Abstract

Yeasts in their natural environment form structured colonies. This allows them to better adapt to environmental conditions, but also to more easily resist various types of yeast infection inhibitors. The metabolism of phospholipids is closely related to the morphology of colonies. An important gene involved in phospholipid metabolism is *INO1*, which encodes inositol-3-phosphate synthase. Expression of the *INO1* gene is regulated by the Opi1p negative transcription factor, which also affects a number of other genes for phospholipid metabolism enzymes, is also necessary for the expression of the *FLO11* gene, encoding Flo11p, which is essential to the formation of a structured colony. The main aim of my work was to investigate the correlation between colony morphology of a natural strain of *Saccharomyces cerevisiae* and phospholipid metabolism. I have found that changes in *INO1* gene expression and colony morphology are influenced by carbon source, selenate activity and the inhibitor of β-oxidation, 2-bromooctanoic acid. Although the *INO1* gene is not essential for cell viability, its deletion or overexpression causes changes in phospholipid metabolism and colony morphology. Selenate and 2-bromooctanoic acid also alter expression of the *FLO11* gene, which is reflected in colony structure. Thus, 2-bromooctanoic acid is a promising agent against yeast infections.