

***Yarrowia lipolytica* as chassis strain for bioproducts**

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Oleaginous yeasts, especially *Yarrowia lipolytica*, are promising hosts not only for the production of various biotechnologically interesting lipids but also for other lipophilic molecules, such as carotenoids [1]. Based on a broad spectrum of growth substrates together with synthetic and systems biology tools available for *Y. lipolytica*, we have selected it as a candidate for development of a chassis strain for a plethora of products from the isoprenoid class. As one of the initial steps, we developed a lycopene producing strain of *Y. lipolytica*. This strain allows us to quickly iterate the design-build-test cycle and develop efficient isoprenoid producer strains and processes with *Y. lipolytica*. Combinations of different approaches, ranging from fast and efficient DNA assembly and genetic engineering to random mutagenesis and ultra-high-throughput strain selection using a microfluidics platform, will be used. Going hand in hand with host engineering media optimization using bulk waste streams as nutrients is expected to bring new bio-based products to the market.

[1] Larroude M, Celinska E, Back A, Thomas S, Nicaud JM, Ledesma-Amaro R. (2018) [A synthetic biology approach to transform *Yarrowia lipolytica* into a competitive biotechnological producer of \$\beta\$ -carotene.](#) *Biotechnol Bioeng.*:115(2):464-472.