

THRB Protein, Human, Recombinant (His)

General Information

Synonyms:	THRB1;GRTH;THR1;ERBA2;C-ERBA-2;THRB2;thyroid hormone receptor, β ;PPTH;C-ERBA- β ; thyroid hormone receptor, beta;C-ERBA-BETA;NR1A2
Protein Construction:	A DNA sequence encoding the Human THRB (P10828-1) (Glu202-Asp461) was expressed, with a polyhistidine tag at the N-terminus. Predicted N terminal: Met
Species:	Human
Expression Host:	E. coli
Accession:	P10828-1
Molecular Weight:	30.33 kDa (predicted)

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. ≥ 90 % as determined by SEC-HPLC.
Endotoxin:	< 1.0 EU/ μ g of the protein as determined by the LAL method.
Formulation:	Lyophilized from a solution filtered through a $0.22 \mu\text{m}$ filter, containing 50 mM Tris, 1 mM Tcep, pH 8.0. 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

Thyroid hormone receptor beta (THRB), also known as TRbeta and NR1A2, belongs to the nuclear hormone receptor family. Featuring an N-terminal transactivation domain, a central DNA-binding domain, and a hormone/ligand-binding domain, THRB isoform 1/2 expression localizes predominately to the liver and pituitary, respectively. THRB regulates the feedback of T3-dependent thyrotropin-stimulating hormone (TSH) transcription in

the pituitary by binding to thyroid hormone (TH) response elements present on promoters of TH-responsive genes. Located on chromosome 3p24, THRB gene mutation has been linked to autosomal dominant resistance to TH (RTH), which is characterized by goiter and elevated levels of T3, T4, and TSH. THRB is a known pharmacological target for the treatment of non-alcoholic steatohepatitis (NASH). THRB may be a target for future cancer therapies since its knockdown enhanced the viability of endometrial cancer cells and activated the mTOR-4EBP1/eIF4G pathway.

Reference

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- Ke S, et al. Thyroid hormone receptor β sumoylation is required for thyrotropin regulation and thyroid hormone production. *JCI Insight.* 2021.
- Krystian Jazdzewski, et al. Thyroid Hormone Receptor β (THRB) Is a Major Target Gene for MicroRNAs Deregulated in Papillary Thyroid Carcinoma (PTC), *The Journal of Clinical Endocrinology & Metabolism*, 2011.
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