

Human TH / Tyrosine Hydroxylase Protein (His Tag)

Catalog Number: 10684-H07B



Sino Biological Inc.
Biological Solution Specialist

General Information

Gene Name Synonym:

DYT14; DYT5b; TYH

Protein Construction:

A DNA sequence encoding the human TH isoform 2 (P07101-3) (Pro 2-Gly 497) was fused with a polyhistidine tag at the N-terminus.

Source: Human

Expression Host: Baculovirus-Insect Cells

QC Testing

Purity: > 94 % as determined by SDS-PAGE

Endotoxin:

< 1.0 EU per µg of the protein as determined by the LAL method

Stability:

Samples are stable for up to twelve months from date of receipt at -70 °C

Predicted N terminal: Met

Molecular Mass:

The recombinant human TH consists of 515 amino acids and has a calculated molecular mass of 57.6 kDa. It migrates as an approximately 75 kDa band in SDS-PAGE under reducing conditions.

Formulation:

Lyophilized from sterile 20mM Tris, 500mM NaCl, pH 8.0, 10% gly

Normally 5 % - 8 % trehalose, mannitol and 0.01% Tween80 are added as protectants before lyophilization. Specific concentrations are included in the hardcopy of COA. Please contact us for any concerns or special requirements.

Usage Guide

Storage:

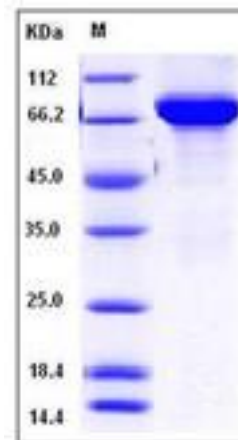
Store it under sterile conditions at -20°C to -80°C upon receiving. Recommend to aliquot the protein into smaller quantities for optimal storage.

Avoid repeated freeze-thaw cycles.

Reconstitution:

Detailed reconstitution instructions are sent along with the products.

SDS-PAGE:



Protein Description

Tyrosine hydroxylase (TH) is a rate-limiting enzyme in catecholamine synthesis. Tyrosine hydroxylase activity is modulated by protein-protein interactions with enzymes in the same pathway or the tetrahydrobiopterin pathway, structural proteins considered to be chaperones that mediate the neuron's oxidative state. It is phosphorylated at serine (Ser) residues Ser8, Ser19, Ser31 and Ser40 in vitro. The phosphorylation of tyrosine hydroxylase at Ser19 or Ser8 has no direct effect on tyrosine hydroxylase activity. As tyrosine hydroxylase (TH) catalyses the formation of L-DOPA, the rate-limiting step in the biosynthesis of DA, the Parkinson's disease (PD) can be considered as a TH-deficiency syndrome of the striatum. A direct pathogenetic role of TH has also been suggested, as the enzyme is a source of reactive oxygen species (ROS) in vitro and a target for radical-mediated oxidative injury. Recently, it has been demonstrated that L-DOPA is effectively oxidized by mammalian Tyrosine hydroxylase in vitro, possibly contributing to the cytotoxic effects of DOPA.

References

1. Daubner SC, *et al.* (2011) Tyrosine hydroxylase and regulation of dopamine synthesis. *Arch Biochem Biophys.* 508(1): 1-12.
2. Dunkley PR, *et al.* (2004) Tyrosine hydroxylase phosphorylation: regulation and consequences. *J Neurochem.* 91(5): 1025-43.
3. Haavik J, *et al.* (1998) Tyrosine hydroxylase and Parkinson's disease. *Mol Neurobiol.* 16(3): 285-309.

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