

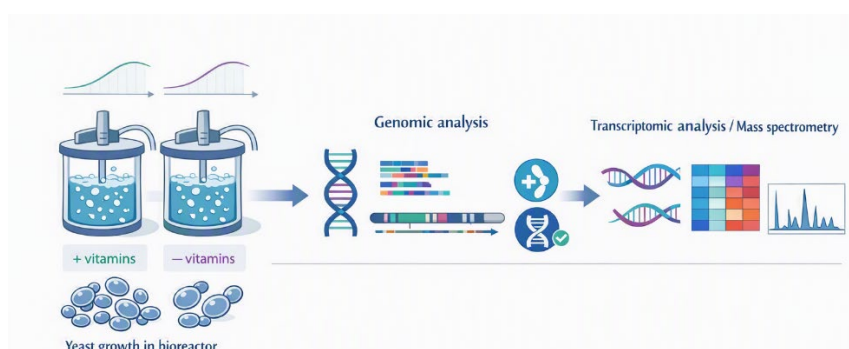
1. Background

Saccharomyces cerevisiae is a model organism and is the most extensively used microbe across a range of different industries, cumulatively underpinning around two trillion dollars' worth of products per year. Vitamin supplementation represents a significant cost in yeast production, yet most strains of *S. cerevisiae* are auxotrophic for one or more B-group vitamins. Understanding vitamin synthesis pathways will advance fundamental knowledge of cell metabolism, whilst providing actionable insight for further development of robust, vitamin prototrophic yeast strains for a range of industrial applications.

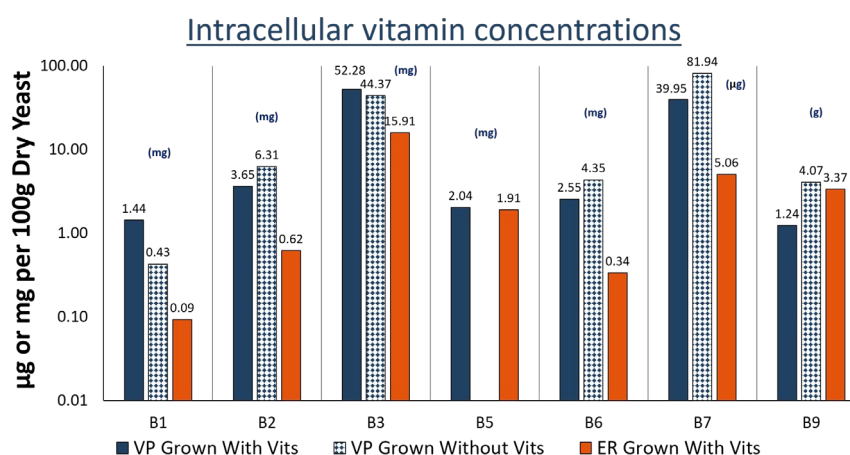
2. Aims

To investigate unknown genes required for rapid cell growth without the addition of any exogenous vitamins to investigate the genomic and transcriptomic nature of vitamin biosynthesis.

3. Method



4. Key Results



5. Working Conclusions

Vitamin prototrophic (VP) yeast assayed for intracellular vitamin concentrations showed that vitamin B5 (pantothenate) was depleted in the yeast grown without vitamins, whilst vitamin B7 (biotin) was seen in much high concentrations. All VP yeast grown in the absence of vitamins had higher intracellular B-vitamin concentrations than those grown in the presence. For this reason, we are expecting transcriptomic data to show vitamin biosynthesis pathway genes to be overexpressed when grown in the absence of exogenous B vitamins.