

Department of Biomedical Sciences

presents the seminar series in Cancer Biology,
Biotherapy and Nanomedicine



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Uncovering intratumor heterogeneity with Dirichlet processes

Dr. Ke Yuan
Glasgow University

Date : 18 December 2017

Time: 11:00am to 12:30pm

Venue: Meeting Room 2-130, 1/F, Block 2, To Yuen Building

Abstract

Carcinogenesis is an evolutionary process in which advantageous mutations accumulate over time and cells harbouring these mutations give rise to new clones. The nature of this progressing disease makes time course analysis very difficult and therefore the composition of these clones is generally unknown. I will discuss methods designed to identify intratumoral cancer clones. A common foundation of the methods is Dirichlet process, by which the number of clones and their evolutionary relationships can be inferred. In two case studies, I will demonstrate applications in reconstructing intratumoral phylogenies from DNA methylation profiles and somatic mutations identified by single-cell sequencing. Finally, I will showcase an ongoing project on clonality analysis for whole-genome sequencing data.

About the Speaker

Ke Yuan is a Lecturer (Assistant Professor) in Computing Science at the University of Glasgow. He received a PhD from the University of Southampton in 2013 advised by Mahesan Niranjan. Till 04/2016, He was a postdoctoral research fellow at Cancer Research UK Cambridge Institute at University of Cambridge working with Florian Markowetz. He joined the School of Computing Science at the University of Glasgow in 05/2016.

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All are welcome!