健康科學學院
Faculdade de Ciências da Saúde
Faculty of Health Sciences

NEWSLETTER ISSUE 08
25 FEBRUARY - 1 MARCH 2019

ACADEMIC ACTIVITIES

Publication(s) of the week

1. Miao, K., Zhang, X., Su, S. M., Zeng, J., Huang, Z., Chan, U. I., Xu, X., and Deng, C. X. (2019) Optimizing CRISPR/Cas9 Technology for Precise Correction of the Fgfr3-G374R Mutation in Achondroplasia in Mice. *J Biol Chem* **294**, 1142-1151 **[IF=4.253]**

2. Huang, H., Dong, M., Zhang, L., Zhong, B. L., Ng, C. H., Ungvari, G. S., Yuan, Z., Meng, X., and Xiang, Y. T. (2019) Psychopathology and Extrapyramidal Side Effects in Smoking and Non-smoking Patients with Schizophrenia: Systematic Review and Meta-analysis of Comparative Studies. *Prog Neuropsychopharmacol Biol Psychiatry* **[IF=3.978]**

3. Zhao, X., Zeng, Z., Gaur, U., Fang, J., Peng, T., Li, S., and Zheng, W. (2019) Metformin Protects PC12 cells and Hippocampal Neurons from H_2O_2-induced Oxidative Damage through Activation of AMPK Pathway. *J Cell Physiol* **[IF=3.83]**

4. Zhang, P., Chan, W., Ang, I. L., Wei, R., Lam, M. M. T., Lei, K. M. K., and Poon, T. C. W. (2019) Gas-Phase Fragmentation Reactions of Protonated Cystine using High-Resolution Tandem Mass Spectrometry. *Molecules* **24** **[IF=3.268]**

Seminar Series

The Challenge of Artificial Intelligence toward Healthcare Big Data - Prof. Wensheng ZHANG

Prof. Wensheng ZHANG, Professor of Chinese Academy of Sciences, presented a talk on “The Challenge of Artificial Intelligence toward Healthcare Big Data” on 1 March.

Prof. ZHANG shared the importance of big data in healthcare that it is a high value-added data resource. Although there is limited value for supporting medical and clinical innovation of individual healthcare data, people can discover new knowledge of healthcare and create new value for industrial business through the large-scale collection and in-depth analysis from the healthcare big data. There are also new significant capabilities to enhance clinical care and health services too.

Prof. ZHANG claimed that according to the rapid spread of information technology infrastructure and the intergenerational jump of the storage computing power, deep analysis and clinical application of healthcare big data are facing the bottleneck of cognitive computing. Cognitive computing technology is the core technology of today’s artificial intelligence applied to industry big data analysis.

Prof. ZHANG also presented how to analyze the intelligent service problems in healthcare big data which is serving researches on medical sciences and is assisting the clinical diagnosis and treatment from the perspective of intelligent visit of doctors. Besides, Prof. ZHANG shared how to consider and analyze the cognitive computing frameworks and typical application cases, how to discuss the key technology of cognitive computing to solve the problems of intelligent visit for doctors, and how to raise the worthy concerned issues of cognitive computing for applying into healthcare industry in the seminar too.

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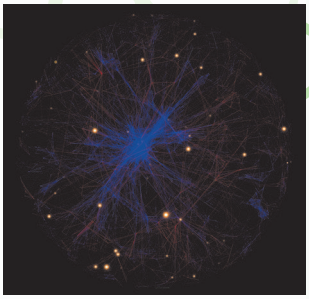
Seminar Series
Chemical Biology and Translational Study - Prof. Yongjun DANG

Prof. Yongjun DANG, Professor of School of Basic Medicine, Fudan University, presented a talk on “Chemical Biology and Translational Study” on 1 March.

Prof. DANG shared the rapid development of chemical biology in the seminar that chemical biology combines the knowledge of chemistry and biology to explore the biological questions, and it becomes the most active field in China in the past decade. It has the pivotal roles in drug development, especially in the discovery of drug target and drug candidate at early stage of drug development. Therefore, Prof. DANG focuses his study on chemical biology, especially on translational study and the discovery of the leading compounds from the natural products isolated from Chinese herbs and marine natural products, target identification and validation by multi-disciplinary techniques and clinical translational study. Prof. DANG also shared how he made the effort on the combination of chemical biology and translational study to open the new opportunities for natural product, pharmacology, basic science research and precision medicine.

Publication Sharing

An AR-ERG Transcriptional Signature Defined by Long-Range Chromatin Interactomes in Prostate Cancer Cells - Prof. Edwin CHEUNG



PCa is the second most common cancer in men worldwide. The growth and proliferation PCa is in large part controlled by the transcription factor, androgen receptor (AR). Treatments targeting against AR is initially effective for PCa patients, but many will subsequently relapse and become resistant to the therapy. Therefore, it is critical to fully understand how AR functions in order to improve the development of novel therapies for PCa treatment.

In the study, Prof Cheung’s team used a genomics approach called chromatin interaction analysis by paired-end tag (ChIA-PET) to show AR works in a cooperative manner with another transcription factor, ERG, in three-dimensional space to directly control the expression of a subset of AR target genes. His team also found that a class of RNAs called long non-coding RNAs may be an important component in potentially forming or maintaining this three-dimensional architecture. Finally, they showed that Single Nucleotide Polymorphisms (changes in the DNA) in long-range chromatin interactions can have profound effects in the expression of neighboring genes. Taken together, their results revealed an AR-ERG centric higher-order genome structure that is important for proper control of gene expression in PCa progression. Their findings will greatly help in the future identification of potential target genes for therapeutic intervention.

This work was recently published in the February issue of *Genome Research* and was jointly led by UM, Genome Institute of Singapore, and MIT, USA.

PhD ORAL DEFENSE

PhD Oral Defense by Changjie WU of Prof. Joong Sup SHIM's group

Mr. Changjie WU, supervised by Prof. Joong Sup SHIM, completed his PhD Oral Defense on 28 February. The title of his thesis was "AURKA-CDC25C axis is synthetic lethal with ARID1A-containing SWI/SNF complex and is a target for colorectal cancer treatment".

Mr. WU presented how he knocked out ARID1A by CRISPR-Cas9 and screened it in the epigenetic drug library. He then identified that ARID1A has a synthetic lethal interaction with aurora kinase A (AURKA) in colorectal cancer (CRC) cells. He also showed that ARID1A, as well as another two core components of SWI/SNF complex (SNF5 and BRG1), occupied the AURKA gene promoter and negatively regulated its transcription in CRC cells. The depletion of ARID1A abolished the promoter occupation of SNF5 and BRG1, suggested an ARID1A-dependent targeting of SWI/SNF complex to the AURKA promoter.

Mr. WU finally concluded that his study showed a novel synthetic lethality interaction between ARID1A and AURKA, and provided the AURKA-CDC25C axis as a pharmacological target for treating CRC with ARID1A loss-of-function mutations.

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UPCOMING

MARCH

Mon	Tues	Wed	Thurs	Fri
4	5	6 **3rd Symposium on Biomedical Sciences for Students, PDs, and RAs** Time: 09:00 Venue: N21-G013 **B-CAT Meeting #05** Speaker: Prof. Douglas ZHANG Time: 17:00 Venue: E12-G004	7 **FHS Postdoc/ Student Seminar** Host: Prof. Tzu-Ming LIU and Prof. Ruiyu XIE Time: 17:00-18:00 Venue: N22-G002	8
11	12	13 **B-CAT Meeting #05** Speaker: Prof. Edwin CHEUNG Time: 17:00 Venue: E12-G004	14	15
18	19	20	21 **Seminar Series** The Hippo Pathway in Cell Growth, Organ Size, and Cancer Speaker: Prof. Kun-Liang GUAN Host: Prof. Chuxia DENG Time: 10:00-11:00 Venue: N22-G002 **FHS Postdoc/ Student Seminar** Host: Prof. Greta MOK and Prof. Zhen YUAN Time: 17:00-18:00 Venue: N22-G002	22 **Seminar Series** Precision Medicine for Cell Therapy in ARDS Speaker: Prof. Haibo ZHANG Host: Prof. Wenhua ZHENG Time: 15:00-16:00 Venue: N22-G002

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