

ACADEMIC ACTIVITIES

TV Interview - Prof. Renhe XU

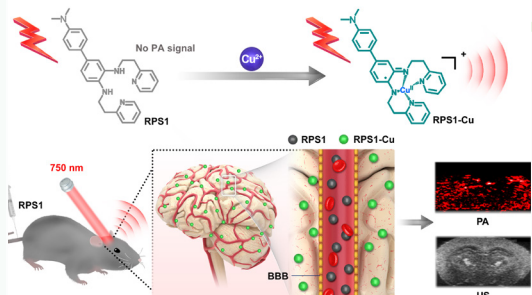
On 12 Aug, Prof. Renhe XU introduced his research project “Transporting stem cell in ambient temperature” on a TVB show, “Scoop東張西望”, in the episode of “UM development – fostering technology and business starters”.

Prof. XU presented the development of a novel method for stem cell transportation under ambient conditions. This new method does not need the inconvenient cryopreservation methods that significantly lowers the entire transportation cost.



Article Sharing

Activatable Small-Molecule Photoacoustic Probes that Cross the Blood-Brain Barrier for Visualization of Copper (II) in Mice Brain with Alzheimer's Disease - Prof. Xuanjun ZHANG



Copper (II) enrichment in the brain is highly related to Alzheimer's disease (AD) pathogenesis. Highly sensitive imaging/detection of Copper (II) in brain of patients suffering from AD is essential to comprehensively understand its pathological events in the brain. However, *in vivo* fluorescence imaging of Copper (II) in the brain is still a great challenge due to the limited penetration depth, the obstacle for probes to cross the blood-brain barrier (BBB) and the fluorescence quenching resulting from the paramagnetic effect of Copper (II).

PhD student Shichao WANG (graduated in 2019) from Prof. Xuanjun ZHANG's group has developed a series of activatable photoacoustic (PA) probes with low molecular weights (<440 Da), which could specifically chelate with Copper (II) to form radicals with turn-on PA signals in the near-infrared (NIR) region. Owing to the low molecular weights and amphiphilic structure, the probes could effectively cross BBB and thus allowed them, for the first time, to visualize Copper (II) in the brain of AD mice via PA technique. This study also verified the much higher level of Copper (II) in AD mice brain than normal mice. This type of small-molecule probes is anticipated to find applications in the AD diagnosis, drug screening and treatment evaluation.



This work was supported by FDCT-MOST joint grant (019/2017/AMJ) with a close collaboration with Prof. Zonghai SHENG at Shenzhen Institute of Advanced Technology (CAS), Prof. Jingjing ZHANG at Affiliated Hospital of Guangdong Medical University and Prof. Zhen YUAN's group at FHS, UM. This work was recently published as Hot Paper in *Angew. Chem. Int. Ed.* <https://onlinelibrary.wiley.com/doi/10.1002/anie.201904047>; and highlighted by *ChemistryViews*: https://www.chemistryviews.org/details/ezone/11175574/Sounding_Out_Alzheimers_Disease.html

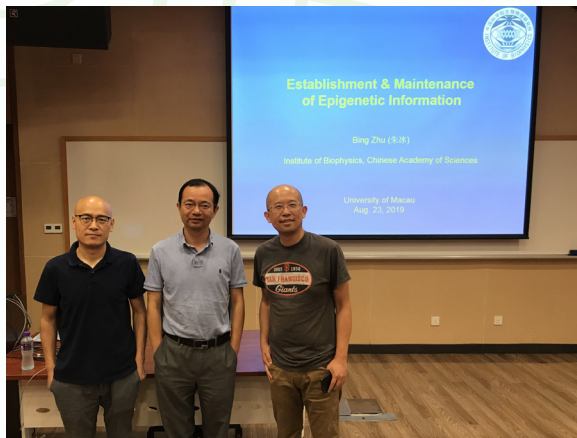


Seminar Series

Establishment and Maintenance of Epigenetic Information - Prof. Bing ZHU

Prof. Bing ZHU, Principal Investigator and Vice Director of Institute of Biophysics, Chinese Academy of Sciences, presented “Establishment and Maintenance of Epigenetic Information” on 23 August.

Prof. ZHU introduced that DNA methylation-mediated silencing and the establishment of DNA methylation are classic epigenetic events. Despite of a large body of studies in these directions, many unknown regulations exist. Therefore, Prof. ZHU’s team performed a number of cell-based large-scale screenings to identify novel regulators involved in DNA methylation-mediated silencing and the establishment of DNA methylation. He reported that their findings highlighted the mechanisms controlling the establishment of DNA methylation during oocyte maturation. He also shared an unpublished story regarding the kinetics, fidelity control mechanisms, and functional implications of maintenance DNA methylation.



AUGUST/SEPTEMBER				
Mon	Tues	Wed	Thurs	Fri
26	27	28	29	30
		B-CAT Meeting #15 Speaker: Dr. Qiang CHEN Time: 17:00 Venue: E12-G004	Seminar Series New Dimension Breakthrough in Confocal Microscopy for Life Science Research Speaker: Mr. Bob TANG Host: Professional Health Trading Company Ltd. Time: 14:30 - 15:30 Venue: N22-4028	
September 2	3	4	5	6
		B-CAT Meeting #16 Speaker: Prof. Qi ZHAO Time: 17:00 Venue: E12-G004	FHS Postdoc/ Student Seminar Host: Prof. Wei GE and Prof. William CHAO Time: 17:00-18:00 Venue: N22-G002	
9	10	11	12	13