

Guanosine 3':5'-Cyclic Monophosphate -Dependent Particulate Protein Kinase Activity from Yeast (*Saccharomyces cerevisiae*)

Hans Eckstein* and Birgit Flügge

Institut für Physiologische Chemie der Universität Hamburg, Martinistr. 52 – UKE –,
D-20251 Hamburg, Germany

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Continuing our studies on cGMP in growing yeast we detected a particulate cGMP dependent protein kinase (Pk-G), which was solubilized by detergents and NaCl. It achieves maximum activity at 25 °C and pH = 6.8, high concentrations of substrate proteins or cGMP produce saturation. Casein and histones are appropriate substrates, phosphatase-pretreated histone H-2a provokes outstandingly high activity. Pk-G differs from cAMP-dependent protein kinase (Pk-A) with respect to pH optimum, temperature tolerance above 50 °C, and stability. Partial purification is achieved by chromatography with DEAE-cellulose, Sepharose, and cGMP-substituted Sepharose. The latter step also markedly removes Pk-A. At least three proteins with Pk-G-activity and high cGMP-affinity are separated by polyacrylamide-gel-electrophoresis. Their apparent molecular masses, as deduced from comigrating marker proteins, differ considerably from those of other Pk-G's, but also of Pk-A's.

Reprint requests to Dr. Eckstein, Heubergerstraße 8, D-22145 Hamburg, Germany.