

## Thimet Oligopeptidase/THOP1 Protein, Mouse, Recombinant (His)

### General Information

Synonyms:	thimet oligopeptidase 1;EP24.15;AI131655;AI327041
Protein Construction:	A DNA sequence encoding the mouse THOP1 (NP_073144.3) (Lys 2-Cys 687) was fused with a polyhistidine tag at the N-terminus. Predicted N terminal: Met
Species:	Mouse
Expression Host:	Baculovirus Insect Cells
Accession:	Q8C1A5
Molecular Weight:	80.1 kDa (predicted); 75 kDa (reducing conditions)

### QC Testing

Biological Activity:	Measured by its ability to cleave a fluorogenic peptide substrate, (7-methoxycoumarin-4-yl) acetyl-Pro-Leu-Gly-Pro-D-Lys(2,4-dinitrophenyl)-OH or Mca-PLGPK(Dnp)-OH. The specific activity is > 100 pmoles/min/ $\mu$ g.
Purity:	> 90 % as determined by SDS-PAGE
Endotoxin:	< 1.0 EU/ $\mu$ g of the protein as determined by the LAL method.
Formulation:	Lyophilized from a solution filtered through a 0.22 $\mu$ m filter, containing 20 mM Tris, 500 mM NaCl, pH 7.4, 10% gly. Typically, a mixture containing 5% to 8% trehalose, mannitol, and 0.01% Tween 80 is incorporated as a protective agent before lyophilization.

### 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 recombinant proteins at -20°C to -80°C for future use. Lyophilized powders can be stably stored for over 12 months, while liquid products can be stored for 6-12 months at -80°C. For reconstituted protein solutions, the solution can be stored at -20°C to -80°C for at least 3 months. Please avoid multiple freeze-thaw cycles and store products in aliquots.

Actual storage temperature shall be subject to the COA.

#### Shipping:

In general, lyophilized powders are shipped with blue ice, while solutions are shipped with dry ice.

### Protein Background

THOP1, also known as Thimet oligopeptidase 1, Thimet oligopeptidase, EC 3.4.24.15, or EP24.15, is a zinc(II) endopeptidase implicated in the processing of numerous physiological peptides. As an intracellular enzyme, highly expressed in the brain, kidneys and neuroendocrine tissue, THOP1 has been proposed to metabolize peptides within cells, thereby affecting antigen presentation and G protein-coupled receptor signal transduction.

Its substrate is gonadotrophin-releasing hormone (GnRH), an important hypothalamic hormone that regulates the synthesis and release of oestradiol and facilitates female sexual behaviour. THOP1 against toxic effects of Abeta in the early stages of Alzheimer disease (AD) pathology, and suggest that the observed increase in THOP1 expression might be part of a compensatory defense mechanism of the brain against an increased Abeta load.

### Reference

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- Pollio G, et al. (2008) Increased expression of the oligopeptidase THOP1 is a neuroprotective response to Abeta toxicity. *Neurobiol Dis.* 31(1): 145-58.
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