

## Human GPHB5 / Thyrostimulin Beta - Purified

**Catalog No.:** AR10247PU-N

**Quantity:** 10 µg

**Concentration:** 0.5 mg/ml (prior to lyophil.)

**Background:** Human thyrostimulin ranks among the glycoprotein hormone family. These hormones consist of two subunits, the common alpha- and specific beta-subunits, which associate noncovalently to form a heterodimer. The alpha-subunit combines with four distinct beta-subunits giving rise to four biologically active hormones in human: FSH, LH, TSH, and CG. FSH, LH, and TSH, mainly expressed in the anterior pituitary, are essential for coordinated endocrine regulation in the hypothalamus- pituitary axis and show to activate specific G protein-coupled receptors in the thyroid (TSH receptor) and gonads (LH and FSH receptors), respectively.

The heterodimeric glycoprotein hormones have only been identified in vertebrates and are highly conserved in organisms from primitive rayfin fish (CHO (Chinese Hamster Ovary)ndrostei) to human in both primary sequences and functional characteristics. Corticotroph-derived glycoprotein hormone (CGH), also referred to as thyrostimulin, is a noncovalent heterodimer of glycoprotein hormone alpha 2 (GPHA2) and glycoprotein hormone beta 5 (GPHB5).

Recombinant A2/B5 heterodimeric glycoproteins activates human TSH receptors, but not LH and FSH receptors, and shows high affinity to TSH receptors in a radioligand receptor assay. The heterodimer also stimulates cAMP production and thymidine incorporation by cultured thyroid cells and increases serum thyroxine levels in TSH-suppressed rats in vivo. This new heterodimeric glycoprotein hormone was named as thyrostimulin based on its thyroid-stimulating activity. The expression of thyrostimulin in the anterior pituitary known to express TSH receptors suggested a paracrine mechanism.

**Uniprot ID:** [Q86YW7](#)

**NCBI:** [NP\\_660154.2](#)

**GenEID:** [122876](#)

**Species:** Human

**Source:** E. coli

**Format:** **State:** Sterile Filtered White lyophilized (freeze-dried) powder  
**Purity:** > 95.0% as determined by RP-HPLC and SDS-PAGE analysis  
**Buffer System:** 0.05M Acetate buffer pH 4  
**Reconstitution:** Restore by adding 0.2 ml of 0.1M Acetate buffer pH 4 and let the lyophilized pellet dissolve completely.  
For conversion into higher pH value, we recommend intensive dilution by relevant buffer to a concentration of 10 µg/ml.  
In higher concentrations the Reconstitution of this antigen is limited.

**Description:**

Recombinant Human GPHB5 produced in *E. coli* is a single, non-glycosylated, polypeptide chain containing 120 amino acids. The Thyrostimulin contains His tag which consists of 14 additional amino acids.

The amino acid sequence of the recombinant Human Thyrostimulin beta subunit is 100% homologous to the amino acid sequence of the Human Thyrostimulin beta subunit without signal sequence. (N-terminal 24AA).

Thyrostimulin is purified by proprietary chromatographic techniques.

**AA Sequence:**

MRGSHHHHHH GMASASSGNL RTFVGCAVRE FTFLAKKPGC RGLRITTDAC WGR CETWEKP ILEPPYIEAH  
HRVCTYNETK QVTVKLPNCA PGVDPFYTYP VAIRCDCGAC STATTECETI

**Molecular weight:** 13.34 kDa

**Storage:**

Prior to reconstitution store at RT for one month or desiccated below -18°C.

Following reconstitution store undiluted at 2-8°C for one month or (in aliquots) at -20°C for longer.

For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA).

Avoid repeated freezing and thawing.

Shelf life: one year from despatch.