



COMPUTATIONAL BIOLOGY WEBINAR @ IMSc

SYSTEMS BIOLOGY OF METABOLISM FOR MICROBIAL CELL FACTORIES

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Microbial metabolism can be harnessed to convert sugars and other carbonaceous feedstocks into a variety of chemicals, fuels, and drugs. Cellular Metabolism is very complex involving thousands of reactions and metabolites. To understand the complexity of metabolism, mathematical models were developed for holistic studies. The most popular mathematical model in biology is referred to as Genome-scale Metabolic Model (GEM). GEMs are expanding our understanding of cellular metabolism and its dynamics. It supplies us with a systems level picture of the metabolism derived from its genotype. Rational design of metabolism is very important for production of bioproducts. In silico prediction of metabolic flux distribution of the metabolic pathways enabled us to decide the time consuming steps in metabolic engineering. Metabolic engineering involves improvement of bio-chemicals formation through the modification of specific genes or addition of new genes involved in biochemical reactions with the use of genome engineering tools such as CRISPR/Cas9. We will discuss the use of “omics”-driven tools of modern systems biology for microbial production of bioproducts and advanced biofuels.

GOOGLE MEET LINK:

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