NUS National University of Singapore | Department of Anatomy
Yong Loo Lin School of Medicine

NUHS National University Health System

MODELLING MOLECULAR HETEROGENEITY IN EPITHELIAL OVARIAN CANCER

THURSDAY
13 APRIL 2017

2:00PM – 3:00PM

ANATOMY SEMINAR ROOM
L2, MD10, DEPARTMENT
OF ANATOMY, NUS.

DR RUBY HUANG

Adjunct Assistant Professor (Anatomy)
Cancer Science Institute of Singapore (CSI)
CeTM, MD6, 14 Medical Drive
Singapore 117599

Abstract:

To decipher a complex disease such as epithelial ovarian cancer (EOC), there is a crucial need to dissect the molecular heterogeneity such as gene expression based molecular subtypes (GEMS) and to identify GEMS specific targets. Thus, it is pivotal to develop pre-clinical pipelines that could recapitulate the inter-tumoral and intra-tumoral heterogeneity aiming to identify actionable targets specific to each GEMS. In this talk, we will illustrate various approaches being developed in the lab to address this issue.

In order to model the heterogeneity in EOC, several approaches such as a large scale *in silico* database, CSIOVDB; patient derived xenograft (PDX) models in mice and the chick chorion allantoic membrane (CAM), are being established. Firstly, the *in silico* database is a tremendously resourceful tool to derive hypothesis in an unbiased way. By looking at the molecular subtype composition of a tumor, we found that the higher degree of molecular heterogeneity does not predict the poor outcome of an ovarian cancer patient. It is the presence of a molecular subtype (Mes or Stem-A) that confers poor prognosis that will determine the ultimate outcome of a patient. Secondly, tumor fragments expanded in the PDX models followed by targeted sequencing of mutations and gene expression profiling can help assess the integrity of the PDX in preserving the molecular heterogeneity of the primary tumors and determine the correlation of treatment response. Ultimately, the genomic data obtained from the PDX models could further feedback to the *in silico* database. Lastly, the egg-laying hen *(Gallus gallus)* model, which can spontaneously develop ovarian cancer, can be used to evaluate the evolutionarily conserved mechanisms crucial to EOC. If the hen EOC model could recapitulate the molecular heterogeneity of human EOCs, this would serve as an informative resource for disease progression. Taken together, these various approaches deployed could help evolve strategies to overcome resistance to chemotherapeutic regimes and targeted therapies, and improve prognosis in EOC.

Address enquiries Dr Hu Qidong at 66013730 or Ms Carolyne Ang at 65163200. All are welcome.