

HK1/Hexokinase-1 Protein, Human (463a.a, His)

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| Cat. No.: | HY-P700580 |
| Synonyms: | Hexokinase-1; HK1; Brain form hexokinase; Hexokinase type I; HK I; Hexokinase-A |
| Species: | Human |
| Source: | E. coli |
| Accession: | P19367-1 (E13-A475) |
| Gene ID: | 3098 |
| Molecular Weight: | 55.9 kDa |

PROPERTIES

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| AA Sequence | <pre> E L K D D Q V K K I D K Y L Y A M R L S D E T L I D I M T R F R K E M K N G L S R D F N P T A T V K M L P T F V R S I P D G S E K G D F I A L D L G G S S F R I L R V Q V N H E K N Q N V H M E S E V Y D T P E N I V H G S G S Q L F D H V A E C L G D F M E K R K I K D K K L P V G F T F S F P C Q Q S K I D E A I L I T W T K R F K A S G V E G A D V V K L L N K A I K K R G D Y D A N I V A V V N D T V G T M M T C G Y D D Q H C E V G L I I G T G T N A C Y M E E L R H I D L V E G D E G R M C I N T E W G A F G D D G S L E D I R T E F D R E I D R G S L N P G K Q L F E K M V S G M Y L G E L V R L I L V K M A K E G L L F E G R I T P E L L T R G K F N T S D V S A I E K N K E G L H N A K E I L T R L G V E P S D D D C V S V Q H V C T I V S F R S A N L V A A T L G A I L N R L R D N K G T P R L R T T V G V D G S L Y K T H P Q Y S R R F H K T L R R L V P D S D V R F L L S E S G S G K G A A M V T A V A Y R L A E Q H R Q I E E T L A </pre> |
| Biological Activity | Measured by its ability to phosphorylate glucose. The specific activity is 385.882 pmol/min/μg, as measured under the described conditions. |
| Appearance | Lyophilized powder |
| Formulation | Lyophilized from a 0.2 μm filtered solution of Tris/PBS-based buffer, 6% Trehalose, pH 8.0 or 50 mM Tris-HCL, 300 mM NaCl, pH 7.4. |
| Endotoxin Level | <1 EU/μg, determined by LAL method. |
| Reconstitution | It is not recommended to reconstitute to a concentration less than 100 μg/mL in ddH ₂ O. For long term storage it is recommended to add a carrier protein (0.1% BSA, 5% HSA, 10% FBS or 5% Trehalose). |
| Storage & Stability | Stored at -20°C for 2 years. After reconstitution, it is stable at 4°C for 1 week or -20°C for longer (with carrier protein). It is recommended to freeze aliquots at -20°C or -80°C for extended storage. |
| Shipping | Room temperature in continental US; may vary elsewhere. |

DESCRIPTION

Background

The Hexokinase-1 (HK1) protein plays a pivotal role in cellular metabolism by catalyzing the phosphorylation of various hexoses, including D-glucose, D-glucosamine, D-fructose, D-mannose, and 2-deoxy-D-glucose, to generate hexose 6-phosphate (D-glucose 6-phosphate, D-glucosamine 6-phosphate, D-fructose 6-phosphate, D-mannose 6-phosphate, and 2-deoxy-D-glucose 6-phosphate, respectively). While HK1 does not phosphorylate N-acetyl-D-glucosamine, it mediates the critical initial step of glycolysis by catalyzing the phosphorylation of D-glucose to D-glucose 6-phosphate. Beyond its metabolic functions, HK1 is involved in innate immunity and inflammation, acting as a pattern recognition receptor for bacterial peptidoglycan. In the cytosol, the N-acetyl-D-glucosamine component of bacterial peptidoglycan inhibits HK1's activity, leading to its dissociation from the mitochondrial outer membrane and subsequently activating the NLRP3 inflammasome. This multifaceted role underscores HK1's significance in cellular processes beyond glycolysis, highlighting its involvement in immune response and inflammation.

Caution: Product has not been fully validated for medical applications. For research use only.

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