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Yeast as a test-bed for drug discovery: From target engagement to drug resistance

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Saccharomyces cerevisiae has served as genetic model organism for over a century, as a genomic powerhouse since it was the first eukaryote to have its genome sequenced in 1996, and more recently as a test-bed for the development and application of chemogenomic assays. Baker's yeast has also provided fundamental insights into evolutionary conserved biology as witnessed by three Nobel prizes attributable to yeast- in cell-cycle biology, secretion and autophagy. Its simplicity of cultivation, combined with its functional conservation allows for the discovery of novel chemical probes which can serve as tools to probe biological function and new leads for drug discovery. In this talk, I will describe how the HIHOP laboratory, established by Guri Giaever, has deployed yeast-based assays to discover novel-target-drug interactions, understand the mechanism by which drug resistance develops and map the chemical-genetic portrait of an organism.

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