

## Thyroid peroxidase Protein, Human, Recombinant (S257A & P725T, His)

### General Information

Synonyms:	thyroid peroxidase;MSA;TPX;TDH2A
Protein Construction:	A DNA sequence encoding the human TPO (P07202-1) extracellular domain (Met 1-Arg846, 257 Ser/Ala, 725 Pro/Thr) was fused with a polyhistidine tag at the C-terminus. Predicted N terminal: Cys 15
Species:	Human
Expression Host:	Baculovirus Insect Cells
Accession:	P07202-1
Molecular Weight:	93.8 kDa (predicted); 90-100 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:	> 95 % as determined by SDS-PAGE
Endotoxin:	< 1.0 EU/µg of the protein as determined by the LAL method.
Formulation:	Lyophilized from a solution filtered through a 0.22 µm 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:	Reconstituted with sterile deionized water to 0.25 mg/mL. Reconstitution conditions may vary depending on the lot.
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. <small>Actual storage temperature shall be subject to the COA.</small>

### Shipping:

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

### Protein Background

Thyroid peroxidase is a membrane-bound glycoprotein which belongs to the peroxidase family, XPO subfamily. It contains 1 EGF-like domain and 1 Sushi (CCP/SCR) domain. Thyroid Peroxidase represents one of the main autoantigenic targets in autoimmune thyroid disease of humans. It used to be taken as the formerly so-called 'microsomal antigen' several years ago. As an integral membrane glycoprotein it is restricted to the apical plasma

membrane of the follicular epithelial cells and comprises two identical subunits of approx 100 kDa molecular weight. Thyroid peroxidase is an enzyme expressed abundantly in the thyroid that liberates iodine for addition onto tyrosine residues on thyroglobulin for the production of thyroxine or triiodothyronine, thyroid hormones. Thyroid peroxidase plays a key role in the thyroid hormone biosynthesis by catalysing both the iodination of tyrosyl residues and the coupling of iodotyrosyl residues in thyroglobulin to form precursors of the thyroid hormones T4 and T3.

### Reference

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- Kimura S, et al. (1987) Human thyroid peroxidase: complete cDNA and protein sequence, chromosome mapping, and identification of two alternately spliced mRNAs. *Proc Natl Acad.* 84(16):5555-9.
- Ruf J, et al. (2006) Structural and functional aspects of thyroid peroxidase. *Arch Biochem Biophys.* 445 (2):269-77.

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Tel: 781-999-4286 E\_mail: info@targetmol.com Address: 34 Washington Street, Wellesley Hills, MA 02481