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Certificate of Analysis and Data Sheet

Recombinant E.Coli Glucose-6-Phosphate Dehydrogenase

Catalog No.	**Source:**
228-10507	Escherichia Coli.

Synonyms
G6PD, G6PD1, Glucose-6-phosphate 1-dehydrogenase.

Introduction
G6PD is the rate-limiting enzyme of the pentose phosphate pathway, a metabolic pathway that supplies reducing energy to cells by maintaining the level of NADPH. G6PD converts glucose-6-phosphate into 6-phosphoglucono-?-lactone and at the same time produces NADPH. The NADPH maintains the level of glutathione in these cells that helps protect the red blood cells against oxidative damage. G6PD deficiency causes acute hemolytic anemia, neonatal jaundice or acute hemolysis. G6PD is a cytosolic enzyme encoded by an X-linked gene whose main function is to produce NADPH, a crucial electron donor in the defense against oxidizing agents and in reductive biosynthetic reactions. G6PD produces pentose sugars for nucleic acid synthesis and is a main producer of NADPH reducing power.

Description
G6PD E.Coli Recombinant produced in E.Coli is a single, non-glycosylated polypeptide chain containing 491 amino acids and having a molecular mass of 55.7kDa.
The G6PD is purified by proprietary chromatographic techniques.

Physical Appearance
Sterile filtered colorless solution.

Formulation
The G6PD protein contains 50mM MES 6.0, 0.1mM PMSF, 2mM EDTA, 0.5mM DTT and 10% glycerol.

Stability
Store at 4°C if entire vial will be used within 2-4 weeks.
Store frozen at -20°C for longer periods of time.
For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA).
Avoid multiple freeze-thaw cycles.

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Amino acid sequence

MAVTQTAQAC DLVIFGAKGD LARRKLLPSL YQLEKAGQLN PDTRIIGVGR ADWDKAAYTK VVREALETFM KETIDEGLWD TLSARLDFCN LDVNDTAAFS RLGAMLDQKN RITINYFAMP PSTFGAICKG LGEAKLNAKP ARVVMEKPLG TSLATSQEIN DQVGEYFEEC QVYRIDHYLG KETVLNLLAL RFANSLFVNN WDNRTIDHVE ITVAEEVGIE GRWGYFDKAG QMRDMIQNHL LQILCMIAMS PPSDLSADSI RDEKVKVLKS LRRIDRSNVR EKTVRGQYTA GFAQGKKVPG YLEEEGANKS SNTETFVAIR VDIDNWRWAG VPFYLRTGKR LPTKCSEVVV YFKTPELNLF KESWQDLPQN KLTIRLQPDE GVDIQVLNKV PGLDHKHNLQ ITKLDLSYSE TFNQTHLADA YERLLLETMR GIQALFVRRD EVEEAWKWVDSITEAWAMDN DAPKPYQAGT WGPVASVAMI TRDGRSWNEF E.

Purity

Greater than 90.0% as determined by SDS-PAGE.

Biological Activity

Specific activity is 8-10 units/ml obtained by measuring the increase of NADPH in absorbance at 340 nm resulting from the reduction of NAD or NADP. One unit oxidizes 1.0 umole D-glucose-6-phosphate to 6-phospho-D-gluconate per min in the presence of beta-NADP at pH 7.4 at 25C.