

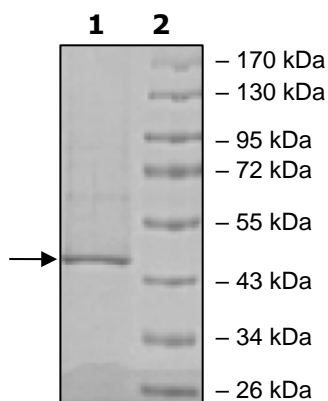
Product Information

Description:	Recombinant human HIPK3 (homeodomain interacting protein kinase 3), encompassing amino acids 163-562. This construct contains an N-terminal His-tag. The recombinant protein was affinity purified and is active.
Background:	HIPK3 (homeodomain-interacting protein kinase 3) is a serine/threonine kinase that belongs to the dual-specificity tyrosine phosphorylation-regulated kinase (DYRK) family, meaning they can phosphorylate themselves and other substrates. Its activity is controlled by several post-translational modifications, such as acetylation, ubiquitination, SUMOylation and caspase cleavage, in addition to phosphorylation. HIPK3 is involved in rRNA transcription and negative regulation of apoptosis and found mainly in the nucleus. HIPKs are involved in chronic fibrosis, Alzheimer's and Huntington's disease, and in cancer it was found that its levels have a prognostic value, with its downregulation in non-small cell lung cancer (NSCLC) having poor survival. Advances in RNA deep sequencing have identified circRNA (circular RNAs), which act as miRNA sponges and in the development and progression of cancer. cirHIPK3 (circRNA for HIPK3) is abundant and can sponge miR-124 and induce proliferation of cancer cells. Inhibition of the protein itself or its related circRNA has great potential in cancer oncology.
Species:	Human
Construct:	HIPK3 (His-163-562)
Concentration:	0.10 mg/ml
Expression System:	Sf9
Purity:	85%
Format:	Aqueous buffer solution.
Formulated In:	50 mM Sodium Phosphate, pH 7.0, 300 mM NaCl, 150 mM Imidazole, 0.1 mM PMSF, 0.25 mM DTT, 25% glycerol
MW:	49 kDa
Genbank Accession:	NM_005734
Stability:	At least 6 months at -80°C.
Storage:	-80°C
Instructions for Use:	Thaw on ice and gently mix prior to use. DO NOT VORTEX. Perform a quick spin before opening. Aliquot into small volumes and flash freeze for long term storage. Avoid multiple freeze/thaw cycles.
Specific Activity:	48 pmol/min/μg
Assay Conditions:	HIPK3 activity was measured by using as substrate the MBP (myelin basic protein) diluted in distilled water to a working concentration of 1 mg/ml, in a [33P]-ATP based assay. Reaction was initiated by mixing increasing amounts of HIPK3 with 1250 pmoles of [33P]-ATP in 5 mM MOPS, pH 7.2, 2.5 mM β-glycerol-phosphate, 5 mM MgCl ₂ , 1 mM EGTA, 0.4 mM EDTA, 50 ng/μl BSA, 50 μM DTT and substrate at a final concentration of 200 μg/ml. The reaction was initiated by addition of [33P]-ATP Assay Cocktail (50 μM of [33P]-ATP with 50 μM ATP), followed by a 15-minute incubation at 30°C. The reaction was terminated by spotting the reaction mixture on phosphocellulose P81 paper, air-dry and three 10-minute washes with 1% phosphoric acid solution. Radioactivity was measured in a scintillation counter. The corrected activity (RLU) was calculated by removing the blank value for each sample. The Kinase Specific Activity was calculated as follows: $RLU / [(specific\ activity\ of\ [33P]-ATP\ in\ cpm/pmol) * (Reaction\ time\ in\ min) * (Enzyme\ amount\ in\ \mu g\ or\ mg)] * [(Reaction\ Volume) / (Spot\ Volume)]$. The blank was determined from a "no substrate" sample by replacing the substrate solution with an equal volume of distilled water.

Applications: Useful for the study of enzyme kinetics, screening inhibitors, and selectivity profiling.

Quality Control Data

4-20% SDS-PAGE Coomassie Staining



Specific Activity

