

Curriculum Vitae

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Guihai Feng

Associate professor. Institute of Zoology, Chinese Academy of Sciences

Education

2010.9-2014.6, Ph.D. in Bioinformatics,

Institute of Genetics and Developmental Biology, CAS

2007.9-2010.6, M.S. in Bioinformatics,

Institute of Biotechnology, Academy of Military Medical Sciences (AMMS)

2003.9-2007.6, B.S. in Biological Sciences,

Shandong University

Employment

2018.1-present, Associate professor,

Institute of Zoology, CAS

2014.8-2018.1, Postdoctoral training in Developmental Biology,

Institute of Zoology, CAS

Research Interests

My research focuses on the regulation mechanisms of organism early embryo development and pluripotent stem cell. These mechanisms include but are not limited to epigenomic and (post-) transcriptional levels. The omics methods, such as ChIP-Seq, RNA-Seq, and WGBS-Seq, are principally used to resolve the biological puzzles.

Research Grants

Youth Program of National Natural Science Foundation of China (31201078)

National Key Research and Development Project (2019YFA0110900)

The Youth Innovation Promotion Association, CAS (2019084)

Publications (# co-first author, * corresponding author)

1: **Feng G#**, Tong M#, Xia B#, Luo GZ, Wang M, Xie D, Wan H, Zhang Y, Zhou Q, Wang XJ. Ubiquitously expressed genes participate in cell-specific functions via alternative promoter usage. *EMBO Rep.* 2016 Sep;17(9):1304-13.

2: An C, **Feng G#**, Zhang J, Cao S, Wang Y, Wang N, Lu F, Zhou Q, Wang H. Overcoming Autocrine FGF Signaling-Induced Heterogeneity in Naive Human ESCs Enables Modeling of Random X Chromosome Inactivation. *Cell Stem Cell.* 2020 Sep 3;27(3):482-497.

3: Wang J#, Wang L#, **Feng G#**, Wang Y#, Li Y, Li X, Liu C, Jiao G, Huang C, Shi J, Zhou T, Chen Q, Liu Z, Li W, Zhou Q. Asymmetric Expression of LincGET Biases Cell Fate in Two-Cell Mouse Embryos. *Cell.* 2018 Dec 13;175(7):1887-1901.

4: Zhang W#, Wan H#, **Feng G#**, Qu J#, Wang J, Jing Y, Ren R, Liu Z, Zhang L, Chen Z, Wang S, Zhao Y, Wang Z, Yuan Y, Zhou Q, Li W, Liu GH, Hu B. SIRT6 deficiency results in developmental retardation in cynomolgus monkeys. *Nature.* 2018 Aug;560(7720):661-665.

5: Wang LY, Li ZK, Wang LB, Liu C, Sun XH, **Feng GH#**, Wang JQ, Li YF, Qiao LY, Nie H, Jiang LY, Sun H, Xie YL, Ma SN, Wan HF, Lu FL, Li W, Zhou Q. Overcoming Intrinsic H3K27me3 Imprinting Barriers Improves Post-implantation Development after Somatic Cell Nuclear Transfer. *Cell Stem Cell.* 2020 Aug 6;27(2):315-325.e5.

6: Li ZK#, Wang LY#, Wang LB#, **Feng GH#**, Yuan XW#, Liu C, Xu K, Li YH, Wan HF, Zhang Y, Li YF, Li X, Li W, Zhou Q, Hu BY. Generation of Bimaternal and Bipaternal Mice from Hypomethylated Haploid ESCs with Imprinting Region Deletions. *Cell Stem Cell.* 2018 Nov 1;23(5):665-676.

7: Li TD#, **Feng GH#**, Li YF#, Wang M#, Mao JJ, Wang JQ, Li X, Wang XP, Qu B, Wang LY, Zhang XX, Wan HF, Cui TT, Wan C, Liu L, Zhao XY, Hu BY, Li W, Zhou Q. Rat embryonic stem cells produce fertile offspring through tetraploid complementation. *Proc Natl Acad Sci U S A.* 2017 Nov 7;114(45):11974-9.

8: Xu K#, Yang Y#, **Feng GH#**, Sun BF#, Chen JQ#, Li YF, Chen YS, Zhang XX, Wang CX, Jiang LY, Liu C, Zhang ZY, Wang XJ, Zhou Q, Yang YG, Li W. Mettl3-mediated m⁶A regulates spermatogonial differentiation and meiosis initiation. *Cell Res.* 2017 Sep;27(9):1100-14. (cover story)

- 9: Li Z#, Wan H#, **Feng G#**, Wang L#, He Z, Wang Y, Wang XJ, Li W, Zhou Q, Hu B. Birth of fertile bimaternal offspring following intracytoplasmic injection of parthenogenetic haploid embryonic stem cells. *Cell Res.* 2016 Jan;26(1):135-8.
- 10: Li J#, Wang C#, **Feng G#**, Zhang #L, Chen G, Sun H, Wang J, Zhang Y, Zhou Q, Li W. Rbm14 maintains the integrity of genomic DNA during early mouse embryogenesis via mediating alternative splicing. *Cell Prolif.* 2020 Jan;53(1):e12724.
- 11: Xie D, Tong M, Xia B, **Feng G#**, Wang L, Li A, Luo G, Wan H, Zhang Z, Zhang H, Yang YG, Zhou Q, Wang M, Wang XJ. Long noncoding RNA lnc-NAP sponges mmu-miR-139-5p to modulate Nanog functions in mouse ESCs and embryos. *RNA Biol.* 2021 Jun;18(6):875-887.
- 12: Zhu H, Sun H, Yu D, Li T, Hai T, Liu C, Zhang Y, Chen Y, Dai X, Li Z, Li W, Liu R, **Feng G***, Zhou Q*. Transcriptome and DNA Methylation Profiles of Mouse Fetus and Placenta Generated by Round Spermatid Injection. *Front Cell Dev Biol.* 2021 Mar 16;9:632183.
- 13: Mao Y, Wang L, Zhong B, Yang N, Li Z, Cui T, **Feng G**, Li W, Zhang Y, Zhou Q. Continuous expression of reprogramming factors induces and maintains mouse pluripotency without specific growth factors and signaling inhibitors. *Cell Prolif.* 2021 Aug;54(8):e13090.
- 14: Guo L, Sun X, Wang X, Liang C, Jiang H, Gao Q, Dai M, Qu B, Fang S, Mao Y, Chen Y, **Feng G**, Gu Q, Wang RR, Zhou Q, Li W. SARS-CoV-2 detection with CRISPR diagnostics. *Cell Discov.* 2020 May 19;6(1):34.
- 15: Li X, Wang Y, Ma R, Liu X, Song B, Duan Y, Guo J, **Feng G**, Cui T, Wang L, Hao J, Wang H, Gu Q. Reconstruction of functional uterine tissues through recellularizing the decellularized rat uterine scaffolds by MSCs in vivo and in vitro. *Biomed Mater.* 2021 Mar 3;16(3):035023.
- 16: Li Y, Guo L, Ying S, **Feng GH**, Zhang Y. Transcriptional repression of p21 by EIF1AX promotes the proliferation of breast cancer cells. *Cell Prolif.* 2020 Oct;53(10):e12903.
- 17: Wu J, Song D, Li Z, Guo B, Xiao Y, Liu W, Liang L, Feng C, Gao T, Chen Y, Li Y, Wang Z, Wen J, Yang S, Liu P, Wang L, Wang Y, Peng L, Stacey GN, Hu Z, **Feng G**, Li W, Huo Y, Jin R, Shyh-Chang N, Zhou Q, Wang L, Hu B, Dai H, Hao J. Immunity-and-matrix-regulatory cells derived from human embryonic stem cells safely and effectively treat mouse lung injury and fibrosis. *Cell Res.* 2020 Sep;30(9):794-809.
- 18: Mao J, Xu K, Han J, **Feng G**, Zhang Y, Li W. Rapid construction of a whole-genome mutant library by combining haploid stem cells and inducible self-inactivating PiggyBac transposon. *Protein Cell.* 2020 Mar 19.
- 19: Fu R, Yu D, Ren J, Li C, Wang J, **Feng G**, Wang X, Wan H, Li T, Wang L, Zhang Y, Hai T, Li W, Zhou Q. Domesticated cynomolgus monkey embryonic stem cells allow the generation of neonatal interspecies chimeric pigs. *Protein Cell.* 2020 Feb;11(2):97-107.

- 20: Li Z, Wu J, Wang L, Han W, Yu J, Liu X, Wang Y, Zhang Y, **Feng G**, Li W, Stacey GN, Gu Q, Hu B, Wang L, Zhou Q, Hao J. Generation of qualified clinical-grade functional hepatocytes from human embryonic stem cells in chemically defined conditions. *Cell Death Dis.* 2019 Oct 10;10(10):763.
- 21: Li Y, Wang L, Zhang L, He Z, **Feng G**, Sun H, Wang J, Li Z, Liu C, Han J, Mao J, Li P, Yuan X, Jiang L, Zhang Y, Zhou Q, Li W. Cyclin B3 is required for metaphase to anaphase transition in oocyte meiosis I. *J Cell Biol.* 2019 May 6;218(5):1553-1563.
- 22: Teng F, Li J, Cui T, Xu K, Guo L, Gao Q, **Feng G**, Chen C, Han D, Zhou Q, Li W. Enhanced mammalian genome editing by new Cas12a orthologs with optimized crRNA scaffolds. *Genome Biol.* 2019 Feb 5;20(1):15.
- 23: Cui T, Jiang L, Li T, Teng F, **Feng G**, Wang X, He Z, Guo L, Xu K, Mao Y, Wang L, Yuan X, Wang L, Li W, Zhou Q. Derivation of Mouse Haploid Trophoblast Stem Cells. *Cell Rep.* 2019 Jan 8;26(2):407-414.
- 24: Zhang W, **Feng G**, Wang L, Teng F, Wang L, Li W, Zhang Y, Zhou Q. MeCP2 deficiency promotes cell reprogramming by stimulating IGF1/AKT/mTOR signaling and activating ribosomal protein-mediated cell cycle gene translation. *J Mol Cell Biol.* 2018 Dec 1;10(6):515-526.
- 25: Teng F, Cui T, **Feng G**, Guo L, Xu K, Gao Q, Li T, Li J, Zhou Q, Li W. Repurposing CRISPR-Cas12b for mammalian genome engineering. *Cell Discov.* 2018 Nov 27;4:63.
- 26: Chen G, Zhang D, Zhang L, **Feng G**, Zhang B, Wu Y, Li W, Zhang Y, Hu B. RBM14 is indispensable for pluripotency maintenance and mesoderm development of mouse embryonic stem cells. *Biochem Biophys Res Commun.* 2018 Jun 18;501(1):259-265.
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- 28: Zhang Y, Cui P, Li Y, **Feng G**, Tong M, Guo L, Li T, Liu L, Li W, Zhou Q. Mitochondrially produced ATP affects stem cell pluripotency via Actl6a-mediated histone acetylation. *FASEB J.* 2018 Apr;32(4):1891-1902.
- 29: Wang X, Li T, Cui T, Yu D, Liu C, Jiang L, **Feng G**, Wang L, Fu R, Zhang X, Hao J, Wang Y, Wang L, Zhou Q, Li W, Hu B. Human embryonic stem cells contribute to embryonic and extraembryonic lineages in mouse embryos upon inhibition of apoptosis. *Cell Res.* 2018 Jan;28(1):126-129.
- 30: He ZQ, Xia BL, Wang YK, Li J, **Feng GH**, Zhang LL, Li YH, Wan HF, Li TD, Xu K, Yuan XW, Li YF, Zhang XX, Zhang Y, Wang L, Li W, Zhou Q. Generation of mouse haploid somatic cells by small molecules for genome-wide genetic screening. *Cell Rep.* 2017 Aug 29;20(9):2227-37.
- 31: Zhang Y, **Feng GH**, Xu K, Wang L, Cui P, Li Y, Wang C, Teng F, Hao J, Wan HF, Tan Y, Wang XJ, Zhou Q. A non-invasive method to determine the pluripotent status

of stem cells by culture medium microRNA expression detection. *Sci Rep*. 2016 Mar 1;6:22380.

32: Zhou Q, Wang M, Yuan Y, Wang X, Fu R, Wan H, Xie M, Liu M, Guo X, Zheng Y, **Feng G**, Shi Q, Zhao XY, Sha J, Zhou Q. Complete meiosis from embryonic stem cell-derived germ cells in vitro. *Cell Stem Cell*. 2016 Mar 3;18(3):330-40.

33: Li X, Cui XL, Wang JQ, Wang YK, Li YF, Wang LY, Wan HF, Li TD, **Feng GH**, Shuai L, Li ZK, Gu Q, Hao J, Wang L, Zhao XY, Liu ZH, Wang XJ, Li W, Zhou Q. Generation and application of mouse-rat allodiploid embryonic stem cells. *Cell*. 2016 Jan 14;164(1-2):279-292.

34: Chen Q, Yan M, Cao Z, Li X, Zhang Y, Shi J, **Feng GH**, Peng H, Zhang X, Zhang Y, Qian J, Duan E, Zhai Q, Zhou Q. Sperm tsrns contribute to intergenerational inheritance of an acquired metabolic disorder. *Science*. 2016 Jan 22;351(6271):397-400.

35: Luo GZ, Hafner M, Shi Z, Brown M, **Feng GH**, Tuschl T, Wang XJ, Li X. Genome-wide annotation and analysis of zebra finch microRNA repertoire reveal sex-biased expression. *BMC Genomics*. 2012 Dec 26;13:727.