

Glucose-6-phosphate Dehydrogenase (G6PD) Active Protein | G6PD active protein

Active Glucose-6-phosphate Dehydrogenase (G6PD)

CATALOG # AAA161771	HOST E Coli	APPLICATIONS Activity Assay, Cell Culture
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PRODUCT SYNONYMS

Glucose-6-phosphate Dehydrogenase (G6PD); Active Glucose-6-phosphate Dehydrogenase (G6PD); Glucose-6-phosphate Dehydrogenase; Glucose-6-phosphate 1-dehydrogenase4; G6PD active protein

PRODUCT SPECIFICATIONS

Host	E Coli
Purity/Purification	Greater than 90% by SDS-PAGE
Form/Format	Freeze-dried powder; PBS, pH7.4, containing 0.01% SKL, 1mM DTT, 5% Trehalose and Proclin300.
Sequence	Met1~Leu51 5
Applicable Applications for G6PD active protein	Activity Assay, Cell Culture
Species	Human
Expression System	Prokaryotic expression
Tag	N-terminal His Tag
Endotoxin Level	<1.0EU per 1ug (determined by the LAL method)
Isoelectric Point	6.5
Research Area	Metabolic pathway
Preparation and Storage	Store at 2-8 degree C for one month, -80 degree C for 12 months

IMAGES

Specific Activity (pmol/min/ug)=

Adjusted V_{na}* (OD/min) x well volume (L) x 10¹² pmol/mol

ext. coeff** (M⁻¹cm⁻¹) x path corr.*** (cm) x amount of enzyme (ug)

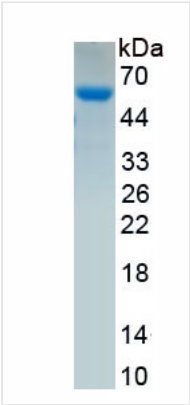
*Adjusted for Substrate Blank

**Using the extinction coefficient 6220 M⁻¹cm⁻¹

***Using the path correction 0.320 cm

Bioactivity

Glucose-6-phosphate dehydrogenase (G6PD) converts D-glucose 6-phosphate (G6P) into 6-phosphoglucono-delta-lactone and generate co-enzyme nicotinamide adenine dinucleotide phosphate (NADPH). G6PD is the rate-limiting enzyme of the pentose phosphate pathway that supplies reducing energy to cells by maintaining the level of NADPH, which in turn maintains the level of glutathione in these cells that helps protect the red blood cells against oxidative damage from compounds like hydrogen peroxide. More importantly, NADPH is used for biosynthesis of fatty acids or isoprenoids. G6PD is generally found as a dimer of two identical monomers. Depending on conditions, such as pH, these dimers can themselves dimerize to form tetramers. Each monomer in the complex has a substrate binding site that binds to G6P, and a catalytic coenzyme binding site that binds to NADP /NADPH using the Rossman fold. Its activity is stimulated by the substrate G6P and NADP. The activity of recombinant human G6PD was measured by its ability to dehydrogenate glucose-6-phosphate. The reaction was performed in 25 mM Tris, 50 mM NaCl, 10 mM MgCl2, pH 8.0 (Assay Buffer), initiated by addition 50 uL of various concentrations of G6PD (diluted by Assay Buffer) to 50 ul substrate mixture consists of 1 mM NADP and 1 mM G6P. The final well serves as a negative control with no G6PD, replaced with 50 uL assay buffer. Then read at a wavelength of 340 nm in kinetic mode for 5 minutes. The specific activity of recombinant human G6PD is >280 pmol/min/ug.



SDS-PAGE
Figure. SDS-PAGE

ADDITIONAL INFORMATION

Product Categories/Family for G6PD active protein	Active proteins
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NCBI AND UNIPROT INFORMATION

NCBI GI #	1203978
NCBI GeneID	2539
UniProt Accession #	P11413; Q16000; Q16765; Q8IU70; Q8IU88; Q8IUA6; Q96PQ2; D3DWX9
Molecular Weight	59,257 Da
NCBI Official Full Name	G6PD
NCBI Official Synonym Full Names	glucose-6-phosphate dehydrogenase
NCBI Official Symbol	G6PD
NCBI Official Synonym Symbols	G6PD1
NCBI Protein Information	glucose-6-phosphate 1-dehydrogenase; glucose-6-phosphate dehydrogenase, G6PD
UniProt Protein Name	Glucose-6-phosphate 1-dehydrogenase
UniProt Gene Name	G6PD
UniProt Synonym Gene Names	G6PD
UniProt Entry Name	G6PD_HUMAN

For Research Use Only. Not for use in diagnostic or therapeutic procedures. Small volumes of product may become entrapped in the seal of the vial during shipment and storage; if necessary, briefly centrifuge the vial on a tabletop centrifuge to dislodge any liquid in the cap.