Connecting a missing link in biology – the genotype-phenotype relationship

LE JEUDI 10 MAI 2018 À 12 H 30

Pavillon Charles-Eugène-Marchand, salle Hydro-Québec (1210)

Accurately predicting or quantifying the impacts of mutations on gene function has the potential to transform our understanding of biology and medicine. Understanding the impacts of mutations can provide a blueprint for interpreting individual genomes, which is critical for developing safe and effective personalized medicine. Recent technical advances including the EMPIRIC approach that our lab developed have made it efficient to determine protein fitness landscapes of the functional impacts of all possible point mutations. This presentation will discuss the results of protein fitness landscapes of ubiquitin and Hsp90 in yeast, as well as the bRaf V600E and Bcr-Abl oncogenes in mammalian cells. These studies provide insights into the biochemical mechanism of each protein as well as the systems biology connections that mediate cell physiology. In addition, we have interpreted the EMPIRIC protein fitness landscapes in light of population genetic theory to provide insights into natural evolution including the interdependence of historical substitutions in Hsp90 and the accurate prediction of clinically relevant drug resistance mutations in bRaf and Bcr-Abl.

Lunch et breuvages seront offerts.

SVP confirmer votre présence sur conference.ibis.ulaval.ca avant le mercredi 9 mai, 10 h