Exploring the potential of Saccharomyces cerevisiae for biopharmaceutical protein production - DTU Orbit (13/08/2019)

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Production of recombinant proteins by yeast plays a vital role in the biopharmaceutical industry. It is therefore desirable to develop yeast platform strains for over-production of various biopharmaceutical proteins, but this requires fundamental knowledge of the cellular machinery, especially the protein secretory pathway. Integrated analyses of multi-omics datasets can provide comprehensive understanding of cellular function, and can enable systems biology-driven and mathematical model-guided strain engineering. Rational engineering and introduction of trackable genetic modifications using synthetic biology tools, coupled with high-throughput screening are, however, also efficient approaches to relieve bottlenecks hindering high-level protein production. Here we review advances in systems biology and metabolic engineering of yeast for improving recombinant protein production.

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