

沈兵教授



职称: 教授

学院/部门: 埃尔文内尔博士生物物理与创新药物实验室, 中药质量研究国家重点实验室, 澳门科技大学

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简介: 2009 年博士毕业于香港中文大学生理系, 先后在香港中文大学、美国得克萨斯大学休斯顿健康科学中心进行博士后研究。2024 年加入澳门科技大学, 主要研究方向集中在离子信道相关的病理生理功能、药物研发及人类遗传病。在 *Cell Research*、*Nature Communications*、*Circulation Research* 等国际 SCI 收录杂志发表 130 余篇科研成果, 并积极进行医学转化研究, 获得国家发明专利多项。主持国家自然科学基金面上项目、安徽省杰出青年基金等多项科研基金。获得中华医学科学技术奖、安徽省自然科学奖、湖北省自然科学奖、安徽省教学成果奖等多项奖项。兼任高等学校基础医学创新创业协同育人工作组常委、中国神经科学学会离子通道与受体分会委员、中国药理学会神经精神药理学专业委员会委员、中国毒理学会生物毒素毒理专业委员会委员、中国生物物理学会细胞钙信号分会委员。

教研领域

教学科目: 待定

研究方向: 作用于离子通道的中药小分子发现及药物研发

离子信道和钙信号生理病理功能

离子通道相关的糖尿病、心血管疾病、神经退行性疾病及癌症

研究兴趣: 实验室采用膜片钳、钙成像、生物大数据、分子生物、细胞生物等实验方法研究离子信道、钙信号的生物学功能及其与重大疾病的关系, 在中药成分中发现调节离子通道的小分子药物。

- 中药成分中调节离子通道的小分子药物发现
- 离子信道生理病理功能
- 细胞钙信号产生、细胞器钙信号相互交流机制及生物学功能

Research interest:

- Physiological and pathological functions of ion channels
- Mechanism and functions of calcium signal and crosstalk of calcium signal between organelles
- Discovering small molecules acting on ion channels in traditional Chinese medicine

学历

1993.9-1998.6 安徽医科大学临床医学学士学位

2000.9-2003.6 暨南大学药学院药理学硕士学位

2006.8-2009.12 香港中文大学生理学博士学位

教学经验

- (1) 2024.01-至今: 澳门科技大学中药质量研究国家重点实验室教授
- (2) 2015.08-2023.12: 安徽医科大学基础医学院生理学教授
- (3) 2011.11-2013.01: 美国得克萨斯大学休斯顿健康科学中心博士后研究员
- (4) 2009.09-2015.08: 安徽医科大学基础医学院生理学副教授
- (5) 2009.09-2010.09: 香港中文大学生物医学学院博士后研究员
- (6) 2005.09-2006.05: 香港中文大学医学院生理系研究助理
- (7) 2003.07-2005.09: 中国科学技术大学生命科学学院讲师

学术成果 (近 5 年)

- (1) Keyan Hu[#], Lei Liu[#], Songtao Tang[#], Xin Zhang, Hongfeng Chang, Wenyang Chen, Taotao Fan, Lesha Zhang, **Bing Shen***, Qiu Zhang*. MicroRNA-221-3p inhibits the inflammatory response of keratinocytes by regulating the DYRK1A/STAT3 signaling pathway to promote wound healing in diabetes. *Communication Biology*. 2024 Feb.
- (2) Qunhua Wang[#], Yan Fang[#], Yuan Li, Huali Liu, Maoni Zhu, Xue Hu, Jinzhuo Zhou, Anqi Deng, **Bing Shen***, Hongbo Chen*. Pregnancy-specific beta-1-glycoprotein 1 increases HTR-8/SVneo cell migration through the Orai1/Akt signaling pathway. *Biomolecules*. 2024 Jan 27.

- (3) Tianyue Wang*, Hidemi Nakata*, **Bing Shen**, Ziyiing Jiao, Kaori Yokota, Shinji Kuroda, Shohei Kasugai, Eriko Marukawa. Involvement of miR-199a-5p-loaded mesoporous silica nanoparticle-polyethyleneimine-KALA in osteogenic differentiation. *Journal of Dental Sciences*. 2024 Jan.
- (4) Li Ji[#], Ziyiing Jiao[#], Lin Zhang, Jia Shi, Qianqian Wan, Chunzhi Qian, Han Wang, Xiaoyan Cao, **Bing Shen***, Lijuan Jiang*. Role of increased IGFBP2 in trophoblast cell proliferation and recurrent spontaneous abortion development: A pilot study. *Physiological Reports*. 2024 Jan 27.
- (5) Chen Gong, Ji Ma, Ya Deng, Qiaoling Liu, Zixiang Zhan, Hong Gan, Xinjian Xiang, Meng Zhang, Kangli Cao, Tingting Shen, Lulu Fang, **Bing Shen***, Shichun Shen*, Shenggang Ding*. S100A9-/- alleviates LPS-induced acute lung injury by regulating M1 macrophage Polarization and inhibiting pyroptosis via TLR4/MYD88/NFκB signaling axis. *Biomedicine & Pharmacotherapy*. 2024 Jan 30; (IF= 7.4996).
- (6) Zhang Chen, Liu Renhui, Chen Mengmeng, Xu Yang, Jin Xiaoqin, **Shen Bing**, Wang Jinye. Autophagy inhibitors 3-MA and BAF may attenuate hippocampal neuronal necroptosis after global cerebral ischemia-reperfusion injury in male rats by inhibiting the interaction of the RIP3/AIF/CypA complex. *Journal of Neuroscience Research*. 2024.
- (7) Yaqin Zhang, Xiangzhi Zhang, Ruofei Chen, Ziyiing Jiao, **Bing Shen***, Zongwen Shuai*. HSCs-derived exosomes regulate the levels of inflammatory cytokines in HIBECs through miR-122-5p mediated p38 MAPK signaling pathway. *Genomics*. 2024 Jan 14. <https://doi.org/10.1016/j.ygeno.2024.110795>.
- (8) Fangfang Xu[#], Fan Zheng[#], Ye Chen[#], Yang Wang[#], Shaobo Ma, Weng Ding, Lesha Zhang, Jizheng Guo, Changbo Zheng*, **Bing Shen***. Role of thrombospondin-1 in high-salt-induced mesenteric artery endothelial impairment in rats. *Acta Pharmacologica Sinica*. 2023 Nov 6. doi: 10.1038/s41401-023-01181-9.
- (9) Keyan Hu[#], Xueying Liu[#], Hongfeng Chang, Yi Zhang, Hui Zhou, Lei Liu, Xin Zhang, Ziyiing Jiao, **Bing Shen***, Qiu Zhang*. MicroRNA-221-3p targets THBS1 to promote wound healing in diabetes. *Diabetes, Metabolic Syndrome and Obesity*. 2023 Sep 11; 16: 2765-2777. doi: 10.2147/DMSO.S424847.
- (10) Xiaoyan Li, Bin Zhang, Wen Ding, Xianfen Jia, Zhen Han, Lin Zhang, Yifeng Hu, **Bing Shen***, Huiqin Wang*. Serum proteomic signatures in umbilical cord blood of preterm neonates delivered by women with gestational diabetes. *Diabetes, Metabolic Syndrome and Obesity*. 2023 May 26; 2023(16): 1525-1539. doi: <https://doi.org/10.2147/DMSO.S406297>.
- (11) Yue Wang, Mengru Cai, Xianliang Jiang, Guangyu Lv, Daiju Hu, Guofeng Zhang, Jinli Liu, Wei Wei, Jun Xiao, **Bing Shen**, Jay H Ryu, Xiaowen Hu. Exons 1-3 deletion in FLCN is associated with increased risk of pneumothorax in Chinese patients with Birt-Hogg-Dubé syndrome. *Orphanet Journal of Rare Diseases*. 2023 May 12; 18(1): 115. doi: 10.1186/s13023-023-02710-9.
- (12) Junhao Huang^{#,*}, Huiwen Gao[#], Dongdong Gao[#], Weiyue Yang, Mengke Zhao, **Bing Shen***, Min Hu*. Exercise reduces airway smooth muscle contraction in asthmatic rats via inhibition of IL-4 secretion and store-operated Ca²⁺ entry pathway.

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- (14) Qibing Wu[#], Yang Fang[#], Xiaoyu Huang, Fan Zheng, Shaobo Ma, Xinchen Zhang, Tingting Han, Huiwen Gao, **Bing Shen***. Role of Orai3-mediated store-operated calcium entry in radiation-induced brain microvascular endothelial cell injury. *International Journal of Molecular Sciences*. 2023 Apr 6; 24(7): 6818. doi: 10.3390/ijms24076818.
- (15) Ying Qin[#], Qinggang Meng[#], Qunhua Wang[#], Mingzhu Wu, Yan Fang, Chengcheng Tu, Xinyang Hu, **Bing Shen**, Hongbo Chen*, Xiaohong Xu*. Pregnancy-specific glycoprotein 9 enhances store-operated calcium entry and nitric oxide release in human umbilical vein endothelial cells. *Diagnostics (Basel)*. 2023 Mar 16; 13(6): 1134. doi: 10.3390/diagnostics13061134.
- (16) Ran Zhang[#], Meixuan Chen[#], Zhongfang Deng, Lingchao Kong, **Bing Shen***, Lesha Zhang*. Delta opioid peptide targets brain microvascular endothelial cells reducing apoptosis to relieve hypoxia-ischemic/reperfusion injury. *Pharmaceutics*. 2022 Dec 23; 15(1): 46. doi: 10.3390/pharmaceutics15010046.
- (17) Chuandi Yu, Wen Ding, Lei Zhu, Yuhang Zhou, Yingkui Dong, Ling Li, Juanjuan Liu, Yizhuo Wang, Zehua Li, Lina Zhu, FaJun Chen, Maosen Ruan, Dongming Qian, Yujuan Wang, Bo wu, Huangtao Xu, Ming Li, Yunchen Bi, Hao Wang, Weiqian Wang, Peng Chao, Lei Xing, **Bing Shen**, Han Dai, Lisha Zha, Hongxin Zhao, Junfeng Wang. Screening and characterization of inhibitory vNAR targeting nanodisc-assembled influenza M2 proteins. *iScience*. 2022 December 05, doi:https://doi.org/10.1016/j.isci.2022.105736.
- (18) Renming Li[#], Xiaomin Zhao[#], Pengcheng Liu, Dandan Wang, Chen Chen, Yu Wang, Ningning Zhang, **Bing Shen***, Dahai Zhao*. Differential expression of serum proteins in chronic obstructive pulmonary disease assessed using label-free proteomics and bioinformatics analyses. *International Journal of Chronic Obstructive Pulmonary Disease*. 2022 Nov 15; 17: 2871-2891. doi: 10.2147/COPD.S383976.
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- (20) Haoyang Lu, Wen Ding, Hui Xiao, Manyu Dai, Yangcheng Xue, Zhuoran Jia, Jie Guo, Mengzuo Wu, **Bing Shen***, Ren Zhao*. Association of the P441L KCNQ1 variant with severity of long QT syndrome and risk of cardiac events. *Frontiers in Cardiovascular Medicine*. 2022 Oct 31; 9: 922335. doi: 10.3389/fcvm.2022.922335.
- (21) Yansong Xu[#], Yuansong Sun[#], Ran Yin[#], Tao Dong[#], Kai Song, Yang Fang,

- Guodong Liu*, **Bing Shen***, He Li*. Differential expression of plasma exosomal microRNA in severe acute pancreatitis. *Frontiers in Pharmacology*. 2022 September 28; 13: 980930. doi: 10.3389/fphar.2022.980930
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- (23) He Li[#], Yansong Xu[#], Xin Zhou, Taiyang Jin, Ziru Wang, Yuansong Sun, Haiping Wang, Datong Jiang, Chunlin Yin, **Bing Shen***, Kai Song*. DIA-based proteomic analysis of plasma protein profiles in patients with severe acute pancreatitis. *Molecules*. 2022 Jun 17; 27(12): 3880. doi: 10.3390/molecules27123880.
- (24) Yaqin Zhang[#], Ziying Jiao[#], Mingwei Chen, **Bing Shen**, Zongwen Shuai. Roles of non-coding RNAs in primary biliary cholangitis. *Frontiers in Molecular Biosciences*. 2022 July 08.
- (25) Guofeng Zhang, Jinli Liu, Yushuo Wang, Yue Wang, Xianliang Jiang, Yan Peng, Jun Xiao, Wei Wei, **Bing Shen**, Long Yi, Jay H Ryu, Xiaowen Hu. Birt-Hogg-Dubé syndrome encountered at rare lung disease clinic in Anhui province, China. *Orphanet Journal of Rare Diseases*. 2022 May 16; 17(1): 203. doi: 10.1186/s13023-022-02362-1.
- (26) Jing Ye[#], Pengcheng Liu[#], Renming Li, Hui Liu, Wenjing Pei, Changxiu Ma, **Bing Shen**, Dahai Zhao*, Xiaoyu Chen*. Biomarkers of connective tissue disease-associated interstitial lung disease in bronchoalveolar lavage fluid: a label-free mass spectrometry-based relative quantification study. *Journal of Clinical Laboratory Analysis*. 2022 May; 36(5): e24367. doi: 10.1002/jcla.24367. (IF=3.124).
- (27) Linghui Chen, Yanzhuo Chen, Wen Ding, Tao Zhan, Jie Zhu, Lesha Zhang, Han Wang, **Bing Shen*** and Yong Wang*. Oxidative stress-induced TRPV2 expression increase involves in diabetic cataract and apoptosis of lens epithelial cells in a high-glucose environment. *Cells*. 2022 Apr 2; 11(7): 1196. doi: 10.3390/cells11071196.
- (28) Lijie Xu[#], Shuhao Wang[#], Zhechen Wu, Chengcheng Xu, Xinwei Hu, Haitian Ding, Yanqiang Zhang, **Bing Shen**, Yehai Liu, Kaile Wu*. Development of a colloidal gold immunochromatographic strip for rapid detection of Cyfra 21-1 in lymph node metastasis of thyroid cancer. *Frontiers in Bioengineering and Biotechnology*. 2022 Apr 12; 10: 871285. doi: 10.3389/fbioe.2022.871285. eCollection 2022.
- (29) Shuhao Wang[#], Lijie Xu[#], Yv Wu, Hailong Shen, Zhangying Lin, Yang Fang, Lesha Zhang, **Bing Shen**, Yehai Liu*, Kaile Wu*. Parathyroid hormone promotes human umbilical vein endothelial cell migration and proliferation through Orai1-mediated calcium signaling. *Frontiers in Cardiovascular Medicine*. 2022 Mar 16; 9: 844671. doi: 10.3389/fcvm.2022.844671. eCollection 2022.
- (30) Qiqi Yu[#], Lei Liu[#], Xin Zhang, Hongfeng Chang, Shaobo Ma, Zhenhui Xie, Songtao Tang, Xinmin Ju, Huaqing Zhu*, **Bing Shen***, Qiu Zhang*. MiR-221-3p targets HIPK2 to promote diabetic wound healing. *Microvascular Research*. 2022 Mar; 140: 104306. doi: 10.1016/j.mvr.2021.104306.
- (31) Suwen Bai[#], Wenxuan Hou[#], Yanheng Yao[#], Jialin Meng[#], Yuan Wei, Fangfang Hu,

- Xianyu Hu, Jing Wu, Ning Zhang, Ruihuan Xu, Faqing Tian, Benguo Wang, Hailan Liao, Yinan Du, Haoshu Fang, Wei He, Yehai Liu, **Bing Shen**, Juan Du. Exocyst controls exosome biogenesis via Rab11a. *Molecular therapy. Nucleic acids*. 2021 Dec 17; 27: 535-546. doi: 10.1016/j.omtn.2021.12.023. eCollection 2022 Mar 8.
- (32) Zeguo Jia#, Lei Liu#, Shiqian Zhang, Xiaotong Zhao, Li Luo, Yizhong Tang, **Bing Shen**, Mingwei Chen*. Proteomics changes after negative pressure wound therapy in diabetic foot ulcers. *Molecular Medicine Reports*. 2021 Dec; 24(6):834. doi: 10.3892/mmr.2021.12474.
- (33) Fang Dai#, Jizheng Guo#, Yang Wang, Tian Jiang, Hongbo Chen, Ying Hu, Juan Du, Yan Wang, Xianming Xia, Qiu Zhang*, **Bing Shen***. Enhanced store-operated Ca^{2+} signal of small intestinal smooth muscle cells accelerates small bowel transit speed in type 1 diabetic mouse. *Frontiers in Physiology*. 2021 Oct 20; 12:691867. doi: 10.3389/fphys.2021.691867. eCollection 2021.
- (34) Xingbang Wang, Yong Xiao, Mingming Huang, Wen Ding, **Bing Shen**, Haowei Xue, Kaile Wu*. Effect of TRPM2-mediated Ca^{2+} signaling on cell proliferation and apoptosis in esophageal squamous cell carcinoma. *Technology in Cancer Research & Treatment*. 2021 Jan-Dec; 20:15330338211045213. doi: 10.1177/15330338211045213.
- (35) Suwen Bai#, Wang Wang#, Li Ye, Lulu Fang, Tao Dong, Rong Zhang, Xin Wang, Huiwen Gao, **Bing Shen***, Shenggang Ding*. IL-17 stimulates neutrophils to release S100A8/A9 to promote lung epithelial cell apoptosis in Mycoplasma pneumoniae-induced pneumonia in children. *Biomedicine & Pharmacotherapy*. 2021 Sep 22; 143: 112184. doi: 10.1016/j.biopha.2021.112184.
- (36) Fangfang Xu#, Yang Wang#, Huiwen Gao, Xinchun Zhang, Yu Hu, Tingting Han, **Bing Shen**, Lesha Zhang*, Qibing Wu*. X-ray causes mRNA transcripts change to enhance Orai2-mediated Ca^{2+} influx in rat brain microvascular endothelial cells. *Frontiers in Molecular Biosciences*. 2021 Sep 14; 8: 646730. doi: 10.3389/fmolb.2021.646730. eCollection 2021.
- (37) Yuan Wei#, Suwen Bai#, Yanheng Yao#, Wenxuan Hou, Junwei Zhu, Haoshu Fang, Yinan Du, Wei He, **Bing Shen**, Juan Du*. Orai-vascular endothelial cadherin signaling complex regulates high-glucose exposure-induced increased permeability of mouse aortic endothelial cells. *BMJ Open Diabetes Research & Care*. 2021 Apr; 9(1): e002085. doi: 10.1136/bmjdr-2020-002085.
- (38) Yong Wang#, Suwen Bai#, Ru Zhang#, Lin Xia, Linghui Chen, Jizheng Guo, Fang Dai, Juan Du, **Bing Shen***. Orai3 exacerbates apoptosis of lens epithelial cells by disrupting Ca^{2+} homeostasis in diabetic cataract. *Clinical and Translational Medicine*. 2021 Mar 04; 11(3): 1-5. Article Number: e327, <https://doi.org/10.1002/ctm2.327>.
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- (40) Tao Dong#, Ran Yin#, Qingcai Yu, Wanwei Qiu, Kun Li, Lisheng Qian*, He Li, **Bing Shen***, Guodong Liu*. Sensitive detection of microRNA-21 in cancer cells

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- (41) Fangfang Xu[#], Jinhang Zhu[#], Ye Chen, Ke He, Jizheng Guo, Suwen Bai, Ying Hu, Ren Zhao, Juan Du, **Bing Shen**^{*}. Physical interaction of tropomyosin 3 and STIM1 regulates vascular smooth muscle contractility and contributes to hypertension. *Biomedicine & Pharmacotherapy*. 2021 Feb; 134(111126): 1-10. doi: 10.1016/j.biopha.2020.111126.
- (42) Xianyu Hu[#], Suwen Bai[#], Lingyi Li[#], Pengfei Tian, Sun Wang, Ning Zhang, **Bing Shen**, Juan Du^{*}, Shengxiu Liu^{*}. MiR-200c-3p increased HDMEC proliferation through the notch signaling pathway. *Experimental Biology and Medicine (Maywood)*. 2021 Apr; 246(8): 897-905. 1535370220981859. doi: 10.1177/1535370220981859.
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- (44) Shu Zhou^{#,*}, Maosen Ruan[#], Yunyan Li, Jing Yang, Suwen Bai, Christian Richter, Harald Schwalbe, Can Xie, **Bing Shen**^{*}, Junfeng Wang^{*}. Solution structure of the voltage-gated Tim23 channel in complex with a mitochondrial presequence peptide. *Cell Research*. 2021 Jul; 31(7): 821-824. doi: 10.1038/s41422-020-00452-y.
- (45) Junhao Huang^{#,*}, Jingwen Liao[#], Yang Fang[#], Hailin Deng, Honggang Yin, **Bing Shen**^{*}, Min Hu^{*}. Six-week exercise training with dietary restriction improves central hemodynamics associated with altered gut microbiota in adolescents with obesity. *Frontiers in Endocrinology*. 2020 Dec 07; 11: 1-10. Article ID 569085. doi: 10.3389/fendo.2020.569085.
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