

## ACADEMIC ACTIVITIES

### Publication(s) of the week

1. Chang, K., Gao, D., Qi, Q., Liu, Y., and Yuan, Z. (2019) Engineering Biocompatible Benzodithiophene-based Polymer Dots with Tunable Absorptions as High-efficiency Theranostic Agents for Multiscale Photoacoustic Imaging-guided Photothermal Therapy. *Biomater Sci* [IF=5.109]
2. Deng, H., Guan, X., Gong, L., Zeng, J., Zhang, H., Chen, M. Y., and Li, G. (2019) CBX6 is Negatively Regulated by EZH2 and Plays a Potential Tumor Suppressor Role in Breast Cancer. *Sci Rep* 9, 197 [IF=4.609]
3. Hu, Z., Ai, N., Chen, W., Wong, Q. W., and Ge, W. (2019) Loss of Growth Hormone Gene (gh1) in Zebrafish Arrests Folliculogenesis in Females and Delays Spermatogenesis in Males. *Endocrinology* [IF=4.224]
4. Huang, C., Leng, D., Sun, S., and Zhang, X. D. (2019) Re-analysis of the Coral *Acropora Digitifera* Transcriptome Reveals a Complex lncRNAs-mRNAs Interaction Network Implicated in Symbiodinium Infection. *BMC Genomics* 20, 48 [IF=4.257]
5. Huang, T., and Deng, C. X. (2019) Current Progresses of Exosomes as Cancer Diagnostic and Prognostic Biomarkers. *Int J Biol Sci* 15, 1-11 [IF=4.95]
6. Jiang, B., Yan, L., Wang, X., Li, E., Murphy, K., Vaccaro, K., Li, Y., and Xu, R. H. (2018) Concise Review: Mesenchymal Stem Cells Derived from Human Pluripotent Cells, an Unlimited and Quality-Controllable Source, for Therapeutic Applications. *Stem Cells* [IF=6.174]
7. Shi, Y., Li, Y., Cai, M., and Zhang, X. D. (2019) A Lung Sound Category Recognition Method Based on Wavelet Decomposition and BP Neural Network. *Int J Biol Sci* 15, 195-207 [IF=4.95]
8. Zhang, B., Wang, F., Zhou, H., Gao, D., Yuan, Z., Wu, C., and Zhang, X. (2019) Polymer Dots Compartmentalized in Liposomes as Photocatalyst for *In Situ* Hydrogen Therapy. *Angew Chem Int Ed Engl* [IF=11.954]
9. Zhang, Z., Chng, K. R., Lingadahalli, S., Chen, Z., Liu, M. H., Do, H. H., Cai, S., Rinaldi, N., Poh, H. M., Li, G., Sung, Y. Y., Heng, C. L., Core, L. J., Tan, S. K., Ruan, X., Lis, J. T., Kellis, M., Ruan, Y., Sung, W. K., and Cheung, E. (2019) An AR-ERG Transcriptional Signature Defined by Long-range Chromatin Interactomes in Prostate Cancer Cells. *Genome Res* [IF=13.796]

### Publication Award

#### “The year in JBC: 2018” - Dr. Heng Sun

Dr. Heng Sun of Prof. Chuxia Deng's lab published an article “Single-cell RNA-Seq Reveals Cell Heterogeneity and Hierarchy within Mouse Mammary Epithelia” in *The Journal of Biological Chemistry* last year. This paper has been selected as the representative ‘Developmental biology’ article for JBC 2018 retrospective collection called “The year in JBC: 2018”, which can be found at <http://www.jbc.org/site/vi/>. JBC editors has looked through hundreds of papers in Developmental Biology and finally they come up with this paper they felt best representing the exciting advances reported in JBC last year. Congratulation!

### **B-CAT Meeting:**

### **Label Free Imaging of Macrophages *in vivo* by the Fluorescence Imaging of NADH and FAD and the Development of THG Angiography from FeOOH Mesostructures - Prof. Tzu-Ming LIU**

At the B-CAT meeting on 23 January, Prof. Tzu-Ming LIU presented the recent research from his lab about the technique his team developed in these years to achieve label free imaging of macrophages *in vivo* by the fluorescence imaging of NADH and FAD. The macrophages are distributed in almost all tissues in the human bodies, therefore, they more or less play some roles in the pathology of diseases like tumor, diabetes, atherosclerosis, and multiple sclerosis. Understanding the macrophage polarization in these contexts is very critical. But in most of the cases, the activation status needs to be verified by surface marker labeling or cytokine assay. These methods are static and hard to be applied in the *in vivo* studies. Verified by surface markers and cytokines, Prof. LIU could determined the M1/M2 activation status of macrophages without labeling both *in vitro* and *in vivo*. Through *in vivo* immune challenge, the M1-like metabolic status of macrophages can be evaluated with the redox imaging of NADH/FAD. Prof. LIU also presented the development of THG angiography from FeOOH mesostructures. The harmonic generation microscopy has been developed as a lease invasive imaging modality for virtual optical biopsy. Compared with the SHG modality, the contrast agents for THG modality is quite few. In the work Prof. LIU presented, his team employed the FeOOH materials as the template to develop THG contrast agents. The yield of THG was enhanced 10 folds due to the 40 days of aging and the secondary growth of mesostructures. This non-bleachable and bio-compatible nano material system was then determined as suitable for the long-term cell tracking. Then they functionalized the surface of FeOOH mesostructures with lectin and PEG and achieved the targeting of vessel walls in mice ear.

### **Best Teacher Award 2018**

The Faculty gives out three awards: Best Teacher (Excellence in Teaching), Best Teacher (Excellence in Research) and Best Teacher (Excellence in Service), every year to recognize the excellent performance of and appreciate the exemplary contributions to the Faculty by the recipients of the awards in the previous calendar year. The award recipients have demonstrated their excellence in the relevant awarding aspects. This year, the three awards go to:



Best Teacher  
(Excellence in Teaching)  
**Professor Guokai CHEN**



Best Teacher  
(Excellence in Research)  
**Professor Renhe XU**

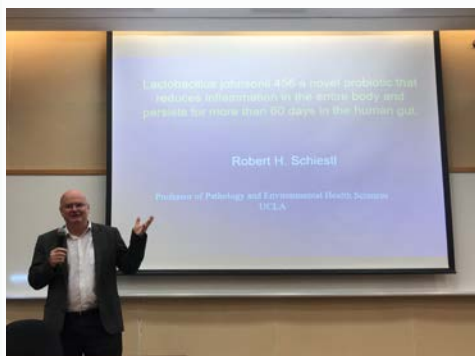


Best Teacher  
(Excellence in Service)  
**Professor Kathy LUO**

Let's congratulate them and thank them for their excellent work in the previous calendar year!

## Seminar Series

### Novel Probiota that Reduces Inflammation in the Entire Body and Stay in the Guts more than 60 Days - Prof. Robert H. SCHIESTL



Prof. Robert H. SCHIESTL, Professor of Pathology, Environmental Health and Radiation Oncology of UCLA Schools of Medicine and Public Health, presented a talk on “Novel Probiota that Reduces Inflammation in the Entire Body and Stay in the Guts more than 60 days” on 23 January.

Probiotics is a booming market with about USD 30 billion. Probiotics will also be added to juices and yogurts. Intestinal microbiota play a role in the nutrient metabolism, modulation of the immune system, obesity and intestinal inflammation.

Prof. SCHIESTL shared his testing on Atm deficient mice for genotoxicity, genetic instability, DNA damage, inflammation markers, cancer latency and longevity and high throughput sequencing of the intestinal microbiota. Isogenic mice from different facilities showed a four-fold difference in life expectancy, a 4.5 fold difference in genetic instability and DNA damage. The onset of lymphomas was significantly 2.5 fold different. He sequenced the microbiota of both facilities and found *Lactobacillus johnsonii* 456 as dominant bacterial strain in the health beneficial microbiota. He also sequenced the DNA of the *Lactobacillus johnsonii* 456 strain and found 6 genes coding for mucus binding proteins.

Furthermore, Prof. SCHIESTL did a clinical trial with *Lactobacillus johnsonii* 456 with ingestion of normal humans of one billion CFUs per day for 7 days in yogurt and found out that in a portion of humans, there might also be a permanent establishment probably aided by the 6 mucus binding proteins leading to the sticking of the bacteria to the inside of the intestinal wall while other probiotic strains are present only 1 or 2 days and at the most 7 days after ingestion. Their strain was proved that unique amongst all probiotic strains that it could survive and proliferate in the human intestines.

## STUDENT ACTIVITIES


### FHS Postdoc Student Seminar - Presented by Prof. Wenhua ZHENG's group and Prof. Qi ZHAO's group

On 24 January, Mr. Chunfei WANG of Prof. Xuanjun ZHANG's group presented “Phenothiazine Functionalized Fluorescent Materials for Detecting Hydrogen Sulfide” and Ms. Shuo YANG of Prof. Qi ZHAO's group presented “Targeting B7-H3 Molecule via Chimeric Antigen Receptors and Bispecific Killer Cell Engagers in Human Cancer Therapy”. The next seminar will be held on 21 February, presented by the group members of Prof. Wenhua ZHENG and Prof. Vivien WANG.





JANUARY / FEBRUARY

Mon	Tues	Wed	Thurs	Fri
28	29	30	31	1
		<p><b>Chinese New Year Gathering</b> Time: 19:00 Venue: Grandview Hotel Macau *For registered staff</p>		<p><b>Seminar Series</b> Rare Earth Up-conversion Luminescent Nanomaterials: Controllable Synthesis, Property Modification and Biomedical Application Speaker: Prof. Jun LIN Host: Prof. Yunlu DAI Time: 10:00-11:00 Venue: E12-G004</p>
4	5	6	7	8
<p>PM OFF</p>	<p>Lunar New Year Holiday</p> 	<p>Lunar New Year Holiday</p>	<p>Lunar New Year Holiday</p> 	
11	12	13	14	15
	<p><b>Seminar Series</b> Near-infrared Fluorescent Probes for Multiplexed In vivo Bioimaging and Biosensing Speaker: Prof. Fan ZHANG Host: Prof. Yunlu DAI Time: 15:00-16:00 Venue: E12-G004</p>	<p><b>B-CAT Meeting #3</b> Speaker: Prof. Sanming WANG Time: 17:00 Venue: E12-G004</p>		