# ACADEMIC ACTIVITIES

## Publication(s) of the week

1. Wang, Y., Shan, Y., Gao, X., Gong, R., Zheng, J., Zhang, X. D., and Zhao, Q. (2018) Screening and expressing HIV-1 specific antibody fragments in Saccharomyces cerevisiae. *Mol Immunol* **103**, 279-285
2. Choi, E. K., Lim, J. A., Kim, J. K., Jang, M. S., Kim, S. E., Baek, H. J., Park, E. J., Kim, T. H., Deng, C. X., Wang, R. H., and Kim, S. S. (2018) Cyclin B1 stability is increased by interaction with BRCA1, and its overexpression suppresses the progression of BRCA1-associated mammary tumors. *Exp Mol Med* **50**, 136
3. Gao, D., Zhang, P., Liu, Y., Sheng, Z., Chen, H., and Yuan, Z. (2018) Protein-modified conjugated polymer nanoparticles with strong near-infrared absorption: a novel nanoplatform to design multifunctional nanoprobes for dual-modal photoacoustic and fluorescence imaging. *Nanoscale*
4. Ke, R., Ma, X., and Lee, L. T. O. (2018) Understanding the functions of kisspeptin and kisspeptin receptor (Kiss1R) from clinical case studies. *Peptides*
5. Zhang, Y., Faucher, F., Zhang, W., Wang, S., Neville, N., Poole, K., Zheng, J., and Jia, Z. (2018) Structure-guided disruption of the pseudopilus tip complex inhibits the Type II secretion in Pseudomonas aeruginosa. *Plos Pathog* **14**, e1007343

## BCAT Recap

## The function of GSK3 in adipogenesis and in obesity-induced white adipose tissue inflammation - Prof. Li WANG

On 24 October, Prof. Li WANG presented her recent research on the function of GSK3 in adipogenesis and in obesity-induced white adipose tissue inflammation. In the first part, Prof. WANG revealed that GSK3 is essential to adipocyte differentiation. GSK3 modulates adipogenesis through regulating both canonical Wnt pathways, which involve Wnt/β-catenin signaling and noncanonical Wnt pathways, including JNK and RAC signalings. GSK3-regulated adipogenesis can also be mediated by SFRPs, especially SFRP1, the canonical Wnt antagonist, as GSK3 regulates the expression of Sfrps through regulating STAT5 activity.
For the second part, Prof. WANG's team found that GSK3 plays a crucial role in obesity-induced VAT inflammation and contributes to inflammation associated insulin resistance during obesity because pharmacological inhibition of GSK3 reverses obesity-induced proinflammatory M1-macrophage polarization and decreases macrophage infiltration in VAT. The effect of GSK3 on inflammation is through regulating AIM expression to promote immune cell chemotaxis to increase proinflammatory macrophage accumulation in VAT and through contributing to obesity-induced NK cell activation in WAT to regulate ATM accumulation during obesity.

# ACADEMIC ACTIVITIES

## Seminar Series
## Development of Red/NIR emissive optical nanoprobes for bioimaging and disease theranostics - Dr. Pengfei ZHANG

Dr. Pengfei ZHANG, currently a Postdoc in Prof. Ben Zhong TANG's group at Hong Kong University of Science and Technology, visited FHS on 24 October and presented his research on "Development of Red/NIR emissive optical nanoprobes for bioimaging and disease theranostics".

Dr. ZHANG received his Master degree in Analytical Chemistry from Hunan University in 2009. He then joined in Shenzhen Institute of Advanced Technology, CAS in 2009 and was promoted to Assistant Professor in 2011. In 2015, he joined Prof. Ben Zhong TANG's group and received his PhD degree in Bioengineering in 2018. His research interest is focused on multifunctional nanoprobes for bioimaging and bioanalysis.

## Seminar Series
## Genome-wide characterization of circRNAs and beyond - Prof. Li YANG

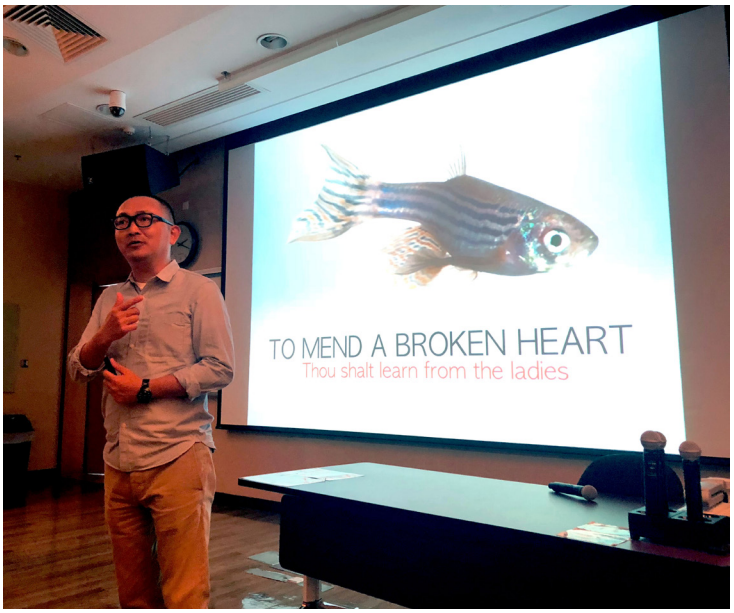
Prof. Li YANG is currently a Principal Investigator and Professor at the CAS-MPB Partner Institute of Computational Biology, Shanghai Institutes for Biological Sciences in the Chinese Academic of Scienecs, Shanghai. Prof. YANG visited FHS on 25 October to share his experience on genome-wide characterization of circRNAs and beyond.


Prof. YANG received Ph.D. degree in Shanghai Institutes for Biological Sciences, Chinese Academy of Sciences in 2004. After that, he joined Dr. Sidney ALTMAN's lab at Yale Universoty in 2004. Prof. YANG has been working in the field of molecular and computational biology for 20 years and has published over70 papers in peer-reviewed journals, including *Cell, Nature, Nat Biotechnol, Cell Stem Cell, Mol Cell, Genome Res* and etc. Currently, his laboratory is focusing on identifying regulatory long noncoding RNAs, characterizing RNA modifications in the whole transcriptome level, and developing new CRISPR/CAS-based single-nucleotide editing systems.

# ACADEMIC ACTIVITIES

## Seminar Series

### To mend a broken heart, thou shalt learn from the ladies - Prof. Yun Wah LAM




On 25 October, Prof. Yun Wah LAM, Associate Professor of the Department of Chemistry, City University of Hong Kong visited FHS to deliver an interesting talk titled “To mend a broken heart, thou shalt learn from the ladies”.

Prof. LAM’s team uses quantitative mass spectrometry to tackle a variety of biological projects, ranging from environmental sciences to regenerative medicine.

In the seminar, Prof. LAM reported the sexual dimorphism of zebrafish heart regeneration, with females regenerating their hearts faster than males.

His team found that estradiol treatment of males accelerated cardiac regeneration, while tamoxifen treatment of females reduced it. The research indicates that zebrafish females are more efficient in mending broken hearts, and males are spontaneously feminised during heart regeneration. This unexpected phenomenon elucidates a previously unknown aspect of zebrafish tissue regeneration.

## Seminar Series

### Identification and characterization of type III secretion system (T3SS) effectors in *Edwardsiella piscicida* - Prof. Kayin LEUNG

Prof. Kayin LEUNG, Professor of Guangdong Technion – Israel Institute of Technology, presented his work on the identification and characterization of type III secretion system (T3SS) effectors in *Edwardsiella piscicida (E. piscicida)* at FHS on 26 October.

*Edwardsiella piscicida* has a board host range and causes severe fish losses in aquaculture worldwide. The type III and type VI secretion systems (T3SS and T6SS) are the bacterium’s most lethal weapons against the host defense.

Prof. LEUNG’s laboratory discovered a T3SS and a T6SS in *E. piscicida*; mutations in these gene clusters resulted in severe virulence attenuation. T3SS effector proteins are directly inject into host cells through nano-secretion machineries called injectisomes. These effectors have diverse functions that target specific host proteins to disrupt and mimic host cellular processes, and then interfere with the host immunity. One area of Prof. LEUNG’s research is to identify effectors of T3SS and characterize them individually and collectively in order to understand their unique functions.

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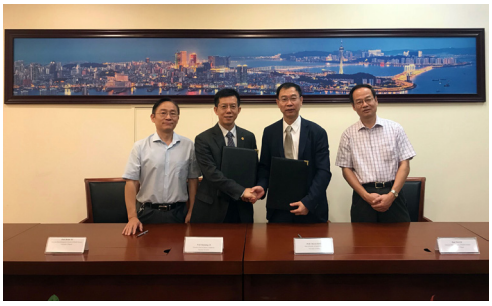
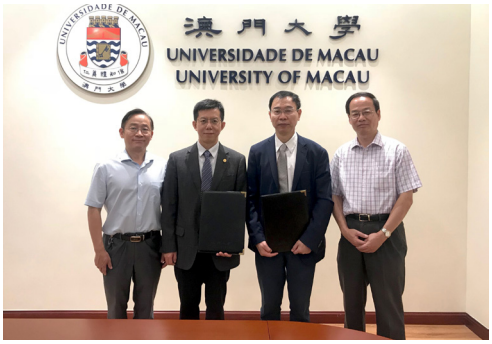
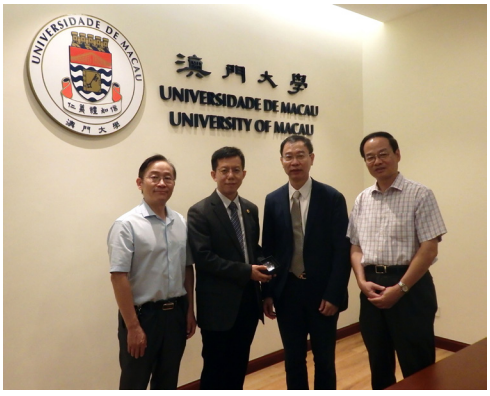
## FHS News

### UM, Zhejiang University jointly launch '2+4' programme to nurture medical professionals






The University of Macau (UM) and Zhejiang University signed a new academic agreement on the launch of a '2+4' bachelor's degree programme in biomedical sciences and clinical medicine. Graduates of the programme will receive a bachelor's degree in biomedical sciences from UM and a bachelor's degree in clinical medicine from Zhejiang University. In addition to providing an opportunity for students wishing to pursue a career in medicine to study at a top-tiered university in China, the agreement will help Macao nurture professionals with basic medical education and accumulate experience in the field, thereby enhancing the overall quality of healthcare in the city.

For more information regarding the programme, please contact Ms. Lorna CHAU at 8822 4966 or lornachau@umac.mo.

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# FHS News

## FHS hosted the 8th National Conference on Bioinformatics and Systems Biology of China and the 1st (Macao) International Bioinformatics Symposium


The 8th National Conference on Bioinformatics and Systems Biology of China and the 1st (Macao) International Bioinformatics Symposium, hosted by FHS, was held on 21-24 October. This hightly impactful symposium is held nationally every two years. This is the first time that the conference is held in Macau. Experts from the Chinese Academy of Sciences, Harvard University, University of Chicago, and many other highly-ranked institutions gathered here to discuss and present their research on bioinformatics and systems biology. This event attracted over 540 participants, with over 160 articles submissions, facilitating research and development of bioinformatics and systems biology in Macao.


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# UPCOMING

## OCTOBER / NOVEMBER

| Mon | Tues | Wed | Thurs | Fri |
|---|---|---|---|---|
| **29**<br>**Seminar Series**<br>The interconnected roles between DNA repair, NAD+, and mitophagy in aging and neurodegeneration<br>Prof. Evandro Fei FANG<br>Time: 11:00-12:00<br>Venue: E12-G003<br><br>**Guest Visit: The United Chinese School Committees' Association of Malaysia**<br>Speaker: Prof. Guokai CHEN<br>Time: 16:35-17:25<br>Venue: N22-4028<br>(Talk + Lab Tour) | **30** | **31** | **1**<br>**Abcam WB Workshop**<br>Time: 14:00-16:30<br>Venue: N22-4028<br><br>**FHS Postdoc/ Student Seminar Series**<br>Host:<br>Sanming WANG, Lijun DI<br>Time: 17:00<br>Venue: E12-G004 | **2**<br>All Soul's Day |
| **5**<br>**Diet, Nutrition and Diseases Seminar**<br>Prof. Henry KWOK, Dr. Vicki FONG, Ms. Carmen MAN<br>Time: 13:30<br>Venue: N6-5001<br>*Register with Prof. KWOK if interested | **6** | **7**<br>**B-CAT Meeting #29**<br>Prof. Xuanjun ZHANG<br>Time: 17:00<br>Venue: E12-G003 | **8**<br>**Seminar Series**<br>Intravital imaging and micromanipulation of stem cell niches in bone<br>Prof. Charles LIN<br>Time: 11:00-12:00<br>Venue: E12-G004<br><br>**Seminar Series**<br>Evans blue-based theranostics<br>Prof. Xiaoyuan CHEN<br>Time: 17:00-18:00<br>Venue: E12-G004 | **9**<br>**Seminar Series**<br>Single Molecule Biosensors for Dynamic Multigene Analysis in Complex Tissue Environments<br>Prof. Pak WONG<br>Time: 09:30-10:30<br>Venue: E12-G004 |
| **12**<br>**Preparing for Graduate School in the US**<br>Georgetown University<br>Time: 10:30-12:45<br>Venue: E12-G004 | **13** | **14**<br>**B-CAT Meeting #29**<br>Prof. Henry KWOK<br>Time: 17:00<br>Venue: E12-G003 | **15**<br>**FHS Postdoc/ Student Seminar Series**<br>Host:<br>William CHAU, Gang LI<br>Time: 17:00<br>Venue: E12-G004 | **16** |

For more information or submission of articles to be featured, please contact Ms. Vivienne Fong at viviennefong@umac.mo or 8822 4230.