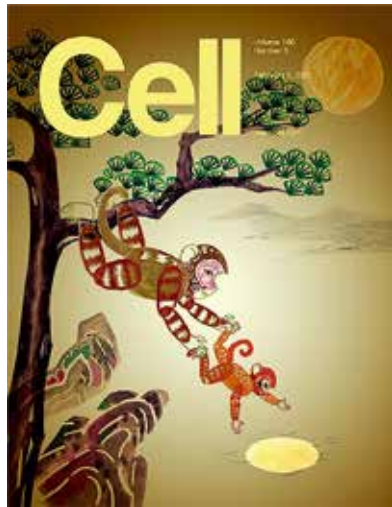


Research Group of Aging Mechanism and Regulation  
Institute of Zoology, Chinese Academy of Sciences



The research group on "aging mechanism and regulation" have made many leading research achievements in the field of basic aging biology and translational research worldwide. Via the establishment of a primate-based research platform and multiple innovative techniques for aging research, they depicted the multi-organ cell-type-specific transcriptomic landscape of mammalian aging, uncovered the commonalities and differences in aging regulatory pathways between primates and rodents, and established a causative link between heterochromatin loss and human stem cell aging, laying an important foundation for the development of therapeutic strategies including targeted drugs, stem cell-based methods and gene therapy for aging-related diseases. The academic achievements by this group have won domestic and international scientific awards, advanced the field of aging research and promoted the aging research in China to the international forefront.

Outstanding contributors of this research group

Liu Guanghui

He established a primate-based research platform, identified multiple regulatory genes for human stem cell aging and decoded novel molecular mechanisms of organ degeneration.

Qu Jing

She depicted the multi-tissue single-cell transcriptomic atlases of mammals undergoing aging and caloric restriction, revealing new molecular mechanisms underlying mammalian aging.

Li Wei

He invented new genetic engineering techniques, generated longevity mice via the regulation of imprinted genes and collaboratively created a longevity gene-knockout monkey model.

细胞类型特异的氧化还原失稳是灵长类卵巢衰老的共性分子特征  
Cell type-specific inactivation of antioxidant genes as a molecular feature of primate ovarian aging



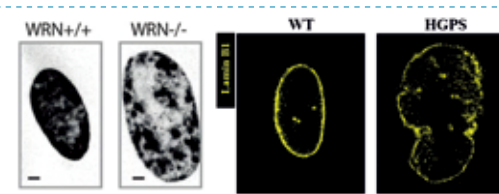
基于“干细胞年轻因子”的骨关节炎基因治疗  
Gene therapy alleviates osteoarthritis by preventing cellular senescence

Major contributors

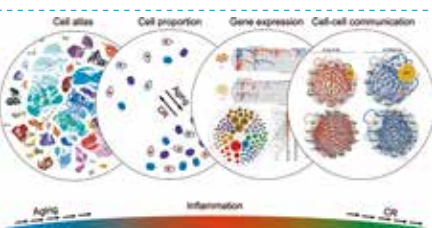
- Hu Baoyang
- Zhang Weiqi
- Song Moshi
- Huang Shiqiang
- Tang Tieshan
- Wang Qiang
- Wang Si
- Li Jingyi
- Ma Shuai
- Wan Haifeng
- Feng Guihai
- Sun Shuhui
- Xue Yanhong



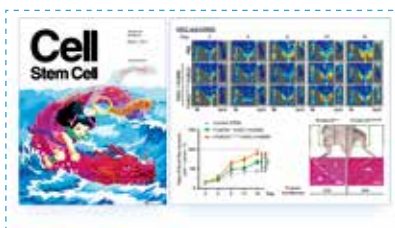
衰老研究多组学数据库  
Aging Atlas: a multi-omics database for aging biology



解码人类干细胞衰老的标记物与调控靶标  
Decoding the biomarkers and regulatory genes for human stem cell aging



“衰老和热量限制干预图谱”揭示热量限制通过干预慢性炎症从而调控衰老的作用机制  
Single-cell transcriptomic analysis reveals the alleviation of aging-related accumulation of pro-inflammatory cells by caloric restriction in various tissues



遗传增强干细胞治疗血管退化  
The generation of genetically enhanced human stem cells and vascular cells enables the development of safer and superior cell therapy strategies



部分团队成员  
Some members of this research group



衰老机制及调控研究集体

推荐单位：中国科学院动物研究所

研究集体主要科技贡献：

该研究集体围绕“衰老机制和调控”这一重要科学问题，通过建立灵长类衰老研究体系及多项创新性技术，揭示干细胞衰老、组织再生能力减弱与器官退行性变化的调控机制，提出了具有国际引领效应的重大理论，开辟了衰老研究的新方向。基于此发展了多项衰老及相关疾病的药物、干细胞和基因治疗新策略，为提升我国衰老研究的国际影响力与竞争力做出了贡献。

部分成员获基金委“衰老机制及调控”创新群体资助

Five members of this research group were supported by the Science Fund for Creative Research Groups of NSFC on Mechanism and Intervention of Aging in 2019

研究集体突出贡献者



刘光慧 Liu Guanghui

刘光慧 中国科学院动物研究所

主要科技贡献：建立灵长类衰老研究体系，发掘多个人干细胞衰老的调控基因，揭示器官衰老的新型分子机制。



曲静 Qu Jing

曲静 中国科学院动物研究所

主要科技贡献：利用单细胞测序技术，揭示灵长类卵巢衰老及哺乳动物衰老和节食的分子调控机制。



李伟 Li Wei

李伟 中国科学院动物研究所

主要科技贡献：通过干细胞与基因工程技术，揭示衰老和再生的新型调控机制，合作建立首例长寿基因敲除的猴模型，通过调节印记基因产生长寿小鼠。

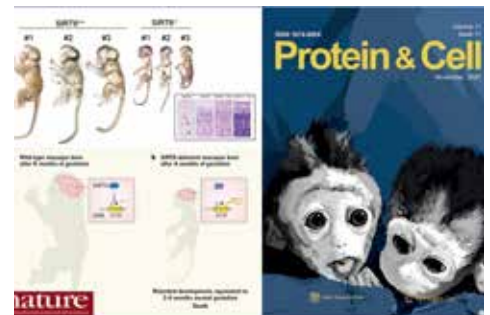
研究集体主要完成者

- 胡宝洋 张维绮 宋默识 黄仕强 唐铁山 王强 王思
- 李静宜 马帅 万海峰 冯桂海 孙淑慧 薛艳红



利用基因编辑修饰基因组印记获得寿命延长的成年可育孤雌小鼠

An adult bimaternal mouse (born to two mothers) with an extended lifespan produced by genomic imprinting modulation that went on to have normal offspring of her own



“长寿基因敲除”与“儿童早衰症”猴模型  
“Longevity gene” SIRT6-knockout monkeys and monkeys with Hutchinson-Gilford progeria syndrome