

## **Abstract**

The yeast *Saccharomyces cerevisiae* forms structured multicellular populations that undergo several growth phases during growth depending on the amount of nutrients present in the medium. The last growth phase is called chronological ageing, during which cell division is minimal and physiologically and metabolically distinct subpopulations are formed. The aim of this work is to describe the expression and cellular localization of selected genes that may serve as marker genes specifically expressed during the different growth phases of yeast multicellular populations in fermentative and respiratory media. The selected genes were tagged with the GFP gene using the transformation method and strain fluorescence subsequently analyzed during growth in liquid media. Strains with specific expression, localization, or significant differences in expression between the 2 carbon sources were analyzed by Western blots and during growth on solid media as microcolonies. Based on the amount of protein expressed in the cells, 5 genes were selected that were specifically expressed during the exponential and stationary growth phases, and their expression or localization differed significantly during growth on fermentative and respiratory media.

**Key words:** yeast, growth phases, gene expression, fermentation, respiration