

ACADEMIC ACTIVITIES

Publication(s) of the week

1. Liu, J., Zhou, G., Zhang, L., and Zhao, Q. (2019) Building Potent Chimeric Antigen Receptor T Cells With CRISPR Genome Editing. *Front Immunol* **10** [IF=6.059]
2. Zeng, L. N., Zong, Q. Q., Zhang, J. W., Lu, L., An, F. R., Ng, C. H., Ungvari, G. S., Yang, F. Y., Cheung, T., Chen, L., and Xiang, Y. T. (2019) Prevalence of Sexual Harassment of Nurses and Nursing Students in China: a Meta-analysis of Observational Studies. *Int J Biol Sci* **15**, 749-756 [IF=4.95]

B-CAT Meeting

Insulin Signal Transduction Regulates Cell Survival, Metabolism and Differentiation Human Pluripotent Stem Cells - Prof. Guokai CHEN

At the B-CAT meeting on 27 March, Prof. Guokai CHEN presented the latest research findings from his lab on the topic of "Insulin Signal Transduction Regulates Cell Survival, Metabolism and Differentiation Human Pluripotent Stem Cells". His finding was that insulin regulates integrin pathway to promote cell survival, and activates AKT pathway to enhance oxidative phosphorylation. Moreover, he found that the inhibition of IGF pathway improved cardiomyocyte differentiation.

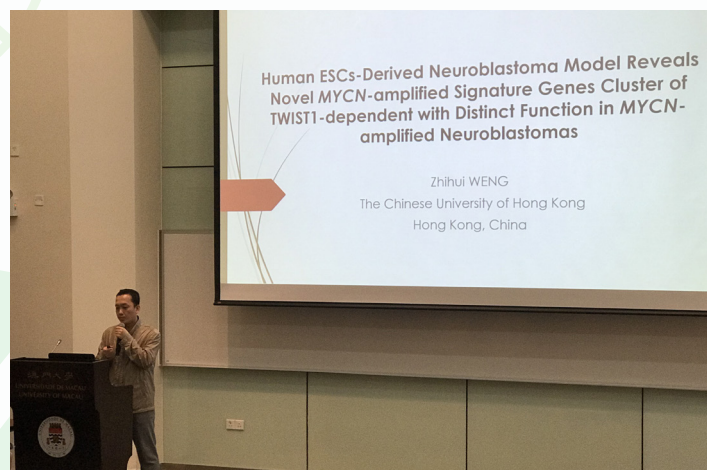
Seminar Series

Human Embryonic Stem Cells-Derived Neuroblastoma Model Reveals Novel MYCN-amplified Signature Genes Cluster of TWIST1-dependent with Distinct Function in MYCN-amplified Neuroblastomas - Dr. Zhihui WENG

Dr. Zhihui WENG, Postdoctoral Fellow of School of Biomedical Sciences, The Chinese University of Hong Kong, presented a talk on "Human Embryonic Stem Cells-Derived Neuroblastoma Model Reveals Novel MYCN-amplified Signature Genes Cluster of TWIST1-dependent with Distinct Function in MYCN-amplified Neuroblastomas" on 26 March.

Dr. WENG claimed that MYCN-amplification (MNA) showed a high-risk, aggressive and undifferentiated phenotype in neuroblastomas (NBs). However, the oncogenic basis of MYCN-induced transformation in human neural crest stem cells remains unknown. There are no reported studies on the molecular characteristics from MNA-NB initiation model of human origin, and thus he started his research on this. His research demonstrated that his hESC-NB model resembled human MNA-neuroblastomas at molecular level. By comparing with the clinical cohort, Dr. WENG clarified the pivotal relationship between clinical cohorts and laboratorial genetic studies, to identify novel MYCN-downstream target genes for clinical diagnosis and future drug discovery.

Dr. WENG further reported that he verified the specific cluster of genes that significantly correlated with MYCN in MNA neuroblastomas. He also found that MYCN and TWIST1 directly bonded to the non-canonical E-box sequence on the promoter of CD55 and regulated CD55 expression. Dr. WENG finally claimed excitedly that all his data indicated that he had found enlighten novel therapeutic strategies for MNA neuroblastomas.



Seminar Series

Immunological Targeting of Cancer Stem Cells - Prof. Qiao LI



Prof. Qiao LI, Research Associate Professor of University of Michigan, presented a talk on “Immunological Targeting of Cancer Stem Cells” on 27 March.

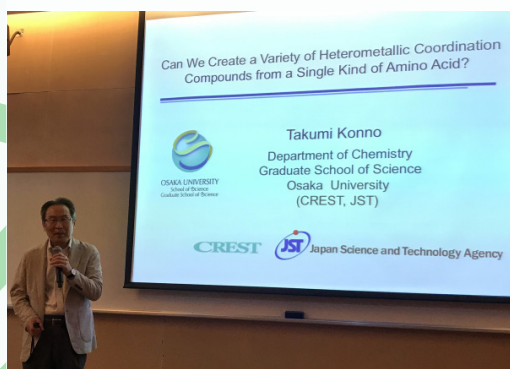
Prof. LI described a strategy to target CSCs using CSC-dendritic cell (DC) vaccination. The efficacy of CSC targeted therapeutics was the greatest when they are deployed in the adjuvant setting. In the study, two mouse models were utilized that established SCC7 tumors were surgically removed from mice followed by treatment using ALDH^{high} SCC7 CSC-DC vaccine, which significantly reduced local tumor relapse and prolonged animal survival.

This effect was significantly augmented by simultaneous administration of anti-PD-L1 mAb. In the minimal disease setting of D5 melanoma, ALDH^{high} CSC–DC vaccination significantly inhibited tumor growth, reduced spontaneous lung metastases resulting in increased survival. CCR10 and its ligands were down-regulated on ALDH^{high} D5 CSCs and in lung tissues respectively in animals subjected to ALDH^{high} D5 CSC–DC vaccination. Down-regulation of CCR10 by siRNA significantly blocked tumor cell migration *in vitro* and metastasis *in vivo*. T cells harvested from ALDH^{high} D5 CSC–DC vaccinated animals selectively killed the ALDH^{high} D5 CSCs. As a result, CSC-DC vaccination significantly decreased the percentage of ALDH^{high} cells in residual tumors.

Prof. LI finally concluded that the data indicated when using ALDH^{high} CSC–DC vaccines in an adjuvant setting, it effectively inhibited local tumour recurrence, reduced spontaneous lung metastasis, and prolonged animal survival. Compared with traditional DC vaccines, simultaneous PD-L1 blockade could significantly enhanced the effect. Prof. LI’s study has highlighted the potential application of cancer stem cell vaccine in clinical, particularly in the adjuvant setting.

Seminar Series

Can We Create a Variety of Coordination Compounds from a Single Kind of Amino Acid?- Prof. Takumi KONNO



Prof. Takumi KONNO, Professor of Osaka University, presented a talk on “Can We Create a Variety of Coordination Compounds from a Single Kind of Amino Acid?” on 28 March.

Prof. KONNO claimed that design and creation of supramolecular coordination compounds that contain more than one kind of metal ions have attracted considerable attention in the fields of coordination chemistry and supramolecular chemistry. This class of compounds can be obtained via one-step self-assembly of well-designed organic ligands in combination with a mixture of metal ions, which often results in the formation of undesired products. To overcome this issue, Prof. KONNO has focused on a metalloligand approach, in which a pre-designed metal complex with several donor sites was stepwise treated with different kinds of metal ions. Previously, Prof. KONNO has reported that [Au(D-pen-S)₂]₃⁻ (H₂pen = penicillamine) acts as a multidentate metalloligand to produce a variety of heterometallic coordination compounds. This monogold(I) metalloligand system is now extended to digold(I) and trigold(I) systems by introducing a digold(I)/trigold(I) linker with diphosphine/triphosphine ligands. Prof. KONNO also described the fascinating coordination behavior of these metalloligands, which led to the construction of unique metallosupramolecular architectures.

APRIL				
Mon	Tues	Wed	Thurs	Fri
1	2	3	4	5
	Oral Defense Ms. Xia JI Supervisor : Prof. Jun ZHENG Time: 10:00 Venue: N6-G010		FHS Postdoc/ Student Seminar Host: Prof. Terence POON and Prof. Xiaoling XU Time: 17:00-18:00 Venue: N22-G002	Cheng Ming Festival
8	9	10	11	12
	Oral Defense Mr. Pengwei ZHANG Supervisor : Prof. Terence POON Time: 16:00 Venue: N6-2022	B-CAT Meeting #07 Speaker: Prof. Gang LI Time: 17:00 Venue: E12-G004		HKU-FHS Joint Symposium Time: 14:00-18:00 Venue: N21-G013
15	16	17	18	19
				Good Friday (Easter holiday)