

ACADEMIC ACTIVITIES

Publication(s) of the week

1. Wang, J.; Sang, W.; Yang, Z.; Shen, Z.; Wang, Z.; Jacobson, O.; Chen, Y.; Wang, Y.; Shao, M.; Niu, G.; **Dai, Y.**; Chen, X., Polyphenol-based nanoplatform for MRI/PET dual-modality imaging guided effective combination chemotherapy. *J Mater Chem B* 2019 [IF=5.003]
2. He, H.; **Xiang, Y.**; Gao, F.; Bai, L.; Gao, F.; Fan, Y.; Lyu, J.; Ma, X., Comparative efficacy and acceptability of first-line drugs for the acute treatment of generalized anxiety disorder in adults: A network meta-analysis. *J Psychiatr Res* 2019 **118**, 21-30 [IF=4.475]
3. Jiang, R.; Huang, H.; Lian, Z.; Hu, Z.; Lloyd, R. S.; Fang, D.; Li, Y.; Xian, H.; Yuan, J.; Sha, Y.; **Wang, S.**; Hu, D., Exosomal miR-221 derived from hydroquinone-transformed malignant human bronchial epithelial cells is involved in cell viability of recipient cells. *J Appl Toxicol* 2019 [IF=2.975]
4. Dong, M.; Zeng, L. N.; Zhang, Q.; Yang, S. Y.; Chen, L. Y.; Sim, K.; He, Y. L.; Chiu, H. F.; Sartorius, N.; Tan, C. H.; Chong, M. Y.; Shinfuku, N.; Lin, S. K.; Ng, C. H.; Ungvari, G. S.; **Xiang, Y. T.**, Antipsychotic polypharmacy in older adult Asian patients with schizophrenia: Research on Asian psychotropic prescription pattern. *J Geriatr Psychiatry Neurol* 2019 **32**, 304-311 [IF=2.746]
5. Zhang, Q. E.; Ng, C. H.; Ungvari, G. S.; Van, I. K.; Wang, G.; **Xiang, Y. T.**, Mental health-care delivery for older people in China: An update of challenges and recent clinical research. *J Geriatr Psychiatry Neurol* 2019 **32**, 287-290 [IF=2.746]

BCAT Meeting

“Antibody-mediated Immunotherapy for Cancer” – Prof. Qi ZHAO

In the BCAT meeting on 4 September, Prof. Qi ZHAO presented his latest research finding on “Antibody-mediated Immunotherapy for Cancer”.

Prof. ZHAO's research focuses on engineering of bispecific antibodies, and chimeric antigen receptors (CARs) to treat tumors. Novel human monoclonal antibodies targeting immune checkpoint B7-H3 and MHC-I/WT1 from antibody phage libraries were identified. These antibodies can destroy multiple tumor cells by utilizing mechanisms of antibody-dependent cellular cytotoxicity (ADCC) or antibody-drug conjugation (ADC). By using these antibodies as vehicles, bispecific antibodies directed at immune checkpoint B7-H3 and CD16 of NK cells can engage NK cells to induce apoptosis of tumor cells. Additionally, all of these antibodies can be reshaped to build CAR to redirect T cells against leukemias and solid tumors. Meanwhile, with the approaches of synthetic biology, tumor-targetable NK or T cells were synthesized to trigger controllable therapeutic response programs to sense and treat cancer diseases.

Seminar Series

The Therapeutic Window of Stroke Treatment – Prof. John H. ZHANG

Prof. John H. ZHANG, Professor of Departments of Anesthesiology, Physiology, Neurosurgery and Neurology, Loma Linda University School of Medicine, presented “The Therapeutic Window of Stroke Treatment” on 4 September.

Prof. ZHANG introduced that stroke is a leading cause of death and disability especially for Chinese population. The current treatment strategy is to recanalize or to re-open the clotted blood vessels within a few hours named therapeutic window, which is normally called “time is brain”. However, most researchers believe that patients with stroke penumbra can only survive for a few hours, and thus they consider the stroke patients are not in the right therapeutic window. This results that most of the stroke patients are not treated by the recanalization strategy.

Prof. ZHANG shared his analysis of the pathophysiology, origination, definition and progression of stroke penumbra. He then proposed a new strategy called delayed recanalization, which could be days, weeks or months after a stroke event. Prof. ZHANG’s experimental data and some clinical case studies demonstrated that delayed recanalization improved neurological function by rescuing penumbra tissues and especially by correction of hypoperfusion status of the hemisphere.

Finally, Prof. ZHANG concluded that the delayed recanalization has potentials to improve neurological function for the majority of stroke patients.



Seminar Series

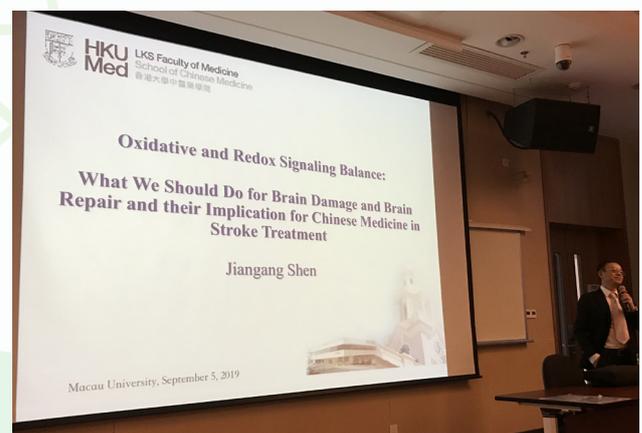
Oxidative Stress and Antioxidant: What Should We Do for Preventing Brain Damage and Improving Brain Repair in Stroke Treatment – Prof. Jiangang SHEN

Prof. Jiangang SHEN, Professor and Associate Director (Research) of School of Chinese Medicine, The University of Hong Kong, presented “Oxidative Stress and Antioxidant: What Should We Do for Preventing Brain Damage and Improving Brain Repair in Stroke Treatment” on 5 September.

Prof. SHEN introduced that free radicals, including reactive oxygen species (ROS) and reactive nitrogen species (RNS), play important roles in ischemic brain injury. However, both ROS and RNS at low concentration could be redox signaling to maintain biological functions. Although antioxidant therapy revealed neuroprotective effects in stroke animal models, no promising neuroprotective effect has been reported in clinical trials on stroke patients. Thus, the efficacy of antioxidant therapy for stroke treatment is still a puzzle. Therefore, Prof. SHEN studied peroxynitrite, which is a representative RNS, produced from the rapid reaction of NO and O₂⁻ and found that it has higher cytotoxic effects than its parent free radicals. He also found that it could increase blood brain barrier (BBB) disruption and aggravate ischemic brain damage.

In this seminar, Prof. SHEN reported that his team has explored the molecular targets of RNS in mediating the BBB disruption and brain damage in experimental rat models of cerebral ischemia-reperfusion injury, and they found that RNS down-regulated caveolin-1 (Cav-1) in the ischemic brains. The loss of Cav-1 activated nitric oxide synthase (NOS), amplified RNS production and activated matrix metalloproteinases (MMP), subsequently inducing the BBB disruption and aggravating cerebral ischemia-reperfusion injury. The feedback interaction of RNS/Cav-1/MMPs provides an amplifying mechanism for aggravating ischemic brain damage. Moreover, they tested the potentials of targeting the RNS/Cav-1/MMP pathway for drug discovery, and found some medicinal plant compounds, such as glycyrrhizin and baicalin. They could regulate the RNS/Cav-1/MMP signaling cascades and attenuate cerebral ischemia-reperfusion injury.

At the end, Prof. SHEN concluded his research that targeting the RNS/Cav-1/MMP pathway could be a promising therapeutic strategy for protecting against cerebral ischemia-reperfusion injury. Besides, peroxynitrite at low concentration could be a cellular redox signaling for promoting neural stem cell (NSCs) proliferation, self-renewal and neuronal differentiation in ischemic/hypoxic NSCs. Furthermore, antioxidant therapy at early phase of ischemic brain injury might be benefit for reducing RNS-mediated brain damage.



PhD ORAL DEFENCE

PhD Oral Defense by Rui WEI of Prof. Terence POON's group

Mr. Rui WEI supervised by Prof. Terence POON completed his PhD oral defence on 4 September with thesis titles of "Development of Label-free Methods for Quantification of Human Transferrin and its Glycosylation Variants using Mass Spectrometry".

Firstly, Mr. WEI reported his newly developed novel strategies, "Mass Component Rearrangement" (MCR) for production of internal standard peptides/proteins for mass spectrometry (MS)-based absolute protein quantification, and "Concurrent Reaction Monitoring" (CRM) assays for measuring human transferrin in serum and plasma with high accuracy and precision.

After that, Mr. WEI presented that he has revealed the presence of bias in typical sample processing methods when analyzing site-specific glycopeptides of transferrin by undertaking the bottom-up proteomic approach. Such bias was alleviated after optimizing the sample processing steps. Then he has developed a novel MS-based site-specific glycosylation profiling assay for quantifying transferrin glycoforms in human serum and plasma. The assay identifies disease-associated transferrin glycoforms correctly.



STUDENT ACTIVITIES

FHS Postdoc Student Seminar - Presented by Prof. Wei GE's group and Prof. William CHAO's group

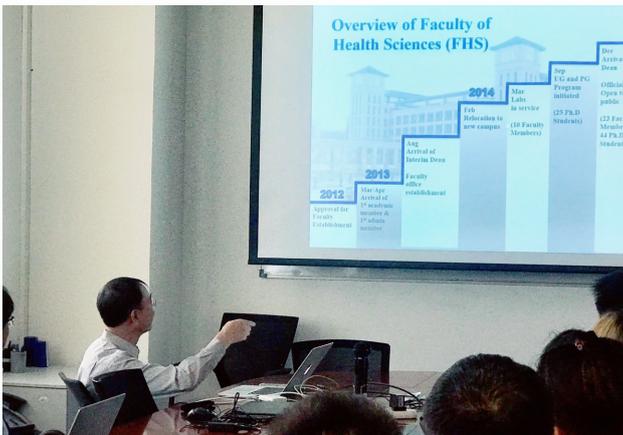
On 5 September, Mr. Zhe HU of Prof. Wei GE's group presented "Impacts of Somatic Growth on Reproduction in Zebrafish: A Genetic Approach" and Ms. Haoweng WU of Prof. William CHAO's group presented "The Structure of RhsP".

The next seminar will be held on 19 September and presented by the group members of Prof. Garry WONG and Prof. Yutao XIANG.



VISIT

On 31 August morning, the newly admitted master students for the programme of Master in Data Science – Precision Medicine visited FHS. Prof. Chuxia DENG warmly received them and gave a welcome speech to the students. Prof. DENG also introduced the overview, academic programmes and the research directions of FHS to the students. After Prof. DENG's presentation, the students had a group sharing with the FHS academic, Prof. Guokai CHEN, Prof. Edwin CHEONG, Prof. Tzu-Ming LIU, Prof. Gang LI and Prof. Ningyi SHAO for the programme details. Besides, Prof. Terence POON guided them a lab tour to the core facilities after the group sharing.



| September | | | | |
|---|---|--|---|--|
| Mon | Tues | Wed | Thurs | Fri |
| 9 | 10 | 11 | 12 | 13 |
| <p>Seminar Series Dissecting Chromatin Structure Using Super Resolution Microscopy Speaker: Prof. Maria Pia COSMA Host: Prof. Edwin CHEUNG Time: 15:00 - 16:00 Venue: E12-G004</p> | | | <p>Mid-Autumn Festival Gathering Time: 17:00 - 18:30 Venue: E12 Common Area</p>  | |
| 16 | 17 | 18 | 19 | 20 |
| <p>The first working day after the Day following the Mid-Autum Festival</p> | | <p>Seminar Series Towards Decoding and Restoration of Visual and Motor Functions Speaker: Prof. Jiayi ZHANG Host: Prof. Zhen YUAN Time: 09:30 - 10:30 Venue: E12-G004</p> <p>Seminar Series (Pro-)fluorescent substrates for oxidizing and conjugating enzymes of drug metabolism Speaker: Prof. Risto Olavi JUVONEN Host: Prof. Garry WONG Time: 15:00 - 16:00 Venue: E12-G004</p> <p>B-CAT Meeting #17 Speaker: Prof. Terrence POON Time: 17:00 Venue: E12-G004</p> | <p>FHS Postdoc/ Student Seminar Host: Prof. Garry Wong and Prof. Yutao XIANG Time: 17:00-18:00 Venue: N22-G002</p> | |
| 23 | 24 | 25 | 26 | 27 |
| | <p>Bio-Rad Protein Day</p> <p>Technical Seminar Achieve Publication Quality Western Blot Data Host: Bio-Rad Time: 12:30 - 14:00 Venue: N22-4028 *Lunch provided</p> <p>Workshop and Instrument Demonstration Session 1: 11.00 – 12.00* Venue: N22-4028 Session 2: 14.30 – 15.30 Session 3: 16.00 – 17:00 Venue: N22-G002 * For Current users</p> | | <p>Technical Seminar 3-D Cultures / Organoids and its Applications Speaker: Dr. Ching-Huan CHEN Host: Gene Company Time: 14:30 - 16:30 Venue: N22-4028</p> | <p>2nd Macau Stem Cell Symposium Time: 09:00 Venue: N22-G002</p> |