

Jian Wei, Ph.D.

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WORKING EXPERIENCE

- 2018-present Postdoctoral Associate, Dr. Chih-Hao "Lucas" Chang lab, The Jackson Laboratory, Bar Harbor, Maine, USA
- 2015-2017 Postdoctoral Associate, Dr. Bao-Liang Song lab, College of Life Sciences, Wuhan University, Wuhan, China

EDUCATION

- 2009-2015 Ph.D. in Biochemistry and Molecular Biology, Dr. Bao-Liang Song lab, Institute of Biochemistry and Cell Biology, Chinese Academy of Sciences, Shanghai, China
- 2005-2009 B.S. in Biotechnology, College of Life Sciences, Shandong University, Jinan, China

DISSERTATION

- Title: "Identification and Mechanistic Study of the Proteins Involved in Cholesterol Trafficking"
- Advisor: Professor Bao-Liang Song

RESEARCH EXPERIENCE

- **Roles of Adaptor Proteins in Endocytosis-mediated Cholesterol Uptake**
I investigated the roles of clathrin adaptor proteins ARH, Dab2, and Numb in LDLR-mediated LDL-cholesterol uptake from blood and the NPC1L1-mediated free cholesterol absorption from intestine. This study reveals that the two pathways share similar mechanism. (Published in *Journal of Biological Chemistry*, 2014)
- **Using Somatic Cell Mutagenesis to Identify New Genes in Intracellular Cholesterol Transport**
Through an unbiased screen, I isolated several mutated cell lines with impaired cholesterol transport and further identified the mutated gene *Vps53*. I further found that the GARP complex plays an import role in cholesterol transport by targeting NPC2 to lysosome. Moreover, the pathophysiological function of GARP complex in cholesterol homeostasis was investigated in GARP-deficient mice. (Published in *Cell Reports*, 2017)
- **Regulation of Plasma cholesterol**
From people with abnormal blood lipid level (extremely high or low), we identified several mutations influencing the stability of LDL receptor or functions of NPC1L1, and characterized the molecular

mechanisms. Using shRNA and CRISPR/Cas9 libraries, we performed FACS-based whole-genome screening of key proteins participating in the PCSK9-induced degradation of LDL receptor.

EXPERIMENTAL SKILLS

Molecular Biology

- DNA cloning / Gene expression / Gene knockdown / Gene knockout (CRISPR/Cas9 system)
- cDNA library construction
- Preparation of polyclonal antibody
- Immunoprecipitation / In vitro pull-down assay
- Immunoblot / RT-PCR / Real-time PCR / ELISA
- Luciferase-reporter assay
- Protein expression and purification
- Extraction and measurement of Lipid

Cell Biology

- Cell culture / Cell fusion / Tail tip fibroblast isolation
- Flow cytometry analysis / sorting
- Immunofluorescence / Histological analysis / Confocal microscopy
- Live cell imaging
- Preparation of retrovirus, lentivirus, adenovirus and adeno-associated virus (AAV)
- Sub Cellular Fraction (cell membrane/cytosol/nucleus/lysosome)
- Detection of endocytosis

In vivo Assay of Mouse

- Propagation of genetically engineered mice
- Intraperitoneal, intravenous, and subcutaneous injection
- Intragastric administration
- Glucose tolerance and insulin tolerance tests
- Cholesterol absorption measurement by fecal dual isotope ratio method

AWARDS

- 2016 Best Poster Award, The 2016 International Conference on Lipid Metabolism and Bioenergetics
- 2014 Excellent Students Award, University of Chinese Academy of Sciences
- 2014 Best Poster Award, National Academic Conference of Biochemistry and Molecular Biology

PUBLICATIONS

1. Luyi Jiang[#], Wei Jiang[#], Na Tian, Yanni Xiong, Jie Liu, **Jian Wei**, Kaiyue Wu, Jie Luo, Xiongjie Shi, Baoliang Song^{*}, Ring finger protein 145 (RNF145) is a ubiquitin ligase for sterol-induced degradation of HMG-CoA reductase, *Journal of Biological Chemistry*, 2018 ([#] Co-first author)
2. **Jian Wei**[#], Yingyu Zhang[#], Jie Luo, Juqiong Wang, Yuxia Zhou, Honghua Miao, Xiongjie Shi, Yuxiu Qu, Jie Xu, Boliang Li, Baoliang Song^{*}, The GARP complex is involved in intracellular cholesterol transport via targeting NPC2 to lysosomes, *Cell Reports*, 2017, 19: 2823–2835 ([#] Co-first author)

3. Jinfeng Su, **Jian Wei**, Peishan Li, Honghua Miao, Yongchao Ma, Yuxiu Qu, Jie Xu, Jie Qin, Boliang Li, Baoliang Song, Zhengping Xu*, Jie Luo*, Numb directs the subcellular localization of EAAT3 through binding the YxNxxF motif, ***Journal of Cell Science***, 2016, 129 (16): 3104-3114
4. Qinghua Yuan, Zhenyan Fu, **Jian Wei**, Peishan Li, Honghua Miao, Yuxiu Qu, Jie Xu, Jie Qin, Boliang Li, Baoliang Song, Yitong Ma*, Identification and characterization of NPC1L1 variants in Uygur and Kazakh with extreme low-density lipoprotein cholesterol, ***Biochemical and Biophysical Research Communications***, 2016, 479 (4): 628-635
5. **Jian Wei**, Luyi Jiang, Baoliang Song*, Regulation of cholesterol biosynthesis and intestinal cholesterol absorption, ***Life Sciences*** (review in Chinese), 2015, 07: 847-858
6. **Jian Wei**#, Zhenyan Fu#, Peishan Li#, Honghua Miao, Boliang Li, Yitong Ma*, Baoliang Song*, The clathrin adaptor proteins ARH, Dab2, and numb play distinct roles in Niemann-Pick C1-Like 1 versus low density lipoprotein receptor-mediated cholesterol uptake, ***Journal of Biological Chemistry***, 2014, 289 (48): 33689-33700 (# Co-first author)