Data Sheet (Cat.No.TMPY-01256)

TargetMol

TBG Protein, Human, Recombinant (His)

General Information

Synonyms:	Serpin A7;serpin peptidase inhibitor, clade A (α-1 antiproteinase, antitrypsin), member 7; serpin peptidase inhibitor, clade A (alpha-1 antiproteinase, antitrypsin), member 7;TBG; Thyroxine Binding Globulin
Protein Construction:	A DNA sequence encoding the human SERPINA7 (NP_000345.2) (Met 1-Ala 415) was expressed, fused with a polyhistidine tag at the C-terminus. Predicted N terminal: Ala 21
Species:	Human
Expression Host:	HEK293 Cells
Accession:	P05543
Molecular Weight:	45.5 kDa (predicted); 55-60 kDa (reducing condition, due to glycosylation)

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:	> 97 % 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 PBS, pH 7.4. 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 0.13 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.

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

Thyroxine-binding globulin, also known as T4-binding globulin, Serpin A7 and TBG, is a secreted protein that belongs to the serpin family. TBG is synthesized primarily in the liver as a 54 kDa protein.TBG is genomically a serpin, although it has no inhibitory function like many other members of this class of proteins. TBG binds thyroid

hormone in circulation. It is one of three proteins (along with transthyretin and albumin) responsible for carrying the thyroid hormones thyroxine (T4) and 3,5,3′-triiodothyronine (T3) in the bloodstream. Of these three proteins, TBG has the highest affinity for T4 and T3, but is present in the lowest concentration. Despite its low concentration, TBG carries the majority of T4 in serum. Due to the very low serum concentration of T4 and T3, TBG is rarely more than 25% saturated with its ligand. Unlike transthyretin and albumin, TBG has a single binding site for T4/T3. TBG tests are sometimes used in finding the reason for elevated or diminished levels of thyroid hormone.

Reference

Flink I.L., et al.,(1986), Complete amino acid sequence of human thyroxine-binding globulin deduced from cloned DNA: close homology to the serine antiproteases. Proc. Natl. Acad. Sci. U.S.A. 83:7708-7712.

Akbari M.T., et al., (1993), The structure of the human thyroxine binding globulin (TBG) gene.Biochim. Biophys. Acta 1216:446-454.

Hayashi Y., et al.,(1993), Human thyroxine-binding globulin gene: complete sequence and transcriptional regulation.Mol. Endocrinol. 7:1049-1060.

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