Data Sheet (Cat.No.TMPY-04474)

TargetMol

PFKFB3 Protein, Human, Recombinant (His & GST)

General Information

Synonyms: IPFK2;6-phosphofructo-2-kinase/fructose-2,6-biphosphatase 3;PFK2

Protein Construction: A DNA sequence encoding the human PFKFB3 isoform 1 (Q16875-1) (Met 1-His 520) was fused with the N-terminal polyhistidine-tagged GST tag at the N-terminus. Predicted N terminal: Met

Species: Human

Expression Host: Baculovirus Insect Cells

Accession: Q16875-1

Molecular Weight: 87.4 kDa (predicted); 75 kDa (reducing conditions)

QC Testing

Biological Activity: Kinase activity untested

Purity: > 85 % as determined by SDS-PAGE

Endotoxin: < 1.0 EU/μg of the protein as determined by the LAL method.

Formulation: Supplied as sterile 20 mM Tris, 500 mM NaCl, pH 7.0, 10% glycerol, 0.3 mM DTT.

Preparation and Storage

Reconstitution:

A Certificate of Analysis (CoA) containing reconstitution instructions is included with the products. Please refer to the CoA for detailed information.

Stability & Storage:

It is recommended to store the product under sterile conditions at -20°C to -80°C. Samples are stable for up to 12 months. Please avoid multiple freeze-thaw cycles and store products in aliquots.

Actual storage temperature shall be subject to the COA.

Shipping:

Proteins are shipped with blue ice.

Protein Background

Fructose-2,6-biphosphatase 3, also known as 6-phosphofructo-2-kinase or PFK2 or PFKFB3, is a potent activator of phosphofructokinase, which is a rate-limiting enzyme of glycolysis. Highly phosphorylated PFKFB3 protein was found in human tumor cells, vascular endothelial cells, and smooth muscle cells. Fructose 2,6-bisphosphate (Fru-2,6-BP) is an allosteric activator of 6-phosphofructo-1-kinase (PFK-1), a rate-limiting enzyme and essential control point in glycolysis. The concentration of PFK2 depends on the activity of the bifunctional enzyme, 6-phosphofructo-2-kinase / fructose-2,6-bisphosphatase (PFK-2 / FBPase). PFK2 controls the glycolytic flux via the allosteric activator fructose 2,6-bisphosphate. Because of its proto-oncogenic character, the PFK-2/FBPase-2 of the PFKFB3 gene is assumed to play a critical role in tumorigenesis. The hypoxia-inducible form of 6-

phosphofructo-2-kinase / fructose-2,6-bisphosphatase (PFKFB3) plays a crucial role in the progression of cancerous cells by enabling their glycolytic pathways even under severely hypoxic conditions.

Reference

Kessler R,et al.(2008) 6-Phosphofructo-2-kinase/fructose-2,6-bisphosphatase (PFKFB3) is up-regulated in high-grade astrocytomas. J Neurooncol. 86(3):257-64.

Yalcin A,et al.(2009) Nuclear targeting of 6-phosphofructo-2-kinase (PFKFB3) increases proliferation via cyclin-dependent kinases. J Biol Chem. 284(36):24223-32.

Atsumi T,et al.(2002) High expression of inducible 6-phosphofructo-2-kinase / fructose-2, 6-bisphosphatase (iPFK-2; PFKFB3) in human cancers. Cancer Res. 262(20): 5881-7.

Kim SG,et al.(2006) Crystal structure of the hypoxia-inducible form of 6-phosphofructo-2-kinase / fructose-2,6-bisphosphatase (PFKFB3): a possible new target for cancer therapy. J Biol Chem. 281(5): 2939-44.

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