Understanding the 3-hydroxypropionic acid tolerance mechanism in *Saccharomyces cerevisiae* - DTU Orbit (26/01/2019)

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3-Hydroxypropionic acid (3HP) is an important platform chemical that can be converted into other valuable chemicals such as acrylic acid and its derivatives that are used in baby diapers, various plastics, and paints. With the oil and gas resources becoming limiting, biotechnology offers a sustainable alternative for production of acrylic acid from renewable feedstocks. We are establishing *Saccharomyces cerevisiae* as an alternative host for 3HP production. However, 3HP also inhibits yeast growth at levels well below what is desired for commercial applications. Therefore, we are aiming to improve 3HP tolerance in *S. cerevisiae* by applying adaptive evolution approach. We have generated yeast strains with significantly improved capacity for tolerating 3HP when compared to the wild-type. We will present physiological characterization, genome re-sequencing, and transcriptome analysis of the evolved strains. Consequently, mechanism underlying 3HP tolerance will be investigated.

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