

# Mouse TH / Tyrosine Hydroxylase Protein (His Tag)

Catalog Number: 50997-M07B



**Sino Biological Inc.**  
Biological Solution Specialist

## General Information

### Gene Name Synonym:

DYT14; DYT5b; TYH

### Protein Construction:

A DNA sequence encoding the mouse TH (P24529) (Pro 2-Ser 498) was fused with a polyhistidine tag at the N-terminus.

**Source:** Mouse

**Expression Host:** Baculovirus-Insect Cells

## QC Testing

**Purity:** > 85 % 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 mouse TH consists of 516 amino acids and has a calculated molecular mass of 58 kDa. It migrates as an approximately 65 kDa band in SDS-PAGE under reducing conditions.

### Formulation:

Lyophilized from sterile 20mM Tris, 500mM NaCl, pH 7.4, 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:

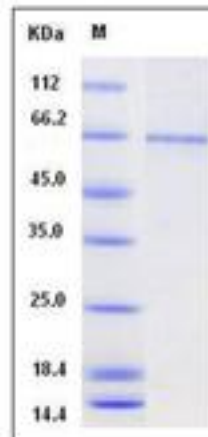
Store it under sterile conditions at -20°C to -80°C upon receiving. Recommend to aliquot the protein into smaller quantities for optimal storage.

**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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