Curriculum Vitae

CURRENT CONTACT INFORMATION

Kun Zhu, Ph.D.
Address: The Jackson Laboratory for Genomic Medicine
10 Discovery Drive
Farmington, CT 06032

Phone: 860-837-2308 (lab)
301-875-5363 (cell phone)
Email: kun.zhu@jax.org

EDUCATION

9/2010-6/2015 Ph.D. in Biochemistry and Molecular Biology
College of Life Sciences, Wuhan University (* One of Top 10 universities in CHINA)

9/2006-6/2010 B.S. in Biology
College of Life Sciences, Wuhan University

TRAINING EXPERIENCE

11/2017-Now Postdoctoral Associate
The Jackson Laboratory for Genomic Medicine
Farmington, CT, USA
Advised by Dr. Yijuan Ruan (Director of Genomic Sciences, Inventor of ChIA-PET/RICh-PET)

11/2015-11/2017 Visiting Fellow
Laboratory of Cellular and Molecular Biology
Center for Cancer Research, National Cancer Institute
National Institutes of Health, Bethesda, MD, USA
Advised by Dr. Ying E. Zhang (Senior Investigator)

RESEARCH INTERESTS

1. Nuclear architecture dynamics in cell differentiation, reprogramming, aging, cell-cell interactions and tissue organization;
2. Screening and Identification of critical cis/trans-regulatory elements orchestrate the establishment and reorganization of 3D genomic architecture;
3. How the nuclear architecture map directs chromatin function, including transcription, genome integrity and replication;
4. Elucidate the essential role of non-coding RNAs (lncRNA, eRNA, piRNA) in epigenome profiling and chromatin organization;
5. Reorganization of Lamina-associated peripheral heterochromatin at different stages of development.

PUBLICATIONS

1. **Kun Zhu**, Yi Tang, Xuan Xu, Hien Dang, Liuya Tang, Xiang Wang, Xin Wei Wang, Ying E. Zhang. Non-proteolytic ubiquitin modification of PPARγ by Smurf1 protects the liver from steatosis. **PLOS Biology**. (In revision, 2018) **First author.**
2. **Kun Zhu**, Pin-Ji Lei, Lin-Gao Ju, Xiang Wang, Kai Huang, Bo Yang, Chang-Wei Shao, Yuan Zhu, Gang Wei, Xiang-Dong Fu, Lian-Yun Li, Min Wu. SPOP-containing complex regulates SETD2 stability and H3K36me3-coupled alternative splicing. **Nucleic Acids Research.** 2017, 45(1):92-105. **First author.**
3. Lin-Gao Ju, Yuan Zhu, Pin-Ji Lei, Dong Yan, **Kun Zhu**, Xiang Wang, Qing-Lan Li, Xue-Jing Li, Jian-Wen Chen, Lian-Yun Li, Min Wu. TTLL12 Inhibits the Activation of Cellular Antiviral Signaling through Interaction with VISA/MAVS. **Journal of Immunology.** 2017, 198 (3) 1274-1284.
4. **Kun Zhu**, Xiang Wang, Lin-Gao Ju, Yuan Zhu, Jie Yao, Hong-Bing Shu, Yan-Yi Wang, Min Wu, Lian-Yun Li. WDR82 negatively regulates cellular antiviral response by mediating TRAF3 poly-ubiquitination. **Journal of Immunology.** 2015 Dec 1, 195(11):5358-66. **First author.**
5. Xiang Wang, Lin-Gao Ju, Jia-Dong Fan, Yuan Zhu, Xiao-Lan Liu, **Kun Zhu**, Min Wu and Lian-Yun Li. Histone H3K4 methyltransferase Mll1 regulates protein glycosylation and tunicamycin-induced apoptosis through transcriptional regulation. **Biochimica et Biophysica Acta (BBA) - Molecular Cell Research**. 2014, 1843:2592-602.
6. Xiang Wang*, **Kun Zhu***, Shang-Ze Li, Yi-Fang Liao, Run-Lei Du, Xiao-Dong Zhang, Hong-Bing Shu, An-Yuan Guo, Lian-Yun Li and Min Wu. MLL1, a H3K4 methyltransferase, regulates the TNFα-stimulated activation of genes downstream of NF-κB. **Journal of Cell Science**. 2012, 125:4058-4066. *** Co-first author.**

PROFESSIONAL SKILLS

Molecular and Cellular Biology Skills:

1. Molecular cloning, site-directed mutagenesis, prokaryotic and eukaryotic protein purification, yeast two-hybrid assay;
2. Mammalian cell culture, cell transfection, stable cell line generation with retro-/lenti- virus packaging;
3. Isolation of primary cells (macrophage, bone marrow derived mesenchymal stem cells, primary white adipocyte and brown adipocyte, primary MEFs) from mice, adipogenesis differentiation assay;
4. Western blotting, Reverse Transcription PCR, Real-Time PCR, dual luciferase reporter gene assay, Immunoprecipitation (IP), immunofluorescence (IF), immunohistochemistry (IHC), histone methyltransferase activity assay (HMT), *in vitro a*nd *in vivo* ubiquitination assays;
5. Flow cytometry, MTT assay, soft agar colony assay;
6. chromatin immunoprecipitation (ChIP), cross-linked immunoprecipitation (CLIP), RNA immunoprecipitation (RIP), chromosome conformation capture assay (3C);
7. Next-generation sequencing (sample preparation and library construction), including RNA-seq, ChIP-seq, ATAC-seq, DHS-Seq, HiC/in-situ HiC, ChIA-PET/in-situ ChIA-PET;

Bioinformatics Skills:

1. Proficiency in operating system: Linux and Mac OS system;
2. Proficiency in High Performance Computing (HPC) cluster system: Working with Helix clusters;
3. Expertise in programming languages: Shell scripting (Bourne shell), AWK, R, Python;
4. Experience in analyzing Next Generation Sequencing (NGS) Data and long-reads sequencing data, including but not limited to microarray, RNA-seq, ChIP-seq, single-cell RNA-seq, HiC, ChIA-PET, circRNA analysis, RIP-seq, Nanapore long reads sequencing;
5. Expertise in database and data sources (Example): UCSC Table Browser, Refseq, Ensembl and Gencode Annotations, ENA (European Nucleotide Archive), EGA (European Genome Archive), GTEx (Genotype-Tissue Expression), TCGA (The Cancer Genome Atlas), NCBI GEO (Gene Expression Omnibus), ENCODE Project, 3D genome browser, WashU Epigenome Browser, the 1000 Genome Project, 4D Nucleosome Project;

Laboratory Animal Skills (mouse):

1. Breeding, injection, genotyping;
2. Tumorigenic assay.

CONFERENCES

Speaker: Laboratory of Cellular and Molecular Biology Seminar. Bethesda, MD, May 2017;
Poster: 2017 SCBA DC-Baltimore Chapter Annual Scientific Symposium. Rockville, MD, March 2017;
Poster: Laboratory of Cellular and Molecular Biology Annual Retreat. Frederick, MD, Nov. 2016;
Poster: Cold Spring Harbor-Asia conference on Epigenetics, Chromatin & Transcription, Suzhou, China. May 2014;

Speaker: Antiviral Innate Immunity Retreat. Huangpi, Huibei, China. 2013;
Speaker: The 2rd Epigenetics Retreat on Epigenetics & RNA processing, Qiandao Lake, China. October 2012;
Poster: The 12th Congress of the Chinese society for cell biology, Beijing, China. July 2011.