

ANTIBODY PRODUCTION IN MICRO-ORGANISMS

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Global demand for monoclonal antibody-based therapeutics (Mab's) far exceeds current production capacity, and is expected to continue to grow based on current development pipelines. Despite their proven efficacy in a large number of indications, equitable use of these drugs is limited by the high cost of CHO-cell based production and purification. Micro-organisms such as yeasts and filamentous fungi present an attractive alternative for antibody production, but will require extensive genetic modification to achieve both high titers and mammalian-like glycosylation patterns in a secreted product that is easily purified. Towards this end, we developed state-of-the-art genetic engineering tools for eight micro-organisms to enable the highly efficient, targeted multiplexed integrations necessary for antibody production in these hosts. We demonstrated successful antibody production in several of these micro-organisms, paving the way to low-cost microbial fermentation to replace CHO fermentation.