E341

A GTP-binging Protein Regulates the Activity of β-1,3-Glucan Synthase from *Saccharomyces cerevisiae*

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Synthesis of (1→3)-β-D-glucan, the major structural component of the yeast cell wall, is synchronized with the budding cycle. Membrane-bound, GTP-stimulated (1→3)-β-D-glucan synthase was dissociated into two soluble fractions, A and B, both required for activity. Fraction A was purified about 800-fold by chromatomatography on Mono Q and Sephacryl S-300 columns. In purification of Fraction A, GTP binding to protein correlated with synthase-complementing activity. A 20-kDa GTP-binding protein was identified by photolabeling in the purified preparation. This preparation no longer required GTP for activity, but incubation with another fraction from the Mono Q column (A1) led to hydrolysis of bound GTP to GDP with a concomitant return of the GTP requirement. Thus, fraction A1 appears to contains a GTPase-activating protein with a potential link between cell cycle controls and cell wall morphogenesis in *Saccharomyces cerevisiae.*

E342

Purification and Characterization of Catalase-2 from *Deinococcus radiophilus* ATCC 27603

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Deinococcal catalase-2, which is one of three isoenzymes was purified to 95-fold by chromatographic and electrophoretic methods. As like Deinococcal catalase-3, catalase-2 was also catalase-peroxidase. Catalase-2 showed its optimal enzyme activity at 30°C and pH 9. Its Km value for hydrogen peroxide was about 11 mM. It showed the typical high spin ferric heme spectrum with absorption maximum at 403 nm. Addition of 10 mM cyanide to catalase-2 caused a shift of the maximum Soret band to 419 nm. A_{403}/A_{280} ratio was 0.48. And catalase-2 was sensitive to typical heme protein inhibitors such as cyanide, azide, and hydroxylamine. Concentrations for 50% inhibition of the activity were 4.6×10^{-9}, 7.7×10^{-9}, 3.0×10^{-10} M, CN^-, N_3^- and NH_2OH, respectively. These values were very low compared with those of other catalases found in aerobic cells. This enzyme was heat-stable and resistant to 3-amino-1,2,4-triazole. Treatment of this enzyme by ethanol-chloroform caused a partial loss of activity. The molecular weight of native catalase-2 was ca. 310 KD.