

# Purification and Properties of Alkaline Phosphatase with Protein Phosphatase Activity from *Saccharomyces cerevisiae*

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An alkaline phosphatase (ALPase) from *Saccharomyces cerevisiae* strain 257 was purified 345-fold with specific activity of  $54\,533\text{ nmol} \times \text{min}^{-1} \times \text{mg protein}^{-1}$ . It was shown to be a dimeric protein (apparent mol. wt. approx. 130 kDa) with optimum activity at pH 8.6–8.8 and good stability at 50 °C. The ALPase was a non-specific enzyme hydrolyzing a wide variety of monophosphate esters. The enzyme showed protein phosphatase activity and this activity was not  $\text{Mg}^{2+}$  – dependent in contrast to *p*-nitrophenyl phosphate (*p*NPP) activity. The  $K_m$  value for *p*NPP hydrolysis was determined to be  $2.2 \times 10^{-5}\text{ M}$ . Orthophosphate inhibited the enzyme in a competitive mode with the  $K_i$  of  $2.3 \times 10^{-4}\text{ M}$ . Phosphate transfer of the ALPase is almost zero with all alcohols tested except for Tris.