

Abstract

Phospholipid biosynthesis in *Sacchomyces cerevisiae* is regulated by Ino2p-Ino4p activation complex and Opi1p repressor. The most highly regulated *INO1* gene encodes inositol-3-phosphate synthase. This enzyme catalyzes the first step of the metabolic pathway of inositol synthesis. The Ino2p-Ino4p activation complex binds to the promoter of the target genes and interacts with other proteins necessary for activation (Snf1p, SAGA, SWI/SNF, INO80). The Opi1p represses transcription by direct binding to Ino2p and by interaction with other proteins (Sin3p, Cyc8p). The activity of Opi1p protein is mediated by cellular localization and by phosphorylation. The regulation of phospholipids is dependent on the growth phase and on the availability of precursors. Apart from its repressor activity, Opi1p affects mitochondrial metabolism, endoplasmic reticulum stress, cell size, mat formation and invasive growth.