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Evolution fungal genomes

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En personne

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

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Abstract:

Antifungal drug resistance poses a serious threat to global public health. In this seminar I will describe our research focused on understanding the acquisition and evolution of drug resistance and drug tolerance in diverse *Candida* species. Our lab uses comparative genomics to identify mutations correlated with antifungal drug resistance in clinical isolates as well as in isolates obtained through controlled *in vitro* evolution experiments. We are interested in how quickly resistance mutations arise within a population (in a patient and in a test tube), the impact of drug concentration on the spectrum of resistance mutations, the stability of drug resistance in the absence of drug, and the influence of genetic background on mechanisms of acquired antifungal drug resistance. I will highlight our research in *Candida albicans* and other emerging fungal pathogens. For example, we recently identified the first example mutator phenotype in a clinical isolate of *Candida auris*. This isolate acquired substantial resistance during the evolution experiments and had mutation rates approximately ten-fold higher than other strains, supporting that the genetic background of clinical isolates can have a significant effect on evolutionary potential.