_1459488.htm
- 澳大用AI 研發中藥助治療老人癡呆（澳門華僑報 20200110）

  www.vakiodaily.com/news/view/id/476724
- 方飛/路嘉宏團隊報導人工智慧助力阿爾茲海默病藥物發現（BioArt 公眾號 20220107）

  https://mp.weixin.qq.com/s/1SIhEAbCpaE6U55r_TgqhQ
- 澳门大学路嘉宏团队和中山大学附属第五医院何欢欢团队报道调控自噬治疗阿尔茨海默病的研究新进展（Theranostics 雜誌微信公眾號 20220208）

  https://mp.weixin.qq.com/s/-HyxzEuU1PbviIAJknlTXA

- 【APSB 封底文章】自噬的药理调控在阿尔茨海默症治疗中的机遇和挑战（APSB 雜誌微信公眾號 20220428）
  https://mp.weixin.qq.com/s/-HyxzEuU1PbviIAJknlTXA

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