

“POLQ, THE GENE ENCODING THE DNA REPLICATION TIMING FACTOR POL θ , IS A GENERAL AND STRONG PREDICTOR OF PATIENT OUTCOME FOR MULTIPLE TYPES OF CANCER”

by

Dr Jean-Sébastien HOFFMANN
Director of Research
Cancer Research Center of Toulouse

Date: 24 May 2016

Time: 9.15am to 10.45am

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

*Note: There will be a group discussion following the seminar from **10.45 am to 12.00 noon** at the same venue. All faculty are invited to attend and participate in the discussion.*

Abstract

We have recently discovered that the human DNA polymerase θ (Pol θ) functions during the earliest steps of DNA replication and influences the timing of replication initiation. Pol θ binds to chromatin during early G1 of the cell cycle, interacts with the Orc2 and Orc4 components of the Origin recognition complex and controls the association of MCM helicase proteins with origins. Pol θ -depleted cells exhibit a normal density of activated origins in S phase, but Early-to-Late and Late-to-Early shifts are observed at a number of replication domains. This novel Pol θ function could be particularly important within the context of cancer as we found that excess Pol θ , strongly associated with poor clinical outcome of patients with colon, breast and lung cancers, resulted mostly in a delayed timing of multiple chromosomal domains. I will discuss how abnormal temporal control of replication might represent an adaptive mechanism responsible for cell survival upon high level of replication stress, a driving force of cancer progression, and explain therapeutic resistance towards multiple anticancer agents that target DNA replication forks.

Contact

Dr. Ming CHAN (3442-4346, ming.chan@cityu.edu.hk)

Mr Henry CHAN (3442-4438, henry.ch.chan@cityu.edu.hk)

All are welcome