

ACADEMIC ACTIVITIES

Publication(s) of the week

1. Choi, G. C. G., Zhou, P., Yuen, C. T. L., Chan, B. K. C., Xu, F., Bao, S., Chu, H. Y., Thean, D., **Tan, K., Wong, K. H.**, Zheng, Z., and Wong, A. S. L. (2019) Combinatorial Mutagenesis En Masse Optimizes the Genome Editing Activities of Spcas9. *Nat Methods* [IF=34.975]
2. Zhang, X., Wang, S., Sheng, Z., Yang, Z., Hu, D., Long, X., Feng, G., Liu, Y., **Yuan, Z., Zhang, J.**, and Zheng, H. (2019) Activatable Small-Molecule Photoacoustic Probes That Cross the Blood-Brain Barrier for Visualization of Copper(II) in Mice with Alzheimer's Disease. *Angew Chem Int Ed Engl* [IF=12.359]
3. Zhou, X., Wang, A., Wang, L., Yin, J., **Wang, L., Di, L.**, Hoi, M. P., Shan, L., Wu, X., and Wang, Y. (2019) A Danshensu-Tetramethylpyrazine Conjugate Dt-010 Overcomes Multidrug Resistance in Human Breast Cancer. *Front Pharmacol* 10, 722 [IF=4.469]
4. Zheng, W., Zhu, X. M., Zhang, Q. E., Cheng, G., Cai, D. B., He, J., Ng, C. H., Ungvari, G. S., Peng, X. J., Ning, Y. P., and **Xiang, Y. T.** (2019) Adjunctive Minocycline for Major Mental Disorders: A Systematic Review. *J Psychopharmacol* [IF=4.434]
5. Zhao, D. Q., Wang, Z. W., Cheng, Y., **Yuan, Z.**, Rene, F., Liu, H., Pliss, A., and Luan, P. (2019) A Dti Study of Leukoaraiosis and the Differential Diagnosis between Leukoaraiosis and Acute Lacunar Infarction. *Cns Neurosci Ther* [IF=3.662]
6. Zhang, J., Wu, C., **Yuan, Z.**, and Meng, Y. (2019) Differentiating Emotion-Label Words and Emotion-Laden Words in Emotion Conflict: An Erp Study. *Exp Brain Res* [IF=2.033]

BCAT Meeting - Prof. Renhe XU

Prof. Ren-He XU summarized the research progress in his lab last year in the BCAT meeting on 17 July. Prof. XU reported that totally 10 papers were published in 2018, focusing on defined culture and large scale production of human embryonic stem cell-derived mesenchymal stem cell (EMSC) spheres and their therapeutic application in mouse and monkey models for multiple sclerosis, colitis, osteoarthritis, skin wounding, etc. He also introduced several ongoing projects in his lab such as genetic comparison of MSCs derived from various sources, modelling of early-onset mesenchymal carcinogenesis using human ES cells.

Seminar Series

Development and Collaborated Research of the National Clinical Center for the Respiratory Diseases - Prof. Baoqing SUN



Prof. Baoqing SUN, Professor, The 1st Affiliated Hospital, Guangzhou Medical University, presented “Development and Collaborated Research of the National Clinical Center for the Respiratory Diseases” on 18 July.

Prof. SUN introduced the history, aims and development of the National Clinical Research Center for Respiratory Disease in the 1st Affiliated Hospital, Guangzhou Medical University. The construction of the large-scale and information-based respiratory disease biological sample resources and many other platforms enhanced the research and technologies in the centre.

Prof. SUN reported the study on the allergic diseases too. She claimed that allergic diseases have become one of the most common global diseases in the 21st century. 22% of people suffer from allergic diseases such as allergic rhinitis, asthma, skin allergies and food allergies. She also shared the methods of diagnosis and treatment on the allergic diseases.

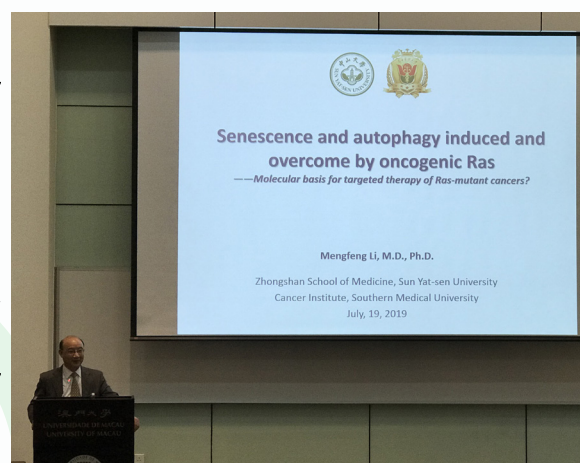
Molecular Basis of Precise Treatment of Lung Cancer with Ras Mutant - Prof. Mengfeng LI

Prof. Mengfeng LI, Professor and President, Southern Medical University, presented “Molecular Basis of Precise Treatment of Lung Cancer with Ras Mutant” on 19 July.

Prof. LI claimed that the research on oncogenic Ras in lung cancer is an important issue in this area and it is considered as an ‘undruggable’ target. Therefore, Prof. LI has been concentrating his research on this, and he has found that oncogenic Ras induced autophagy in normal lung epithelial cells by promoting PTEN activation. Meanwhile, oncogenic Ras combined with CK1 α suppression drove lung cancer tumorigenesis synergistically through diminishing autophagy by Akt signaling activation.

Moreover, Prof. LI reported that inflammatory signaling pathways activated by oncogenic Ras led to cell senescence through mediating β -catenin degradation. However, miR-199 overexpression enhanced β -catenin activation, combined with oncogenic Ras induced lung cancer tumorigenesis synergistically.

Prof. LI finally concluded that his research found the mechanisms of oncogenic Ras inducing autophagy or senescence in normal cells, and illuminated the aberrantly expressed molecules that overcomes autophagy or senescence signals and promotes tumorigenesis synergistically with oncogenic Ras. Furthermore, the results elucidated novel therapeutic targets and strategies in Ras driven lung cancer treatment, and novel markers for elevating the accuracy of cancer precision-targeted therapy.



Novel Anti-influenza Drug Discovery Targeting Virus-based Protein Targets - Prof. Shuwen LIU

Prof. Shuwen LIU, Professor and Dean, School of Pharmaceutical Sciences, Southern Medical University, presented "Novel Anti-influenza Drug Discovery Targeting Virus-based Protein Targets" on 19 July.

Prof. LIU claimed that in view of the antigenic drift and shift of influenza virus, existing vaccines and drugs are not effective enough in achieving timely prevention and treatment of influenza. He thinks that in the area of medical treatment, it is necessary to develop broad-spectrum therapeutic drugs for possible various subtype viruses infection, and the development of anti-influenza drugs requires targeting virus-conserved regions or hosting proteins. Therefore, Prof. LIU's research group has been focused on the virus-based protein targets, especially the hemagglutinin and viral ribonucleoprotein complex (vRNP) of influenza virus, to develop new drugs against influenza virus infection.

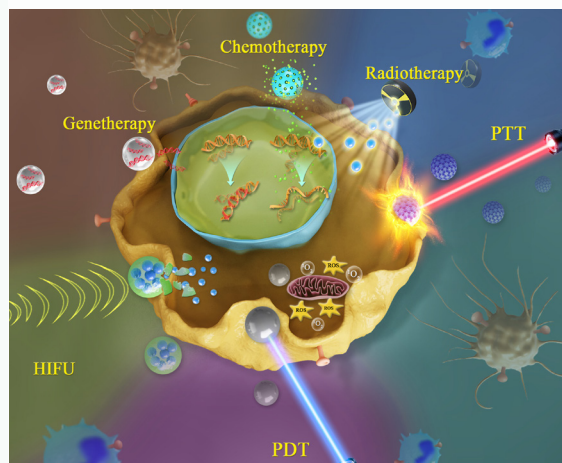
Prof. LIU presented the establishment of drug screening methods based on live virus and viral proteins, and screened a variety of active compounds from libraries of traditional Chinese medicine monomers and diverse compounds. In particular, his study of CL-385319, which is an entry inhibitor of H5N1 influenza virus, has found that it targeted to an induce-fit cavity of hemagglutinin.

Last but not least, Prof. LI introduced his research studies on drugs targeting ribonucleoprotein complex (vRNP). He firstly discovered that the active ingredient from endrobium nobile, the dendrobine, and a natural compound D715-2441, can inhibit the replication of influenza virus effectively. Their targets are nuclear protein (NP) and the cap region of the protein PB2, respectively. Prof. LI believed that both of them are expected to be the potent new mechanism anti-influenza drug or lead compound.



ARTICLE SHARING

Recent Advances in Nanomaterial-Based Synergistic Combination Cancer Immunotherapy - Prof. Yunlu DAI

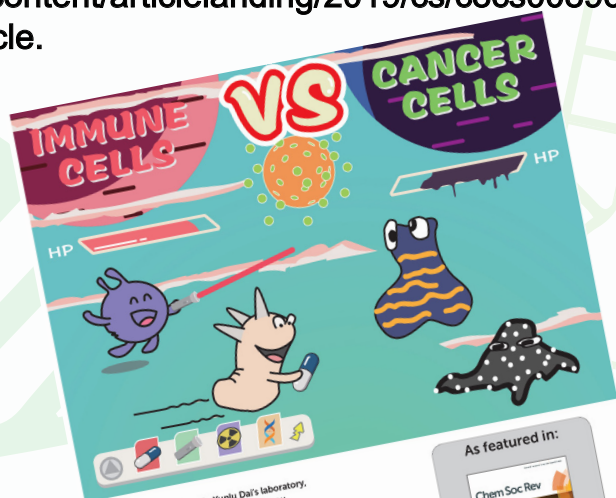


Nowadays, conventional cancer treatment, surgery, chemotherapy, and radiotherapy have played a certain role in resisting cancer. However, the therapeutic effect of these therapies needs to be strengthened while the side effect needs to be further solved. Cancer immunotherapy has emerged from utilizing the patient's own immune system to identify and remove the "strangers" and "offenders" in the body; therefore, we could use this feature to fight against cancer. Clinically, the combination of multi-therapy has better anti-tumor efficacy than any single therapy alone. Moreover, the development of nanomedicine can well support the development of these new fields. Therefore, it is important to

summarize various synergistic combination cancer immunotherapy strategies based on nanomaterials.

In this review, Wei SANG and Zhan ZHANG in Prof. Yunlu DAI's lab through a collaboration with Prof. Xiaoyuan CHEN, National Institutes of Health (NIH), summarized recent advances in the nanomaterial-based synergistic combination cancer immunotherapy. The goals in this review are to stimulate the design of better strategies based on biomaterial engineering methods for versatile use in the future to enhance the efficacy of combined cancer treatments. Furthermore, Prof. DAI hopes to provide new ideas for the prospects of a synergistic cancer combination immunotherapy for clinical application transformation.

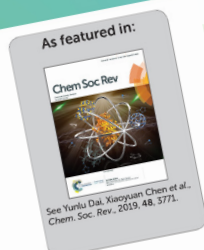
This work was recently published on Chemical Society Reviews (<https://pubs.rsc.org/en/content/articlelanding/2019/cs/c8cs00896e#!divAbstract>) as the Back Cover Page Article.



Showcasing research from Dr Yunlu Dai's laboratory, Faculty of Health Sciences, University of Macau, Macau SAR, China.

Recent advances in nanomaterial-based synergistic combination cancer immunotherapy

This review presents the design and efficacy of synergistic combination cancer immunotherapy based on nanomaterials. We also discuss the clinical application and future perspective of these combination systems.



As featured in:

Chem Soc Rev

See Yunlu Dai, Xiaoyuan Chen et al., Chem. Soc. Rev., 2019, 48, 5771.



rsc.li/chem-soc-rev
 Registered charity number: 207890

SUMMER CAMP

The 2nd Biomedical Sciences Summer Camp for Outstanding Undergraduate Students

FHS and the Institute of Applied Physics and Materials Engineering (IAPME) jointly organized “The Summer Camp for Outstanding Undergraduates of Mainland Universities” from 15 to 19 July. 82 outstanding students experienced a fruitful summer camp and have broadened their postgraduate research perspectives.

In the opening ceremony of the summer camp, Prof. Chuxia DENG and Prof. Zikang TANG, Director of IAPME warmly received the outstanding undergraduate students of Peking University, Zhejiang University, Dalian University of Technology, Sun Yat-sen University, Central South University, Jilin University, Chongqing University, Lanzhou University, etc. Prof. DENG and Prof. TANG also introduced them the history and the latest developments of UM and the future prospects of the faculties.

The 7-day summer camp programme featured thematic lectures hosted by renowned professors of UM, covering a wide range of topics, such as biomedical sciences, applied physics and materials, etc. The participants had intensive interaction with the professors and postgraduate students of UM by participating in the research work of different research teams related to their respective research interests. During the activity, the participants operated some state-of-the-art equipment and learnt more about the college life of the postgraduate students at UM.

The participants indicated that the summer camp not only enriched their knowledge but also served as a platform for strengthening the collaboration among the outstanding undergraduate students of the mainland universities and enhancing the interaction between mainland and UM students. In addition, they had an insight into the academic development and research achievements of UM that opened up new possibilities for their upcoming postgraduate studies.



Summer Camp for Local High School Students

Subsequent to the 1st session of the Biomedical Sciences Summer Camp 2019 last week, FHS organized the 2nd session of the summer camp with the theme of “Biological Detective” for the local high school students from 17 to 19 July. The students expressed that they enjoyed this 3-day summer camp and recognized the benefits it delivered.

In the opening ceremony, Prof. Renhe XU and Prof. Terence POON warmly received the students and gave a talk on “Introduction to Biomedical Science”. Afterwards, the students participated in the splendid activities of the summer camp which featured several thematic lectures, workshops and interactive activities. In the workshops, the students became “Biological Detectives” and investigated cases by conducting the experiments to dig out the answers in a scientific way, involving in several biological areas related to biochemistry, bioinformatics, cell and molecular biology, genetics and microbiology, etc. They had a lot of fun particularly in the workshop “Pipettman Usage Accuracy”. During the camp, the students stayed on campus at the residential college or the hostel, which provided an excellent opportunity for experiencing an university life.

The students indicated that the summer camp not only allowed them to experience the campus living of a university student but also enriched their knowledge by involving in the interesting experiments and operating the state-of-the-art equipment. The summer camp enabled the students to explore their research interest and have diversity exposure, probably broadening their horizons in pursuing their future studies in related research fields.



GUEST VISIT

High School Visit from Pui Ching Middle School

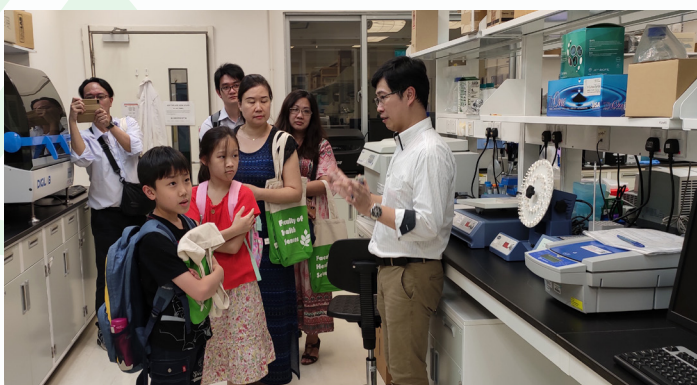
Local high school students from Pui Ching Middle School visited FHS as a part of the “UM Experience Day” on 18 July.

Prof. Vivien WANG warmly received the students at N22 in the morning and introduced the academic programmes and the research directions of FHS to the students. After the introduction, Prof. WANG guided them a lab tour to the aquatic room and the gas room, and introduced the research facilities to the students.



Delegation Visit from Hong Kong Gifted Education Teachers' Association

Delegation of Hong Kong Gifted Education Teachers' Association visited FHS on 19 July. Prof. Terence POON warmly received them in N22 Research Building in the afternoon, and guided them a lab tour to the core facilities, including the aquatic room. Prof. POON introduced the research facilities and the research directions to the guest during the lab tour.



JULY / AUGUST				
Mon	Tues	Wed	Thurs	Fri
July 22 <u>Qualify Examination</u> Ms. Licen LI Supervisor : Prof. Chuxia DENG Time: 10:00 Venue: E12-4044 <u>Qualify Examination</u> Mr. Lei ZHANG Supervisor : Prof. Chuxia DENG Time: 15:00 Venue: N22-4028	23	24 <u>Oral Defense</u> Ms. Ting ZHANG Supervisor : Prof. Gang LI Time: 15:00 Venue: N6-2022	25 <u>FHS Postdoc/ Student Seminar</u> Host: Prof. Edwin CHEUNG and Prof. Leo LEE Time: 17:00-18:00 Venue: N22-G002	26 <u>Seminar Series</u> High Frequency Ultrasound for Multimodal Function Imaging and Stimulation Applications Speaker: Prof. Qifa ZHOU Host: Prof. Zhen YUAN Time: 15:00-16:00 Venue: E12-G004
29 <u>Qualify Examination</u> Mr. Wei WANG Supervisor : Prof. Terence POON Time: 11:00 Venue: E12-1015	30 <u>Qualify Examination</u> Mr. Mohd FARHAN Supervisor : Prof. Wenhua ZHENG Time: 10:00 Venue: E12-1018 <u>Qualify Examination</u> Mr. Yizhou JIANG Supervisor : Prof. Wenhua ZHENG Time: 14:00 Venue: E12-1018 <u>Qualify Examination</u> Mr. Zhengqiang MIAO Supervisor : Prof. Chris WONG Time: 16:00 Venue: E12-1017	31 <u>Qualify Examination</u> Mr. Wei CAO Supervisor : Prof. Edwin CHEUNG Time: 10:00 Venue: TBC <u>Oral Defense</u> Mr. Baoyuan ZHANG Supervisor : Prof. Joong Sup SHIM Time: 10:30 Venue:N6-2022 <u>Oral Defense</u> Ms. Yifan LIU Supervisor : Prof. Joong Sup SHIM Time: 15:00 Venue:N6-2022	August 1	2 <u>Seminar Series</u> Correlates of Protection Against Emerging Virus Infections and Diseases Speaker: Prof. Xiao-Ning XU Host: Prof. Chuxia DENG Time: 16:00-17:00 Venue: N22-G002
5	6	7	8 <u>FHS Postdoc/ Student Seminar</u> Host: Prof. Sanming WANG and Prof. Lijun DI Time: 17:00-18:00 Venue: N22-G002	9