

Publication

1. Li, J., Xie, L., Li, B., Yin, C., Wang, G., Sang, W., Li, W., Tian, H., Zhang, Z., **Zhang, X.**, Fan, Q., and **Dai, Y.** (2021) Engineering a Hydrogen-Sulfide-Based Nanomodulator to Normalize Hyperactive Photothermal Immunogenicity for Combination Cancer Therapy. *Adv Mater*, e2008481 [2019 IF = 27.398]
2. **Deng, C. X.** (2021) The Continued Global Battle against SARS-CoV-2 and COVID-19. *Int J Biol Sci* **17** (6), 1440-1442 [5yr IF = 4.915]
3. Chen, Y., Li, M. X., Lu, G. D., **Shen, H. M.**, and Zhou, J. (2021) Hydroxychloroquine/Chloroquine as Therapeutics for COVID-19: Truth under the Mystery. *Int J Biol Sci* **17** (6), 1538-1546 [5yr IF = 4.915]
4. Huang, S., Yang, J., Fong, S., and **Zhao, Q.** (2021) Artificial Intelligence in the Diagnosis of COVID-19: Challenges and Perspectives. *Int J Biol Sci* **17** (6), 1581-1587 [5yr IF = 4.915]
5. Tai, L., Wong, K., Wang, L., and **Di, L.** (2021) From Impossible to Possible: The Lessons from the Control of Recent COVID-19 Outbreaks in China. *Int J Biol Sci* **17** (6), 1600-1612 [5yr IF = 4.915]
6. Wu, R., and **Luo, K. Q.** (2021) Developing Effective Sirnas to Reduce the Expression of Key Viral Genes of COVID-19. *Int J Biol Sci* **17** (6), 1521-1529 [5yr IF = 4.915]
7. Xue, M., Zhang, T., Chen, H., Zeng, Y., Lin, R., Zhen, Y., Li, N., Huang, Z., Hu, H., Zhou, L., Wang, H., **Zhang, X. D.**, and Sun, B. (2021) Krebs Von Den Lungen-6 as a Predictive Indicator for the Risk of Secondary Pulmonary Fibrosis and Its Reversibility in COVID-19 Patients. *Int J Biol Sci* **17** (6), 1565-1573 [5yr IF = 4.915]
8. Bai, W., Cai, H., Liu, S., Liu, H., Qi, H., Chen, X., Liu, R., Cheung, T., Su, Z., Ng, C. H., and **Xiang, Y. T.** (2021) Attitudes toward COVID-19 Vaccines in Chinese College Students. *Int J Biol Sci* **17** (6), 1469-1475 [5yr IF = 4.915]
9. Guo, S., Liu, K., and **Zheng, J.** (2021) The Genetic Variant of SARS-CoV-2: Would It Matter for Controlling the Devastating Pandemic? *Int J Biol Sci* **17** (6), 1476-1485 [5yr IF = 4.915]
10. **Kwok, H. F.** (2021) Review of Covid-19 Vaccine Clinical Trials - A Puzzle with Missing Pieces. *Int J Biol Sci* **17** (6), 1461-1468 [5yr IF = 4.915]
11. Park, J. W., Lagniton, P. N. P., Liu, Y., and **Xu, R. H.** (2021) Mrna Vaccines for COVID-19: What, Why and How. *Int J Biol Sci* **17** (6), 1446-1460 [5yr IF = 4.915]
12. Yang, Y., Li, W., Zhang, Q., Zhang, L., Cheung, T., Ng, C. H., and **Xiang, Y. T.** (2021) Should People with Severe Mental Illness Be Prioritized for the COVID-19 Vaccination? *Int J Biol Sci* **17** (6), 1443-1445 [5yr IF = 4.915]

13. Chen, C. Y., Li, Y., Zeng, N., He, L., Zhang, X., Tu, T., Tang, Q., Alba, M., Mir, S., Stiles, E. X., Hong, H., Cadenas, E., Stolz, A. A., **Li, G.**, and Stiles, B. L. (2021) Inhibition of Estrogen Related Receptor Alpha Blocks Liver Steatosis and Steatohepatitis and Attenuates Triglyceride Biosynthesis. *Am J Pathol* [5yr IF = 4.227]
14. Li, P., Wang, L., Yang, J., **Di, L.**, and Li, J. (2021) Applications of the CRISPR-Cas System for Infectious Disease Diagnostics. *Expert Rev Mol Diagn* [2019 IF=4.096]

1 BCAT Meeting

In the B-CAT meeting on 28 April, Dr. Qiang CHEN introduced his ongoing research on the role of SIRT6 in the metabolic homeostasis and tumorigenesis. He introduced that SIRT6 is NAD-dependent deacetylase which belongs to Sirtuin family and plays vital roles in DNA repair, telomere maintenance, glycolysis, lipid metabolism, inflammation and cancer. In his study, Sirt6 null mice displayed leanness and hypoglycemia, but Sirt6 liver specific knockout mice developed fatty liver. Dr. Chen claimed that according to the SIRT6 mutant mice models, SIRT6 could have a dual function in

metabolism. He demonstrated that a novel SIRT6 target was identified by RNA-Seq and ChIP-Seq, while the target could promote insulin signaling. It is important for the maintenance of the blood glucose level and lipid metabolism. He said that these data suggested that the target might be a linker between hypoglycemia and fatty liver. In addition, he proposed that SIRT6 was also involved in the drug metabolism and the development of hepatocellular carcinoma.

2 Article Sharing

FHS' Breakthrough in Nanotechnology Optimises Cancer Photothermal Therapy

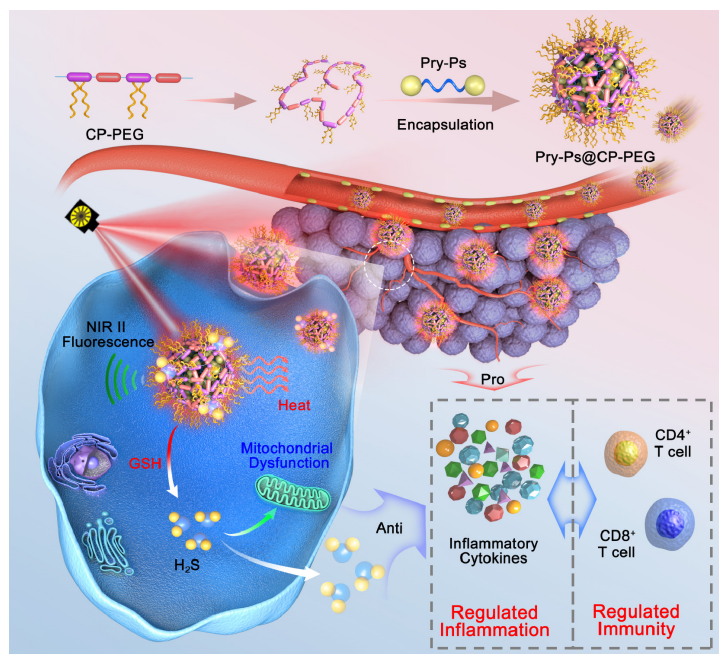
Prof. Yunlu DAI and his research team have designed and synthesised a versatile H₂S nanomodulator, which can downregulate the hyperactive photothermal immunity for combination cancer therapy. The study has been published in *Advanced Materials*, a

leading academic journal in the field.

Photothermal therapy, or PTT in short, is a highly effective cancer treatment strategy, but the high temperatures often lead to an excessive inflammatory response, ablating the tumour and causing immunogenic death at the same time. The nanomodulators synthesised by Prof. Dai's team can precisely target tumour areas for precise photothermal treatment and rapidly release hydrogen sulphide to alleviate inflammation. This functional nanomodulator has great potential to modulate inflammation

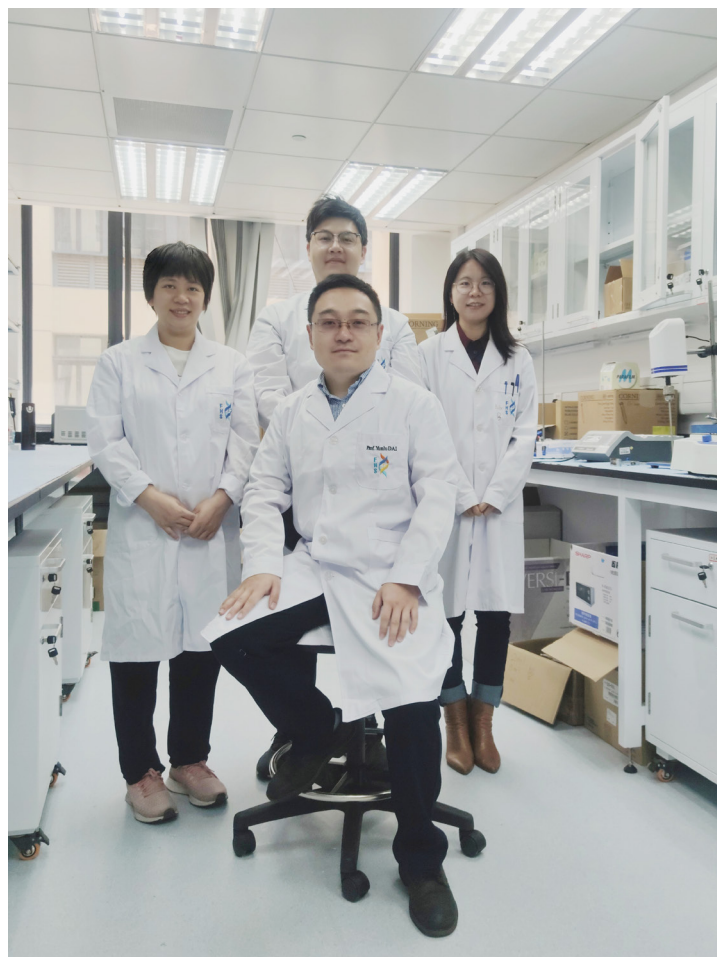
and adaptive immune responses, thereby optimising photothermal therapy, with broad clinical applications.

This nanomodulator (Pry-Ps@CP-PEG) was engineered by integrating the amphiphilic conjugated polymer (CP-PEG) and the polysulfide-based H_2S donor (Pry-Ps). *In vivo* evaluation has demonstrated that H_2S -modulated PTT not only can inhibit tumour growth significantly and concurrently, it can also accelerate granulation tissue formation, wound re-epithelialisation, and collagen deposition on damaged tissue. Decreased percentage of inflammatory associated $CD4^+$ T cells and high levels of $CD8^+$ T cells may well explain this therapeutic regulation.



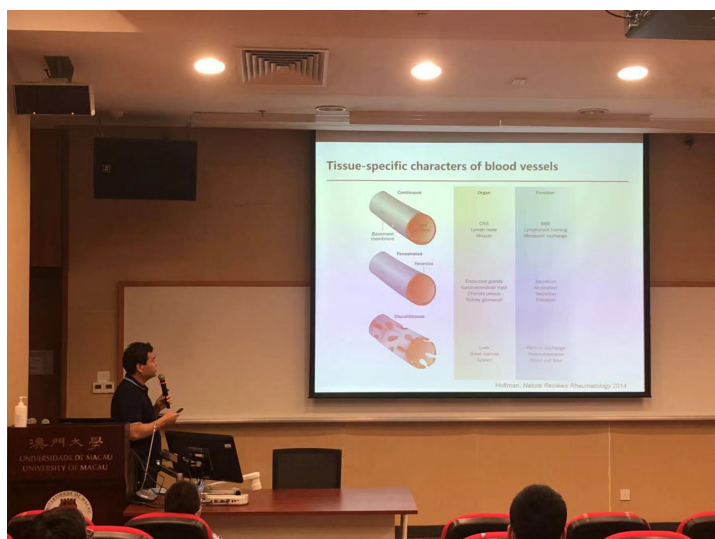
A versatile H_2S nanomodulator, which can downregulate the hyperactive photothermal immunity for combination cancer therapy.

Prof. Dai and Prof. Quli FAN at Nanjing University of Posts and Telecommunications are the corresponding authors of the study. UM's postdoctoral fellows Jie LI, Lisi XIE, and Bei LI are the co-first authors. This study was funded by the Science and Technology Development Fund, Macao SAR (file number: 0109/2018/A3 and 0011/2019/AKP) and UM (file number: SRG2018-00130-FHS). The full version of the related paper can be viewed at: <https://onlinelibrary.wiley.com/doi/10.1002/adma.202008481>.



3 Seminar Series

Blood-Brain Barrier: Molecular Characterization and Therapeutic Modification – Prof. Junlei CHANG



Prof. Junlei CHANG, Shenzhen Institute of Advanced Technology, Chinese Academy of Sciences, presented “Blood-Brain Barrier: Molecular Characterization and Therapeutic Modification” on 26 April.

Prof. Chang introduced that the blood vessels in the central nervous system (CNS) are highly specialized with unique anatomic and functional features and they

are collectively called blood-brain barrier (BBB). He said that BBB protects sensitive neurons from neurotoxic plasma components, blood immune cells and xenobiotics. He also claimed that BBB dysfunction has been implicated in various neurological disorders, including stroke, brain tumors, multiple sclerosis, epilepsy, Alzheimer’s disease, etc. Moreover, the functional BBB impedes the efficient CNS penetration of drugs for the treatment of the neurological conditions.

Afterward, Prof. Chang introduced the structural and functional characteristics of BBB and the major molecular determinants of BBB which were discovered by the integrative omics approaches. He then presented the essential role of the endothelial Wnt/ β -catenin signaling pathway in regulating the integrity of BBB during development, health and diseases (ischemic stroke and glioblastoma). He further shared how his group developed the novel therapeutics for CNS diseases by targeting BBB dysfunction, with a special focus on drugs that can modulate the endothelial Wnt/ β -catenin signaling pathway.

4 Visit

Delegation from Nanjing Medical University visits FHS



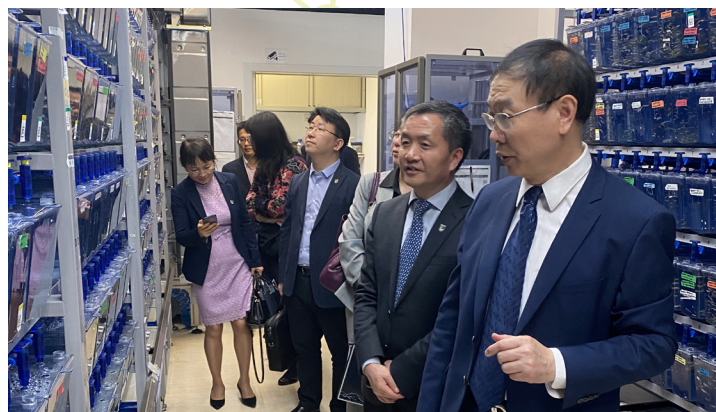
A delegation led by the President of Nanjing Medical University (NMU), Academician Hongbing SHEN, visited the FHS on 29 April. They were warmly received by Prof. Chuxia DENG.

Prof. Deng oriented the guests the latest developments, academic programmes, research achievements, the cultivation of high-calibre students and the internationalization of FHS. Then he guided the guests to the aquatic room and the Animal Research Core and also Proteomics, Metabolomics and Drug Development Core.



After the lab tour, Prof. Deng conducted a presentation for the guests about the progress and the accomplishments of the research of FHS. President Shen also shared NMU's latest developments, campus facilities and academic achievements. Both parties had an in-depth discussion and expressed their intension to develop close friendship and collaboration. They looked forward to work out the official cooperation in the near future, especially on the feasibility of establishing joint study programmes, student exchange programmes and cooperative research projects.

Other academic attending the meeting included Prof. Ren-He XU, Prof. Guokai CHEN, A Prof. Xuanjun ZHANG, Prof. Yutao XIANG and Prof. Ningyi SHAO. Dr. Li WANG and Mr. Zheyu CAI also accompanied the delegation during the lab tour.

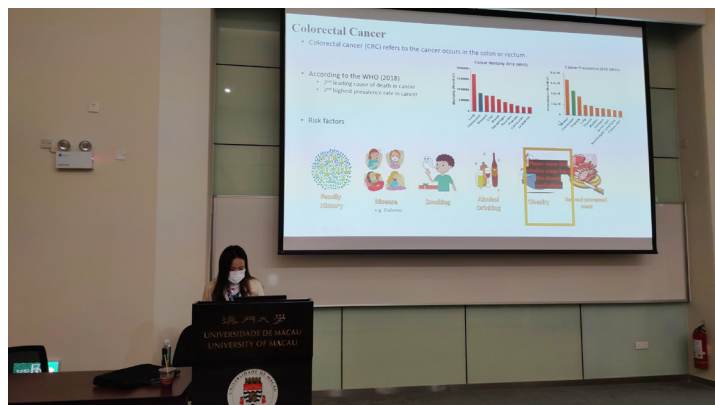


5 FHS Postdoc Student Seminar

**Presented by
Prof. Joong Sup SHIM's Group
and Prof. Leo LEE's Group**

On 29 April, Ms. Pui Kei MOU of Prof. Joong Sup SHIM's group and Ms. Chi Teng LEI of Prof. Leo LEE's group presented "Precision Anti-Colorectal Cancer Therapy Targeting ARID1A Deficiency" and "New Therapeutic Perspective of GPCR: Is β -arrestin Biased Ligand and GRK2 as the Potential Pathway in Suppressing Ovarian Cancer" respectively.

The next seminar will be held on 13 May, and presented by the group members of Prof. Wei GE and Prof. William CHAO.



6 Community Story

**UM Table Tennis Group
Placed Fifth in the "2021
Macau Teachers Table Tennis
Team Competition"**

Prof. Yutao XIANG, one of the team members of the UM Staff Sports Club – Table Tennis Group, won the fifth place from the 22 teams of Macao teachers during the "2021 Macau Teachers Table Tennis Team Competition" on 14-15 April.

Congratulations!



UPCOMING EVENTS

| May | |
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| Mon May 3 Holiday Compensatory rest day of Labour Day | 10 <u>Qualifying Examination</u> Speaker: Tianjiao ZHANG Supervisor: Prof. Garry WONG Time: 10:00 Venue: E12-3036 |
| Tue 4 <u>Qualifying Examination</u> Speaker: Xin ZHANG Supervisor: Prof. Xiaoling XU Time: 9:00 Venue: TBC <u>Qualifying Examination</u> Speaker: Jie LI Supervisor: Prof. Chuxia DENG Time: 15:00 Venue: N22-2030 | 11 <u>Qualifying Examination</u> Speaker: Yuqing WANG Supervisor: Prof. Xiaoling XU Time: 15:00 Venue: E12-4044 |
| Wed 5 <u>Qualifying Examination</u> Speaker: Dandan WANG Supervisor: Prof. Douglas ZHANG Time: 9:30 Venue: E12-4044 <u>Oral Defence</u> Xia ZHAO Supervisor: Prof. Wenhua ZHENG Time: 16:00 Venue: E12-G021 | 12 <u>Qualifying Examination</u> Speaker: Jia Sheng CHIAN Supervisor: Prof. San Ming WANG Time: 10:00 Venue: E12-4004 <u>BCAT Meeting</u> Speaker: Prof. Qi ZHAO Time: 17:00-18:00 Venue: E12-G004 |
| Thu 6 | 13 <u>Qualifying Examination</u> Speaker: Tianhong LI Supervisor: Prof. Kathy LUO Time: 10:00~12:00 Venue: N22-4028 <u>FHS Postdoc/ Student Seminar</u> Session: Reproduction, Development and Aging & Structural Biology Host: Prof. Wei GE and Prof. William CHAO Time: 17:00-18:00 Venue: N22-G002 and Zoom |
| Fri 7 | 14 |