

ACADEMIC ACTIVITIES

B-CAT meeting #20

On Jun 20, Prof. Wenhua ZHENG gave his talk at the B-CAT meeting. He presented that the development of new anti-cancer drug by targeting IGF-1R receptor kinase. His lab first created a library of small chemical molecules based on the computer modeling of the crystal structure of IGF-1R receptor kinase. They found that compound #12 in this library inhibited the tyrosine phosphorylation of IGF-1R and the proliferation of PC12 cells induced by IGF-1 at the concentration of 10 μ M. Then they established another library of small chemicals by modifying the structure of compound #12 with the aid of computer modeling. The bioassay identified the compound #21 from the second library blocked IGF-1-induced tyrosine phosphorylation of IGF-1R and the proliferation of PC12 cells at the concentration of about 0.1 μ M. Further experiments showed that this compound inhibited IGF-1-induced proliferation of breast cancer cells MCF7 and the activation of the IGF-1R/Akt pathway at a similar concentration. In addition, they also developed IGF-1R inhibitor anti-cancer drugs by screening libraries of the active component of the Chinese medicine.

Publication of the week

1. Chen, Z., Liu, J., Chu, D., Shan, Y., Ma, G., Zhang, H., Zhang, X. D., Wang, P., Chen, Q., Deng, C., Chen, W., Dimitrov, D. S., and Zhao, Q. (2018) A dual-specific IGF-I/II human engineered antibody domain inhibits IGF signaling in breast cancer cells. *Int J Biol Sci* 14, 799-806
2. Jeong, H. F., and Yuan, Z. (2018) Emotion recognition and its relation to prefrontal function and network in heroin plus nicotine dependence: a pilot study. *Neurophotonics* 5, 025011
3. Wang, F., Lu, L., Wang, S. B., Zhang, L., Ng, C. H., Ungvari, G. S., Cao, X. L., Lu, J. P., Hou, C. L., Jia, F. J., and Xiang, Y. T. (2018) The prevalence of autism spectrum disorders in China: a comprehensive meta-analysis. *Int J Biol Sci* 14, 717-725
4. Wu, Y., Chen, Z., Zhang, P., Zhou, L., Jiang, T., Chen, H., Gong, P., Dimitrov, D. S., Cai, L., and Zhao, Q. (2018) Recombinant-fully-human-antibody decorated highly-stable far-red AIEdots for in vivo HER-2 receptor-targeted imaging. *Chem Commun (Camb)*
5. Zheng, W., Cai, D. B., Yang, X. H., Li, L., Zhang, Q. E., Ng, C. H., Ungvari, G. S., Li, X. B., Ning, Y. P., and Xiang, Y. T. (2018) Short-term efficacy and tolerability of lurasidone in the treatment of acute schizophrenia: A meta-analysis of randomized controlled trials. *J Psychiatr Res* 103, 244-251

VISITS AND EVENTS

Summer Laboratory Work Experience Programme 2018

The first phase course of FHS Summer Laboratory Work Experience Programme 2018 began on 19 Jun. There are totally five phases courses until 24 Aug 2018 and each phase lasts for two weeks. The programme attracts many high school students to participate, and they are going to work with our professors and researchers to perform the experiments in the labs that allow them to hands-on knowledge and technologies in biomedical sciences.

OTHER NOTIFICATIONS

Two FHS teams promoted to the acceleration stage of "Fosun Protechting" Global Youth Innovation and Entrepreneurship Competition

Prof. Renhe Xu's team and Prof. Terence POON's team which won in the competition of "Paraufuturo De Macao" Innovation and Entrepreneurship last month were promoted to the acceleration stage of "Fosun Protechting" Global Youth Innovation and Entrepreneurship Competition. They participated in the Entrepreneurship Challenge Camp organized by "Fosun Protechting" in Lisbon during 18 June to 22 June. CHUI Sai Peng, the CEO of Paraufuturo De Macao Investment and Development Limited, presented at the "Forum for Economic and Trade Co-operation between China and Portuguese-speaking Countries" and paid a special visit to our teams. CHUI encouraged them to seize the opportunity to create more success. During the talks, CHUI also said that they will strive to establish more supporting facilities in the incubation center for the life sciences R&D and transformation of scientific and technological achievements so as to realize the demand for talents to stay in Macao.



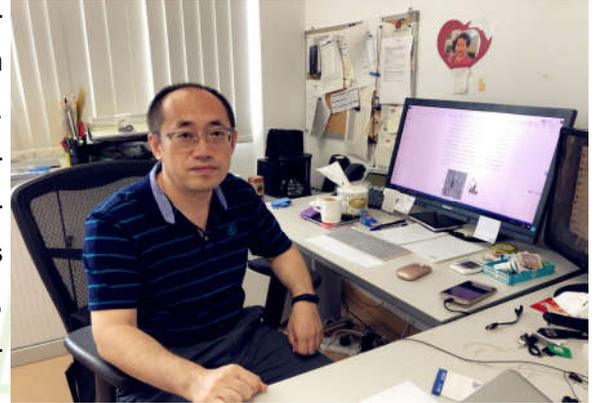
Our undergraduate students will visit China sponsored by the "10,000 Scheme" initiated by the Ministry of Education

A group of 25 FHS students have been selected to join the "Exchange Scheme of Staff and Students among Universities in Mainland, Hong Kong and Macau" (referred to as the "10,000 Scheme") initiated by the Ministry of Education. One group of 15 students led by Profs. Qi ZHAO and Lijun DI will visit Shanghai Jiaotong University and other academic institutes, pharmaceutical manufacturing companies, R&D institutions, and hospitals in Shanghai and the surrounding Yangtze River Delta region; Another group of 10 students led by Profs. Guokai CHEN and Gang LI will go to Huazhong University of Science and Technology in Wuhan to visit the research groups of the School of Pharmacy and take part in the internships and teaching activities. This programme promotes the exchange and collaboration between FHS and universities in China, broaden the horizons of students and enhance their overall competence.

PI INTRODUCTION SERIES

Prof. Lijun DI

Prof. DI received his B.Sc. degree in biology from Inner Mongolia University in 2000 and Master degree in genetics from Chinese Academy of Sciences in 2003. He obtained his Ph.D. degree from Peking Union Medical College in 2006 and started his postdoc training in Health Sciences Center in San Antonio, University of Texas. From 2007 to 2012, he did his postdoc training in National Cancer Institute of USA. In 2013, he joined FHS as an assistant professor. He is the first full-time academic staff of FHS.



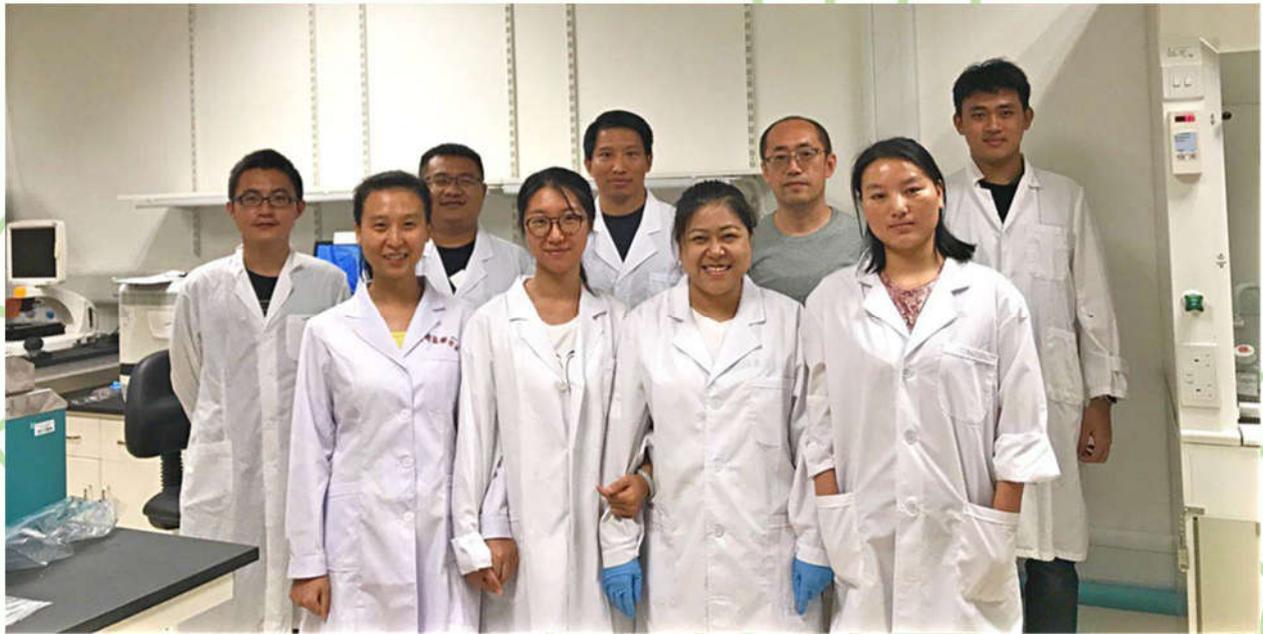
Prof. DI witnessed the entire glorious development of FHS from zero to a full-functional unit. He actively participated in the initial operations of FHS and led the pilot lab for over one year. He enthusiastically devotes himself to several committees at the University level and the Faculty level. He is the leading teacher of the Cancer Biology course and has also been involved in many other teaching activities such as the post-graduate education, the general education courses, residential college activities, etc.

Prof. DI's group has published over 20 research papers and over 30 conference proceedings since his lab was established at UM. Several work have been published in the journals with high reputations in the relevant fields such as *CCR*, *FASEB J*, *JBC*, *CDD*, *IJBCB* and *IJBS*, etc. His publications are cited actively and continuously. He has been invited for oral presentations in several international conferences and received the high appraisal and awards.

Prof. DI has received supports from both internal and external grants. He has finished two FDCT grants in the past few years and received a new one recently. He won a general grant from National Natural Science Fund Committee. Internally, he has finished two MYRG grants and received another one recently.

Prof. DI mainly works on the basic research of cancer. In his postdoc work, he discovered a novel link between the cell metabolism and transcriptional regulation of BRCA1 and the work was published on NSMB and highlighted on several mainstream journals or websites such as *Nature Asia Highlight*, *Oncologia*, *the Economist Journal*, etc. He also systematically studied the transcriptional regulation function of CtBP, an important co-repressor involved in regulation of BRCA1 by sensing the metabolic activity of cells, and the results were published in *Nature Communication*. Since he established his own research team at UM, he has continuously focused on the transcriptional factor CtBP. He intends to solve the long-term puzzle in cancer biology that is how the tumor initiating cells are challenged by the change of micro-environment associated with the dysplasia growth of primary tumor and how the tumor cells response to such changes as an feedback. Some of his on-going projects may help give a glimpse of the initial events associated with neoplastic transformation of epithelial cells and the metastatic migration of cancer cells.

Prof. DI is also interested in the deep analysis of tumor datasets, in particular, the ovarian cancer related datasets and breast cancer related datasets with the purpose of developing reference guideline for tumor therapy. By systematically reanalyzing the gene expression in over 20 tumor datasets, his group developed a score system to evaluate the origin of ovarian cancer either from ovary, which is more aggressive, or from fallopian tube, which is less aggressive. They also developed a score system to evaluate the T cell infiltration in tumors, built the correlation between the effectiveness of chemotherapy and the T cell infiltration score, and provided an important reference for cancer therapy. Their current on-going project is to develop a strategy in predicting the drug combinations in tumor therapy.



SEMINAR #16 and #17

#16 Title: Critical Regulations of Cardiac Niche on Stem Cell Fate

Speaker: Xi-Yong YU

School of Pharmaceutical Sciences, Guangzhou Medical University

Date: 10 July 2018 (Tue)

Time: 3:00 – 4:00pm

Venue: E12 – G004

#17 Title: Generation of pluripotent stem cells using SCNT and IPS cell technologies in African Green Monkeys

Speaker: Young Gie CHUNG

Department of Psychiatry, Yale Medical School

Date: 29 June 2018 (Fri)

Time: 2:30 – 3:30pm

Venue: E12 – G003

ORAL DEFENSE

Wen ZHANG

Date: 2 July 2018 (Mon)

Time: 15:00

Venue: N6-2022

Title: Identification of novel pyruvate dehydrogenase kinase 1 (PDK1) inhibitors for anticancer therapeutics

Fei WANG

Date: 3 July 2018 (Tue)

Time: 15:00

Venue: N6-2022

Title: Comparing the prevalence of elder abuse, depression, insomnia and their associations with demographic and clinical characteristics and quality of life in older adults in nursing homes between Guangzhou and Macao, China

Xiaohong LIN

Date: 6 July 2018 (Fri)

Time: 15:00

Venue: N6-2022

Title: Mapping of Brain Activation and Functional Brain Networks Associated with Cognition by using fNIRS or Concurrent fNIRS-EEG Recordings