# ACADEMIC ACTIVITIES

## Publication(s) of the week

1. Gao, D. Y., Zhang, B. Y., Liu, Y. B., Hu, D. H., Sheng, Z. H., **Zhang, X. J.**, and **Yuan, Z.** (2019) Molecular Engineering of near-Infrared Light-Responsive Bodipy-Based Nanoparticles with Enhanced Photothermal and Photoacoustic Efficiencies for Cancer Theranostics. *Theranostics* **9**, 5315-5331 **[IF=8.651]**

2. Li, X. J., **Zhang, X. J.**, Li, H. F., Liu, T. H., Zhao, D. D., Liang, C., Xing, G. C., and Tang, Z. K. (2019) Solution-Processed Perovskite Microdisk for Coherent Light Emission. *Adv Opt Mater* **[IF=7.373]**

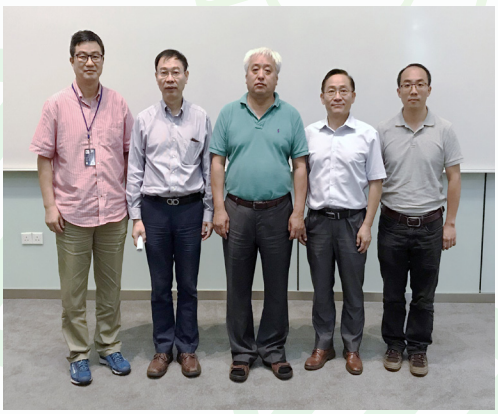
3. Song, C. C., Xu, F. X., Ren, Z. L., Zhang, Y. M., Meng, Y., Yang, Y. Q., Lingadahalli, S., **Cheung, E.**, **Li, G.**, **Liu, W. W.**, Wan, J. B., Zhao, Y., and **Chen, G. K.** (2019) Elevated Exogenous Pyruvate Potentiates Mesodermal Differentiation through Metabolic Modulation and Ampk/Mtor Pathway in Human Embryonic Stem Cells. *Stem Cell Rep* **[IF=6.584]**

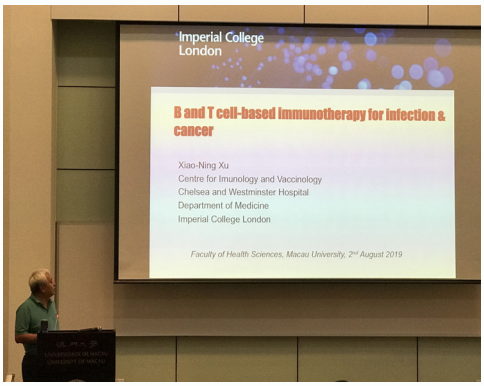
## Seminar Series

### T-cell Based Immunotherapy for Virus Infections and Cancers – Prof. Xiao-Ning XU

Prof. Xiao-Ning XU, Chair Professor of Human Immunology and the Head of Centre for Immunology and Vaccinology, Department of Medicine, Faculty of Medicine, Imperial College London, presented "T-cell Based Immunotherapy for Virus Infections and Cancers" on 2 August.

Prof. XU reported that WHO has high priority listed out the development of an effective treatment and vaccine against highly pathogenic emerging viruses such as SARS/MERS coronaviruses or Ebola virus. Therefore, Prof. XU started his research on potential correlates of protection against these viruses in humans. Prof. XU and his team have elucidated the human B cell repertoire against natural virus infections using yeast surface display antigen libraries expressing both linear and conformational epitopes of SARS/EMER-CoV spike proteins or Ebola glycoprotein (GP). The preliminary data indicated a high degree of diversity of B cell epitopes from subjects after the virus infections, and some of these antibody epitopes are likely to be involved in protection as well as better clinical outcomes. Prof. XU believes that their findings may provide new insights into the rational design of an effective vaccines as well as immunotherapy for the prevention of emerging new virus infections in the future.





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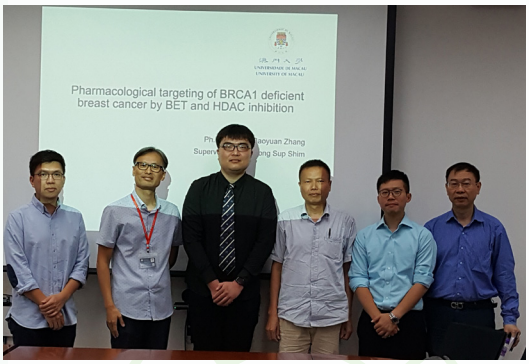
# PhD ORAL DEFENCE

## PhD Oral Defences by Baoyuan ZHANG and Yifan LIU of Prof. Joong Sup SHIM's group

Mr. Baoyuan ZHANG and Ms. Yifan LIU supervised by Prof. Joong Sup SHIM completed their PhD Oral Defense on 31 July with thesis titles of "Pharmacological Targeting of BRCA1 Deficient Breast Cancer by BET and HDAC Inhibition" and "Targeting PTEN Deficiency for Cancer Therapy in Colorectal Cancers with Synthetic Lethality", respectively.




Mr. ZHANG reported that tumor suppressor gene-breast cancer type 1 susceptibility protein (BRCA1) has been exploited as a drug target for the treatment of refractory breast cancer. He has screened a human epigenetics compound library with BRCA1 isogenic breast cancer cell lines, then has discovered and validated that BET and HDAC were two new targets that were synthetic lethal with BRCA1-deficiency in breast cancer. Both the targets' inhibition could produce oxidative stress-induced DNA damage through TXNIP induction in cancer cells regardless of the BRCA1 status, while BRCA1-deficiency cells showed significantly elimination due to a loss of the functional DNA repairing system. He has also performed research on the animal models and has analyzed the clinical data, and the result confirmed his hypotheses. He concluded that his finding provides new possible treatment strategies for patients with BRCA1-dificient breast cancer.

On the other hands, Ms. LIU presented her research on performing synthetic lethality drug screening with PTENisogenic CRC to identify the synthetic lethal compounds working with PTEN disfunction due to the fact that PTEN, a tumor suppressor, is found loss of function in many cancers, including colorectal cancers (CRC). She has found that mutant-PTEN cells were resistant to dual inhibitors of FLT3 and aurora kinase-A. The dual inhibitors caused reactivation of AKT phosphorylation at Ser473 in mutant-PTEN cells. Co-treatment with the inhibitors abolished the reactivation of AKT phosphorylation reversed the drug resistance. She has also found that mutant-PTEN CRC were sensitive to P300/CBP HAT inhibitors. HAT inhibitors induced synthetic lethality by destabilizing AKT downstream. She finally concluded that the reactivation of AKT was a key factor to confer drug resistance on and induce synthetic lethality in mutant-PTEN cancers.

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# UPCOMING

## AUGUST

| Mon | Tues | Wed | Thurs | Fri |
|---|---|---|---|---|
| **5** | **6** | **7** | **8**<br>**FHS Postdoc/ Student Seminar**<br>Host:<br>Prof. Sanming WANG and<br>Prof. Lijun DI<br>Time: 17:00-18:00<br>Venue: N22-G002 | **9** |
| **12**<br>**Seminar Series**<br>RNAs on Fire<br>Speaker:<br>Prof. Vinay TERGAONKAR<br>Host: Prof. Chuxia DENG<br>Time: 10:30 - 11:30<br>Venue: E12-G004 | **13** | **14** | **15** | **16** |
| **19** | **20** | **21**<br>**B-CAT Meeting #14**<br>Speaker:<br>Dr. Qiang CHEN<br>Time: 17:00<br>Venue: E12-G004 | **22**<br>**FHS Postdoc/ Student Seminar**<br>Host:<br>Prof. Wei GE and<br>Prof. William CHAO<br>Time: 17:00-18:00<br>Venue: N22-G002 | **23** |

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