2017 Hong Kong Inter-University Postgraduate Symposium in Biochemical Sciences

Jun 16, 2017 (Fri)

Seminar Room 3, G/F, Jockey Club Building for Interdisciplinary Research
The University of Hong Kong, 5 Sassoon Road, Pokfulam, Hong Kong

Organizers

THE UNIVERSITY OF HONG KONG

香港中文大學
The Chinese University of Hong Kong

THE HONG KONG UNIVERSITY OF SCIENCE AND TECHNOLOGY

Supported by

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THE UNIVERSITY OF HONG KONG
香港大學李嘉誠醫學院

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The Symposium has been supported by the
Postgraduate Students Conference/Seminar Grant of the Research Grants Council, Hong Kong

Programme

9:00-9:30	Registration & Poster Posting
9:30-9:45	Opening Remarks - Professor LEUNG Suet Yi, Associate Dean (Research) Li Ka Shing Faculty of Medicine, The University of Hong Kong
9:45-10:30	Plenary Talk 1 - Professor SHENG Guojun (Kumamoto University, Japan) *Epithelial-Mesenchymal Transition: From Embryology to Medicine*
10:30-11:30	Student Oral Presentation CAO Zhe (The Hong Kong University of Science and Technology) *Molecular Characterization of Seipin in Caenorhabditis elegans* CHAUDHARY Vidyanath (The University of Hong Kong) *Dual regulatory effects of SFTS virus NSs protein on interferon signalling* LAW Lok Gi Iris (The Chinese University of Hong Kong) *Loop-mediated isothermal DNA amplification (LAMP) on a lab-on-a-disc (LOAD) platform for the detection of Mycobacterium tuberculosis*
11:30-12:00	Tea Break + Student Poster Session
12:00-13:00	Student Oral Presentation LIU Wen (The Hong Kong University of Science and Technology) *Differential G protein subunit dissociation mechanisms suggest possible family-wise selective Gβγ signaling* MA Tianji (The Hong Kong University of Science and Technology) *Sorting of Planar Cell Polarity Signaling Receptor, Frizzled6, at the trans Golgi Membranes* MA Tsz Ching (The Chinese University of Hong Kong) *Canonical BMP signaling is crucial to the maintenance of neural stem cells at cerebellar ventricular zone*
13:00-14:15	Lunch + Student Poster Session
14:15-16:15	Student Oral Presentation SHIU Chi Chin (The University of Hong Kong) *An Aptamer-Mediated DNA Nano-Switch* TANG Yun-Sang (The Chinese University of Hong Kong) *Identification and characterization of the interaction between influenza A nucleoprotein (NP) and host heterogeneous nuclear ribonucleoprotein C* TIAN Ye (The Hong Kong University of Science and Technology) *The First Wave of T Lymphopoiesis in Zebrafish Arises from Aorta Endothelium Independent of Hematopoietic Stem Cells* VONG Keng Ioi (The Chinese University of Hong Kong) *Essential role of Sox9 in CSF secretion and establishment of the blood-CSF barrier* WANG Gang (The Hong Kong University of Science and Technology) *The p110α Isoform of Phosphatidylinositol-3 kinase Critically Regulates Quiescence Exit and Cell Cycle Reentry in Adult Muscle Satellite Cells* ZHAO Rui (The Chinese University of Hong Kong) *Role of transient receptor potential vanilloid 1 channels in the regulation of functional properties of embryonic stem cell-derived cardiomyocytes*
16:15-16:45	Tea Break + Student Poster Session
16:45-17:30	Plenary Talk 2 - Professor JONES Gareth (King's College London, UK) *Invadosomes: the signature of wandering cells*
17:30-17:45	Closing Ceremony + Award Presentation

Guojun Sheng, Ph.D.
Professor, International Research Center for Medical Sciences,
Kumamoto University, Kumamoto, Japan

Dr. Guojun Sheng received his undergraduate education in biology from Fudan University (China) and his PhD in molecular and developmental genetics from the Rockefeller University (USA) under the supervision of Professor Claude Desplan. During his doctoral research, Dr. Sheng also trained in Embryology at the Marine Biological Laboratory (USA). His postdoctoral work was carried out in molecular embryology in the laboratory of Professor Claudio Stern at Columbia University (USA) and University College London (UK). Before joining Kumamoto University (Japan) as a full professor (2015-present), Dr. Sheng had directed the Laboratory for Early Embryogenesis at RIKEN Center for Developmental Biology (Japan), first as a Team Leader (2004-2014) and then as a Senior Investigator (2014-2015). He is also the Vice President of the EMT International Association (TEMTIA), an Associate Editor of the Journal of Genetics and Development (genesis), and an editorial board member of Developmental Dynamics (the official journal of the American Association of Anatomists). Dr. Sheng has published extensively on gastrulation, epithelial-mesenchymal transition, extraembryonic mesoderm differentiation and comparative embryology.

Epithelial-Mesenchymal Transition: From Embryology to Medicine

Epithelial-Mesenchymal Transition (EMT) is a process in which cell-cell organization changes from an epithelial type to a mesenchymal one. Widely observed in animal development, EMT occurs rarely in adult homeostasis and abnormal EMT in the adult is one of the major causes for many life-threatening diseases such as cancer and fibrosis. Our lab uses the avian model to study molecular mechanisms underlying developmental EMT. We are particularly interested in understanding how EMT shapes up a critical early developmental window called gastrulation, in which three principal germ layers, the ectoderm, mesoderm and endoderm, are generated from a pluripotent epithelial epiblast cell population. In this talk, I will present data from our molecular analysis on the regulation of epiblast-basement membrane interaction during gastrulation EMT. I will also discuss about how diverse EMT processes in development can be understood from a few simple cell biological criteria and how such understanding can help us evaluate pathological EMTs in disease and achieve more efficient germ layer differentiation in vitro.

Selected publications:

1. Nakaya et al, *Epiblast integrity requires CLASP and Dystroglycan-mediated microtubule anchoring to basal cortex.* Journal of Cell Biology 202(4):637-651; Cover (2013).
2. Nakaya et al, *RhoA and microtubule dynamics control cell-basement membrane interaction in EMT during gastrulation.* Nature Cell Biology 10:765-775; Cover (2008).
3. Nakazawa et al, *Negative regulation of primitive hematopoiesis by the FGF signaling pathway.* Blood 108(10):3335-43; Cover (2006).

RANDALL
division of cell and molecular biophysics

Gareth E Jones, Ph.D. FRMS; FRSB
Professor,
Cell Motility & Cytoskeleton Section,
Faculty of Life Sciences & Medicine,
King's College London, UK

Professor Gareth E Jones graduated from University College London specialising in cell and developmental biology under the mentorship of one of the founding fathers of the study of cell behaviour *in vitro*, Michael Abercrombie. He obtained his Ph.D. at Glasgow University working in the first Department of Cell Biology to be set up in the UK led by Adam Curtis, a protégée of Abercrombie. Subsequently he took up posts back in London, travelled to the USA with prestigious Royal Society-Leverhulme Trust funding and eventually returned to take a full time position in the Anatomy Department of King's College London in 1986. In 1993 he was one of three academics driving the establishment of the Randall Division at King's through bringing together research-active staff from diverse departments into one building. Its ensuing success acted as a model for subsequent research amalgamations within the University. In 1996 Professor Jones was appointed an honorary group leader within the Medical Research Council Cell Motility Unit sited at King's and in 2001 became the Head of the Cell Motility & Cytoskeleton Section. Over the subsequent years, key recruitments established the Section as one of the most distinguished centres of cell motility research within Europe, establishing the only Nikon Imaging Centre in the UK and ensuring close links with the Francis Crick Institute, London.

As well as being active in his own research area of the podosome biology of myeloid cells he was instrumental in the promotion of international research excellence and collaborations through activities such as joining the founding membership of the Invadosome Consortium.

Professor Jones has held numerous University and external appointments relevant to research policy: membership of the University Research Strategy Committee and Research Excellence Framework group; Medical Research Council (UK) panels and international advisory and SAB panels, plus appointments as scientific consultant to numerous international microscope-imaging instrumentation, biotechnology and commercial investment agencies. He currently holds honorary visiting professorships at NUS, Singapore and at HKU. He was appointed to The UGC (Hong Kong) Research Assessment Exercise Group for 2014 and now holds a similar panel membership for an Irish University group. He is currently Chair of the Newton Panel (Medical and Biological Sciences) at the British Council.

Invadosomes: the signature of wandering cells

Cells of the adult rarely move from their differentiated tissue of function, whether it be within liver, gut or skeleton. Two major exceptions to this rule are seen in cells of the adult immune system and with invasive metastatic cells of carcinomas. In healthy individuals, immune cells are constantly trafficking from the blood circulation into and out of both lymphatics and the many soft connective tissues of the body. This process generates the non-specific mechanism that leads to removal of pathogens before they can start an active infection, a process often termed innate immunity. Failure of this system leads to many disease states in humans ranging from many of the primary immunodeficiency syndromes to autoimmune disorders.

My laboratory has for a very long time been interested in the molecular mechanisms governing cell migration and in this lecture I shall review what we have learned so far about the roles of the dynamic actin cytoskeleton, cell adhesion to connective tissues and invasion through basement membrane barriers that allow phagocytic macrophages and immune surveillance dendritic cells to traffic in the adult. In addition, I shall describe how mechanisms commonly found in myeloid immune cells such as macrophages and dendritic cells have seemingly been hijacked by adult epithelial cells that become cancerous, especially those that re-discover the process of EMT familiar to you from Professor Sheng's earlier lecture. Such cells once again utilise many of the features of immune cell migration to break into the stroma underlying the basement membrane which contains lymphatic and vascular routes to cancer cell dissemination, i.e. metastasis.

Selected publications:

1. Rafiq, NB. et al. (2017). *Podosome assembly is controlled by the GTPase ARF1 and its nucleotide exchange factor ARNO*. J. Cell Biol. 216: 181-197.
2. Vijayakumar V. et al. (2015). *Tyrosine phosphorylation of WIP releases bound WASP and impairs podosome assembly in macrophages*. J.Cell.Sci. 128: 251-265.
3. Martin-Villar E. et al. (2015). *Podoplanin mediates ECM degradation by squamous carcinoma cells through control of invadopodia stability*. Oncogene 34: 4531-4544.

Review:

Foxall E et al. (2016). *Significance of kinase activity in the dynamic invadosome.* Eur J Cell Biol.95: 483-492.

Organizing Committee

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	Mr Francis CHEN
The Hong Kong University of Science and Technology	Dr Yan YAN
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Poster judges

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