

ACADEMIC ACTIVITIES

Publication(s) of the week

1. Chen, Z., Lu, J., Xiao, F., Huang, Y., **Zhang, X.**, and Tian, L. (2020) A Self-Delivery DNA Nanoprobe for Reliable Microrna Imaging in Live Cells by Aggregation Induced Red-Shift-Emission. *Chem Commun (Camb)* [5yr IF=5.989]
2. **Zhao, Q.** (2020) Bispecific Antibodies for Autoimmune and Inflammatory Diseases: Clinical Progress to Date. *Biodrugs* [5yr IF=3.955]

FHS Lunar New Year Gathering

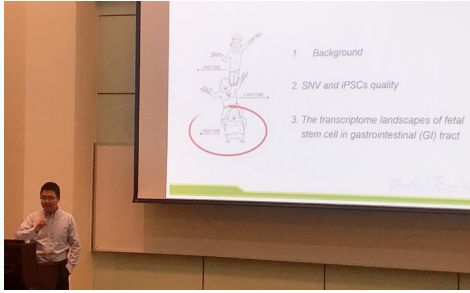
FHS members gathered together to have the Lunar New Year's Eve dinner on 15 January. Prof. DENG gave a warm welcome to all the members and wished everyone a prosperous Lunar New Year. Prof. DENG excitedly announced that FHS has published more than one thousand articles. He appreciated the good outcome and efforts of everybody, and he encouraged all the researchers to target the publications with high quality.

Moreover, Prof. DENG presented three awards to Prof. Xuanjun ZHANG, Prof. Wenhua ZHENG and Prof. Guokai CHEN for the Best Teacher (Excellence in Teaching), Best Teacher (Excellence in Research) and Best Teacher (Excellence in Service) respectively. The three awards are to recognize the excellent performance of and appreciate the exemplary contributions to the Faculty by the recipients of the awards in the 2018/2019 academic year. The award recipients have demonstrated their excellence in the relevant awarding aspects. Let's congratulate them and thank them for their excellent work in the previous years!



SEMINAR SERIES

Investigating the Induced Pluripotent Stem Cells (iPSCs) Quality and Tracing the Transcriptome Landscapes of the Human Fetal Stem Cells – Prof. Shuai GAO



Prof. Shuai GAO, Associate Professor of College of Animal Science & Technology, China Agricultural University, presented “Investigating the Induced Pluripotent Stem Cells (iPSCs) Quality and Tracing the Transcriptome Landscapes of the Human Fetal Stem Cells” on 16 January.

Prof. GAO claimed that stem cells, including pluripotent and multipotent stem cells, have self-renewal ability and multi-lineage differentiation potential and are crucial for mammalian embryonic development and adult life. He presented his research on revealing the relationship between abnormal epigenetic modifications or genomic alterations and pluripotency state of iPSCs. He introduced how he traced the transcriptome landscapes of the human fetal stem cells during the development of human fetal stomach and intestine by using single-cell RNA-sequencing. He concluded that the result of a whole-genome sequencing survey revealed that thousands of single-nucleotide variations, including 44 non-synonymous ones, accumulated throughout the sequential reprogramming process.

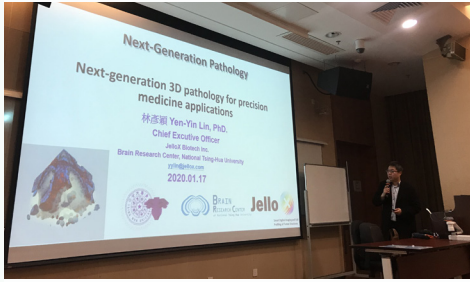
Regulatory Mechanisms of Intestinal Homeostasis – Dr. Lei CHEN



Dr. Lei CHEN, Post-Doctoral Fellow of Human Genetics Institute of New Jersey, Rutgers University, presented “Regulatory Mechanisms of Intestinal Homeostasis” on 16 January.

Dr. CHEN introduced that the intestinal epithelium has the capacity to self-renew and generate differentiated cells. Its turnover occurs every 3-5 days and fueled by intestinal stem cells (ISCs). Dr. CHEN then presented how she demonstrated the importance of hepatocyte nuclear factor-4 (HNF4) transcription factors in controlling intestinal differentiation and ISC renewal by using a combination of mouse genetics, epigenomics, organoid cultures and metabolomics. Besides, she revealed that BMP signaling intersected with the HNF4 transcriptional regulatory program to drive differentiation via a reinforcing HNF4-SMAD4 feed-forward loop. She believed that her study fills a critical gap of how BMP drives intestinal differentiation. Additionally, she found that HNF4 transcription factors are also required for ISC renewal and recent studies have linked diet and ISC metabolism to stem cell functions. She demonstrated the importance of fatty acid oxidation (FAO) for ISC renewal, and identified HNF4 as epigenomic activators of a battery of genes that conduct FAO. Dr. CHEN concluded that her findings linked core intestinal transcription factor regulatory networks to shaping the metabolic environment critical for ISC renewal.

Next-generation 3D Pathology for Precision Medicine Applications – Dr. Yen-Yin LIN

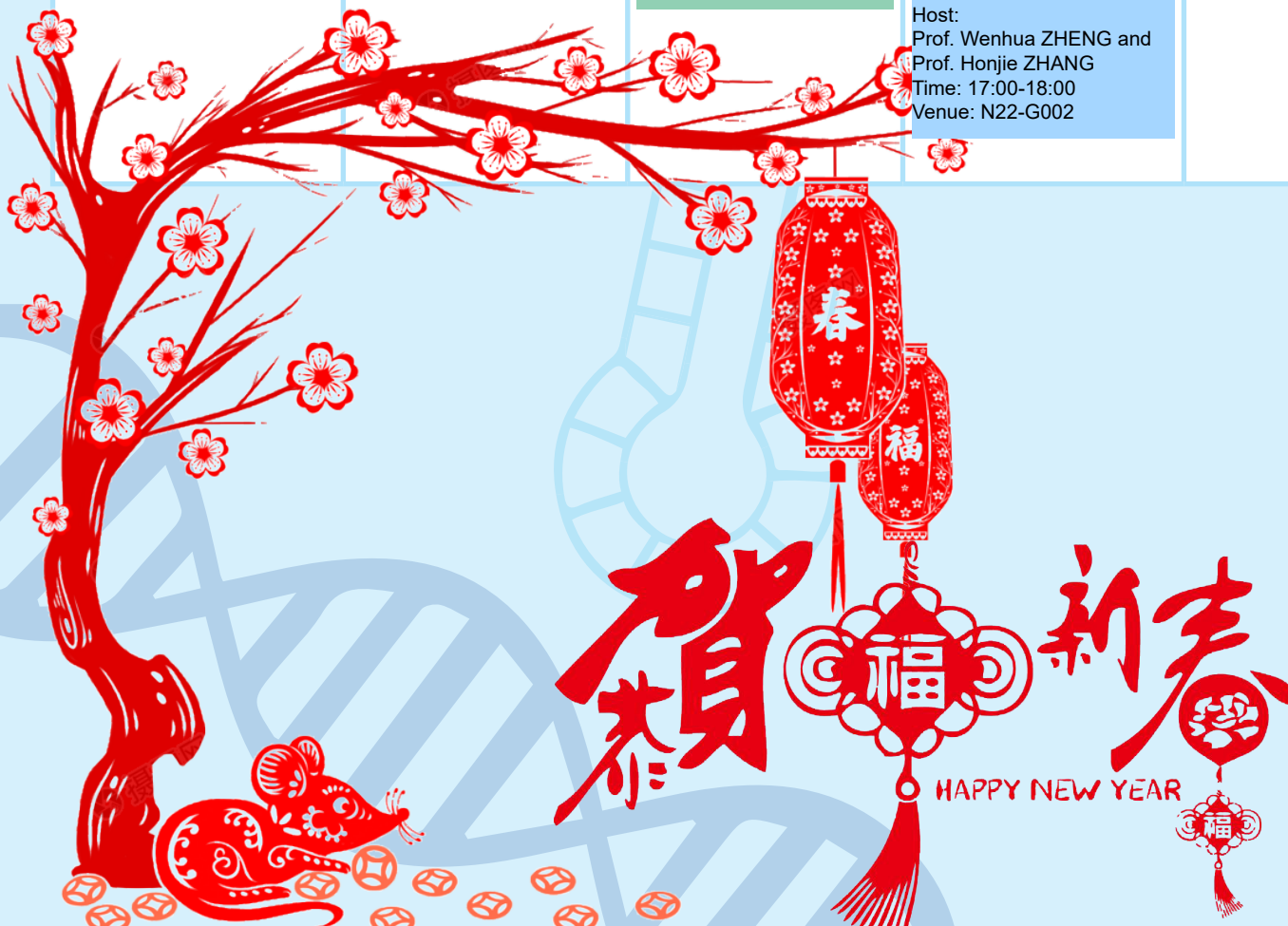


Dr. Yen-Yin LIN, Chief Executive Officer of JelloX Biotech Inc., presented “Next-generation 3D Pathology for Precision Medicine Applications” on 17 January.

Dr. LIN shared that the aim of his research team is to establish an automated 3D histopathology platform that emerges comprehensive pathologic images in support of quantitative data analyses and standardized digital format to overcome the technology limitation of current 2D image diagnosis tools. He then presented that the platform offers an innovative optical tissue clearing immersion system with high-resolution of 3D image technology, employing alternative scanning and slicing processes reliable depth control of continuous automatic images and digital suture parallel multi-stack images, and thus panoramic 3D digital images of a complete histopathological sample are produced. He also claimed that the innovative database stores high resolution images of deep tissues that are suitable for building up artificial intelligence algorithms. He presented how AI assisted pathological modules in detecting malignant cancer cells in different indications. He concluded that his automated 3D histopathology platform could provide intact deep tissue histopathological database for practical application of AI auxiliary precision medicine.

January / February 2020

Mon	Tues	Wed	Thurs	Fri
Janury 20 Seminar Series Mechano-redox Control of Integrin De-adhesion Speaker: Dr. Joyce Chiu Host: Prof. Henry KWOK Time: 11:00-12:00 Venue: E12-G004	Oral Defence Zhe HU Supervisor : Prof. Wei GE Time: 10:00 Venue: N6-G010	B-CAT Meeting #24 Speaker: Prof. Xiaoling XU Time: 17:00 Venue: E12-G004	23	24
27 Holiday The third day of the Lunar New Year	28 Holiday Compensatory rest day for Lunar New Year's Day	29 Holiday Compensatory rest day for Lunar New Year's Day	30	31
February 3	4	B-CAT Meeting #25 Speaker: Prof. Wei GE Time: 17:00 Venue: E12-G004	FHS Postdoc/ Student Seminar Field: Aging, and Neural and Metabolism disorders Host: Prof. Wenhua ZHENG and Prof. Honjie ZHANG Time: 17:00-18:00 Venue: N22-G002	7



For more information or submission of articles to be featured, please contact Ms. Mathilde CHEANG at mathildec@um.edu.mo or 8822 4909.