Publication(s)

1. Li, L., Zou, J., **Dai, Y.**, Fan, W., Niu, G., Yang, Z., and Chen, X. (2020) Burst Release of Encapsulated Annexin A5 in Tumours Boosts Cytotoxic T-Cell Responses by Blocking the Phagocytosis of Apoptotic Cells. *Nat Biomed Eng* **[5yrs IF = 18.952]**
2. Zhang, L., Xie, L., Xu, S., Kuchel, R. P., **Dai, Y.**, Jung, K., and Boyer, C. (2020) Dual Role of Doxorubicin for Photopolymerization and Therapy. *Biomacromolecules* **[2019 IF = 6.092]**
3. Lu, X., **Poon, T. C. W.**, and Zhang, H. (2020) Mass Production of Active Recombinant Chryseobacterium Proteolyticum Protein Glutaminase in Escherichia Coli Using a Sequential Dual Expression System and One-Step Purification. *Iubmb Life* **[5yrs IF = 3.405]**

Academic Promotion

Prof. Xuanjun ZHANG and Prof. Ruiyu XIE promoted to Associate Professor

With effective from 16 August, Prof. Xuanjun ZHANG, Assistant Dean (Student Affairs) of FHS, and Prof. Ruiyu XIE were promoted to Associate Professor.

Since Prof. Zhang joined UM in 2015, he has been the principal investigator of three research projects funded by the Science and Technology Development Fund, Macao SAR (FDCT), one joint grant supported by FDCT and the Ministry of Science and Technology of the People's Republic of China, and three UM's multi-year research grants. Prof. Zhang has achieved immense research accomplishments in synthetic chemistry ranging from small molecules, oligomers, semiconducting polymers, coordination polymers, to nanomaterials with main applications in biomedical imaging and nanomedicine. He has published more than 120 SCI papers in international renowned journals, including *Angew. Chem. Int. Ed.*, *J. Am. Chem. Soc.*, *ACS Nano,* etc. He is currently a regular reviewer of more than 50 SCI journals.

Over the past five years as faculty member at FHS, Prof. Zhang has received the Incentive Award Scheme for Outstanding Academic Staff of UM and FHS's Best Teacher Award (Excellence in Teaching). Prof. Zhang has made significant contributions to the teaching of FHS. He adopts student-centered lesson plans with personalized learning environment. He is always eager to pilot the students to explore their research interests and enhance their experimental skills. In coping with underperforming students, Prof. Zhang provides instant and ongoing guidance, and tracks and assesses their performance. He always believes that teaching is all about communication, and effective communication can enhance student's learning abilities. Prof. Zhang keeps close connection with the students in every aspect, particularly during the pandemic outbreak of coronavirus disease.

Prof. Xie has contributed significantly to FHS in the research to understand the molecular mechanisms that underlie the formation and function of endocrine and exocrine of the pancreas, in particular beta cell differentiation and acinar cell dedifferentiation. The overarching goal of her studies is to optimize current differentiation protocols to generate fully functional beta cells for transplantation into diabetic recipients. She is currently the principal investigator of four research projects which are supported by the National Natural Science Foundation of China (NSFC), FDCT and UM. Prof. Xie is also the Chief Supervisor of the Macau Society for Stem Cell Research.

Prof. Xie always encourages students to applying their scientific knowledge to the solution of real-life problems. She was one of the professors who supervised a group of students in the preparation for the International Genetic Engineered Machine (iGEM) competition last year. The team eventually won the Best Part Collection Award. She has also been actively involved in the popularization of health sciences to the local high school students via the delivery of science talks and provision of professional training for them. Prof. Xie always believes that curiosity is one of the strongest markers of academic success, which will ultimately lead to unexpected discoveries.

Congratulations to both Prof. Zhang and Prof. Xie's promotion and we look forward to their continual contributions to FHS. You may learn more about Prof. Zhang and Prof. Xie via their profile pages in our website. (https://fhs.um.edu.mo/en/staff/xuanjun-zhang/, https://fhs.um.edu.mo/en/staff/ruiyu-xie/)

BCAT Meeting

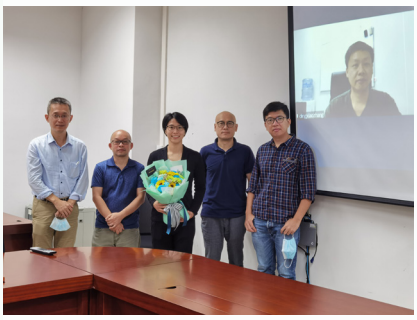
In the BCAT meeting on 26 August, Prof. Ning-Yi SHAO presented the research progress of his group. He shared his study about the function of ALDH1A3 in the pulmonary hypertension and cancer, to promote H3K27 acetylation at NFY sties to regulate the metabolism and cell cycle genes. He also shared the study about the function of NSD3 in the lung squamous cell carcinoma, to increase the demethylation of H3K36, and to drive the tumorigenesis.

PhD Oral Defence

PhD Oral Defences by Hao JIA of Prof. Kathy LUO's group, Lingling WU of Prof. Edwin CHEUNG's group, and Shuo YANG of Prof. Qi ZHAO's group

Mr. Hao JIA supervised by Prof. Kathy LUO, Ms. Lingling WU supervised by Prof. Edwin CHEUNG, and Ms. Shuo YANG supervised by Prof. Qi ZHAO completed their PhD oral defences on 26 and 27 August respectively. Their thesis titles are "Generation of Sensor Zebrafish Models for Real-Time Tracking of Apoptosis in Live Animals and Detecting Toxic Agents with Single-Cell Sensitivity", "Single-Cell Analysis of Androgen Receptor Signaling in Prostate Cancer" and "Immunotherapy of Natural Killer Cells by Targeting B7-H3 via Chimeric Antigen Receptors and Bispecific Antibodies against B7-H3-Positive Tumors".

Mr. Jia claimed that most of the present methods to detect apoptosis are *in vitro* end-point assays, which cannot be used to detect apoptosis in the physiological context of live animals. Therefore, he has generated the transgenic sensor zebrafish producing a fluorescence resonance energy transfer (FRET)-based biosensor which changed color from green to blue when cells are undergoing apoptosis. The sensor zebrafish provided a powerful and convenient tool for non-invasive and real-time detection of apoptosis at single-cell resolution in live zebrafish. Using the sensor zebrafish, he reveled a novel role of apoptosis in sculpting zebrafish skin by removing the excess skin cells during the development. He has also built a sensor zebrafish model for detecting toxic agents with single-cell sensitivity.



Ms. Wu has performed single molecular FISH and single-cell RNAseq analysis on PCa cells following the treatment of androgen and anti-androgen drug Casodex, to comprehensively understand the dynamic AR transcriptional regulation. The differentially expressed genes indicated an androgen stimulation of ER-Golgi stress response that favored ER-Golgi trafficking. She identified a gene signature of ER-Golgi vesicle transport contributing to PCa progression through clinical AR ChIPseq and RNAseq datasets. She found that ER-Golgi gene signature was essential for maximal androgen-regulated ER-Golgi trafficking, PCa cell proliferation and apoptosis, and strongly associated with PCa prognosis. She also found that AR regulated CREB3L2 signaling coordinately promoted the trafficking of Golgi enzyme Mannosidase II and the survival of PCa cell. She concluded that the inhibition of ER-Golgi transport with Brefeldin A leading to the tumor regression.

Ms. Yang has developed B7-H3-specific chimeric antigen receptor (CAR) and bispecific killer cell engager (BiKE) that trigger the function of human NK cells to investigate their potential application for human cancers. She reported that 8H9 antibody recognized B7-H3 specifically was expressed for the detection of B7-H3 in tumor cell lines and tissues. NK-92MI cell line was transduced with B7-H3-targeted CAR to generate B7-H3-specific NK-92MI cells, which cytotoxic function was detected *in vitro* and *in vivo*. B7-H3/CD16 bispecific antibody (BiAb) was expressed for the cooperation with NK cells as BiKE to verify the potent anti-tumor activity *in vitro* and *in vivo*.

UPCOMING

Aug / Sep

Mon	Tue	Wed	Thu	Fri	Sat
31	Sep 1 **Qualifying Exam** Wenfei PAN Supervisor: Prof. Vivien WANG Time: 11:00 Venue: E12-4004	2 **Oral Defence** Shuhui GUO Supervisor: Prof. Chris WONG Time: 10:00 Venue: N6-2022 **Oral Defence** Xin LU Supervisor: Prof. Terence POON Time: 15:00 Venue: N6-2022	3 **Orientation for New PG students 2020** Speaker: Prof. Chuxia DENG Time: 16:00 Venue: E12-G003 **Orientation for New UG students 2020** Speaker: Prof. Chuxia DENG Time: 14:30 Venue: E12-G003 **FHS Postdoc/ Student Seminar** Session: Reproduction, Development and Aging & Structural Biology Host: Prof. Wei GE and Prof.William CHAO Time: 17:00-18:00 Venue: N22-G002 & ZOOM	4	5 **Oral Defence** Jianlin LIU Supervisor: Prof. Xiaoling XU Time: 15:00 Venue: E12-4004
7	8	9 **Oral Defence** Yiqi YANG Supervisor: Prof. Gang LI Time: 10:00 Venue: N6-2022 **BCAT Meeting** Speaker: Prof. Chuxia DENG Time: 17:00-18:00 Venue: E12-G004	10	11	12
14	15	16 **Oral Defence** Shuai LI Supervisor: Prof. Wenhua ZHENG Time: 10:00 Venue: N6-2022	17 **FHS Postdoc/ Student Seminar** Session: Public Health Host: Prof. Garry WONG and Prof. Yutao XIANG Time: 17:00-18:00 Venue: N22-G002 & ZOOM	18	19

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