Yuhan Bi

Ph.D. (Expected May 2018)
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EDUCATION

2013 - present	University of Pittsburgh, USA	Ph.D., Pharmaceutical Sciences
2010 - 2013	Georgia State University, USA	B.S., Biological Sciences
2008 - 2010	Harbin Medical University, China	Pharmaceutical Sciences

EXPERIENCES

2013 - present	Graduate Research Assistant, School of Pharmacy, University of Pittsburgh
2016- 2017	Outreach Committee Leader, AAPS Student Chapter of Pitt
2013 - 2015	Teaching Assistant, School of Pharmacy, University of Pittsburgh
2011- 2013	Lab Assistant, Department of Biological Sciences, Georgia State University

EXPERIMENTAL SKILLS

- **Metabolic study related experiments**: GTT, ITT, PTT, Clamp, GSIS, metabolic cages and MRI.
- **Immunological assays**: Multicolor flow cytometry, Immune cell sorting (T, B, Monocyte, NK by FACS/Column), Immune cell generation from BM cells (DC, Basophil, Macrophage/Monocyte), Functional assay for T, B, DCs, NK and Basophils (Immune checkpoints), Optimized the CD4+ T cell differentiation (Th1, Th2, Th17 and Tregs), Immune cell co-culture assay, Adoptive transfer.
- **In vitro cell-based assay and PKPD study**: Metabolite stability assay in human/ mouse liver microsome and primary human/ mouse hepatocyte, In vitro ADME related assays (protein binding, transporter identification, permeability, intrinsic clearance, enzymatic activity, and etc.); Non-compartmental PK analysis (Phoenix/WinNolin), Analytical methods development with HPLC.
- **Animal work**: Adoptive transfer (liver perfusion, castration, and overiectamy), Animal genotyping, Animal treatment (i.p., i.v., gavage, s.c., etc), Animal husbandry, Tumor Implantation.
- **Cell biology**: Primary human hepatocytes, Primary cell isolation/culture (hepatocytes and preadipocytes), Cell culture, Stable cell line generation, Immunofluorescence, proliferation assay, Cell toxicity, etc.
- **Molecular biology**: CRISPR/Cas9 gene knockout, Adenoviral and Lentiviral production/infection, Chromatin immunoprecipitation, Gel shift (EMSA), Luciferase reporter assay, Plasmid/expression/shRNA/viral vector construction, Plasmid/siRNA transfections, Immunoprecipitation (protein-protein interaction), RT-PCR, Western blot, etc.
- **Biochemistry**: ELISA, lipids/glucose isolation and measurement.
- **Histology**: Immunofluorescence (confocal), Immunohistochemistry, H&E staining, Oil red staining, Tunnel staining, etc.
- **Data analysis**: Statistics (SPSS, SAS, GraphPad Prism, Excel), Imaging (Image J, Image Lab, Photoshop, Canvas, Illustrator), Bioinformatics (CLC Genomics Workbench), etc.

RESEARCH PROJECTS

- **Regulation of cholesterol sulfotransferase SULT2B1b by Hepatocyte Nuclear Factor 4 α constitutes a negative feedback control of hepatic gluconeogenesis.**
  - Demonstrated SULT2B1b inhibits gluconeogenesis by antagonizing the HNF4α, using SULT2B1b transgenic mice (hepatocytes) with adenovirus expressing shHNF4α injection/ infection to do a series of metabolic function studies.
  - Demonstrated SULT2B1b gene is a transcriptional target of HNF4α by using adenovirus infection/ tail injection in human and mice primary hepatocytes/ in vivo, microarray, CHIP Assay, EMSA, and luciferase reporter assay.
  - Overexpressed HNF4α in a SULT2B1b knockout system followed by the measurement of glucose production, blood glucose and gluconeogenic enzyme activity *in vitro* and *in vivo*.
  - In mechanism, demonstrated knocking out SULT2B1b increases acetylation and nuclear translocation of HNF4α using IP, IF and subcellular fractionation.
  - Developed a hydrolysis-resistant agent Thiocolesterol, which shows superior profiles in ADME *in vitro* and PK&PD study in mice and could be further explored as a potential therapeutic drug to inhibit hypoglycemia and manage type 2 diabetes.

- **Adipose tissue- and sex-specific role of steroid sulfatase (STS) in energy homeostasis. (Manuscript in submission to Diabetes)**
  - Generated aP2-STS transgenic mice expressing STS specifically in adipose tissue.
  - Investigated the metabolic functions, adipose tissue biology and inflammation of obese and diabetic transgenic mice and wild type counterparts. STS is harmful to metabolic functions in adipose tissue in male mice and beneficial in female mice.
  - Measured STS enzymatic product and substrate (estrogens, androgens and their sulfates) levels through LC-MS and ELISA in different tissues and serum.
  - Conducted castration in male and overiactomy in female mice; demonstrated STS effect in *male* is depending on *androgen* signaling while in *female* is *estrogen* dependent.
  - Revealed the novel role of STS in energy homeostasis in an adipose tissue- and sex- specific manner and illuminated the adipose tissue specific effects of androgen and estrogen in energy homeostasis.
  - Proposed STS in adipose tissue represented a novel therapeutic target for obesity and type 2 diabetes.

- **The role of XXX in autoimmune hepatitis. (Manuscript in preparation)**
  - Demonstrated that XXX sensitizes mice in Concanavalin A (Con-A) induced autoimmune hepatitis using XXXKI and $XXX^{-/-}$ mice, through body/ spleen weight, immune cell proliferation, apoptosis detection, histology and cytokine level in Con-A model.
  - Sorted different types of immune cells responsible for the susceptibility of XXX using flow cytometry, Cell specific depletion, NKT cell specific XXX knockout (Cd1dKO) mice/ iNKT cell and hepatocyte specific XXXKI mice.
  - Identified NKT cell rather than T cell, Kupffer cell, Treg cell or hepatocytes playing the sensitizing role of XXXα in autoimmune hepatitis.
  - Conducted adoptive transfer of primary iNKT cells from XXXKI mice and wild type mice to Cd1dKO mice.
  - Identified IFNγ is required for XXX induced susceptibility to immune mediated hepatitis, in XXXKI iNKT cells and applying anti-IFNγ neutralizing antibody in XXXKI mice.

- **Overexpression of cholesterol sulfotransferase SULT2B1b sensitizes mice to acetaminophen (APAP) induced acute liver injury.**
  - Demonstrated that SULT2B1b sensitizes mice to acetaminophen (APAP) induced hepatoxicity, using SULT2B1b$^{-/-}$ and SULT2B1b transgenic mice.
  - Investigated the role of SULT2B1b in APAP metabolism by profiling APAP metabolites using LC-MS in SULT2B1b $^{-/-}$ and SULT2B1b transgenic mice after APAP injection.

PUBLICATIONS

1. **Bi Y***, Shi X, Zhu J, Guan X, Garbacz WG, Huang Y, Gao L, Yan J, Xu M, Ren S, Liu Y, Ma X, Li S, Xie W. Regulation of cholesterol sulfotransferase SULT2B1b by HNF4a constitutes a negative feedback control of hepatic gluconeogenesis. *Mol Cell Biol* 2018 Jan 29 [Epub ahead of print] PMID:29378829
2. **Bi Y,** Guo W, Xu M, Ren S, Selcer K. W, Xie W. Adipose tissue- and sex-specific role of steroid sulfatase in energy homeostasis (Manuscript in submission to Diabetes)
3. J Yan, Niu Y, He J, **Bi Y**, Lu P, Garbacz WG, Monga SP, Schwabe RF, Xu M, Ren S, Xie W. Cell-type specific role of the aryl hydrocarbon receptor in liver fibrosis. (Manuscript in preparation)
4. **Bi Y**, Xie W. The interplay between HNF4α and cholesterol sulfotransferase in energy metabolism. International Journal of Molecular Sciences. (An invited review article, in preparation)
5. AN Y, **Bi Y**, Xu M, Ren S, Xie W. Overexpression of cholesterol sulfotransferase sensitizes mice to acetaminophen induced acute liver injury. (Manuscript in preparation)
6. Gao L, **Bi Y,** Li B, WG Garbacz, Xu M, Xie W. The role of XXX in autoimmune hepatitis. (Manuscript in preparation)

SCIENTIFIC WRITING SKILLS

- Manuscript preparation, submission, revision and review.
- Grant proposal preparation, submission, revision and review.

CONFERENCE ATTENDED

2018 ENDO 2018, Chicago, IN, USA
2016 7th Great Lake Unclear Receptor Conference, Cleveland, OH, USA

PODIUM PRESENTATION

2018 ENDO 2018 Oral Presentation, Chicago, IN, USA

POSTER PRESENTATIONS

2017 9th AAPS Research Symposium, Pittsburgh, PA, USA
2016 7th Great Lake Nuclear Receptor Conference, Cleveland, OH, USA
2015 7th AAPS Research Symposium, Pittsburgh, Morgantown, WV, USA
2014 6th AAPS Research Symposium, Pittsburgh, PA, USA

HONORS AND AWARDS

2018 Graduate Travel Award, Pittsburgh, PA, USA
2016 Best Poster Award, 7th Great Lake Nuclear Receptor Conference, Cleveland, OH, USA
2011-2013 Honor Student in Dean's list, Atlanta, GA, USA
2011-2013 Out-of-State Tuition Waiver Scholarship, Atlanta, GA, USA (four semesters)
2008-2009 National Scholarship, China (two times)
2008-2009 First-Class Scholarship, Harbin, China (two times)