Data Sheet (Cat.No.TMPY-02801)

TargetMol

PHGDH Protein, Human, Recombinant (His)

General Information

Synonyms:	phosphoglycerate dehydrogenase;HEL-S-113;3PGDH;NLS1;PHGDHD;PGDH;NLS;SERA;PGAD;3-PGDH;PGD;PDG
Protein Construction:	A DNA sequence encoding the mature form of human PHGDH (O43175) (Met 1-Phe 533) was fused with a polyhistidine tag at the C-terminus and an initial Met at the N-terminus. Predicted N terminal: Met
Species:	Human
Expression Host:	E. coli
Accession:	O43175
Molecular Weight:	58kDa (predicted); 55 kDa (reducing conditions)

QC Testing

Biological Activity:	Activity testing is in progress. It is theoretically active, but we cannot guarantee it. If you require protein activity, we recommend choosing the eukaryotic expression version first.
Purity:	> 90 % as determined by SDS-PAGE
Endotoxin:	Please contact us for more information.
Formulation:	Supplied as sterile PBS, 100 mM Arg, 0.1% Tween20, 20% glycerol, pH 8.0.

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

PHGDH is a member of the D-isomer specific 2-hydroxyacid dehydrogenase family. This new family consists of D-isomer-stereospecific enzymes. The conserved residues in this family appear to be the residues involved in the substrate binding and the catalytic reaction, and thus to be targets for site-directed mutagenesis. A number of NAD-dependent 2-hydroxyacid dehydrogenases which seem to be specific for the D-isomer of their substrate have been shown to be functionally and structurally related. PHGDH catalyzes the transition of 3-phosphoglycerate into 3-phosphohydroxypyruvate, which is the first and rate-limiting step in the phosphorylated pathway of serine biosynthesis, using NAD+/NADH as a cofactor. Overexpression of PHGDH may cause certain breast cancers.

Defects in PHGDH are the cause of phosphoglycerate dehydrogenase deficiency which is characterized by congenital microcephaly, psychomotor retardation, and seizures.

Reference

Pind S,et al. (2002) V490M, a common mutation in 3-phosphoglycerate dehydrogenase deficiency, causes enzyme deficiency by decreasing the yield of mature enzyme. J Biol Chem. 277 (9): 7136-43.

Du H,et al. (2010) 3-Phosphoglycerate dehydrogenase expression is regulated by HOXA10 in murine endometrium and human endometrial cells. Reproduction. 139 (1): 237-45.

Possemato R,et al. (2011) Functional genomics reveal that the serine synthesis pathway is essential in breast cancer. Nature. 476 (7360): 346-50.

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