URA1 encodes dihydroorotic acid dehydrogenase, an enzyme involved in the de novo synthesis of pyrimidine ribonucleotides. Ura1p is responsible for catalyzing the fourth step in this pathway, the conversion of dihydroorotic acid to orotic acid. Unlike Schizosaccharomyces pombe and mammalian DHOdehase, which localizes to the mitochondria, S. cerevisiae DHOdehase is cytoplasmic. Loss of Ura1p activity leads to a lack of cell growth unless uracil or uridine is added to the media.Uracil starvation or increased levels of the pyrimidine biosynthesis pathway intermediate dihydoorotic acidcan induce URA1 expression 6-8 fold. This regulation is mediated by the transcriptional activator Ppr1p, which binds to the UASURA sitein the promoters of URA1, URA3, and URA4. DNA-bound Ppr1p is transcriptionally inactive, but the addition of DHO converts Ppr1p to an active state that interacts with RNA polymerase II, leading to increased expression of the URA genes. URA1 expression has been shown to be downregulated by DMSO and also by lithium, a compound that is toxic to yeast cells grown in galactose.