



Product Data Sheet

Cat # RP-595

Recombinant Human Thyrostimulin Alpha

Size: 2 ug

10 ug

Synonyms:

GPA2, GPHA2, ZSIG51, Glycoprotein hormone alpha-2, MGC126572.

Introduction:

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 (Chondrostei) 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.

Description:

GPHA2 Human Recombinant produced in E.Coli is a single, non-glycosylated, polypeptide chain containing 120 amino acids and having a total molecular mass of 13.34 kDa. 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.

Source:

Escherichia Coli.

Physical Appearance:

Sterile Filtered White lyophilized (freeze-dried) powder.

Formulation:

Sterile filtered and lyophilized from 0.5 mg/ml in 0.05M Acetate buffer pH 4.

Solubility:

Add 0.2 ml of 0.1M Acetate buffer pH4 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 solubility of this antigen is limited.

Stability:

Lyophilized Thyrostimulin although stable at room temperature for 3 weeks, should be stored desiccated below -18°C. Upon reconstitution GPHA2 should be stored at 4°C between 2-7 days and for future use below -18°C.

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

Please prevent freeze-thaw cycles.

Purity:

Greater than 95.0% as determined by:

(a) Analysis by RP-HPLC.

(b) Analysis by SDS-PAGE.

Amino acid sequence:

MRGSHHHHHH GMAS QEAVIPG CHLHPFNVTV RSDRQGTQCG SHVAQACVGH CESSAFPSRY SVLVASGYRH NITSVSQCCT ISGLKKVKVQ LQCVGSREE LEIFTARACQCDMCRLSRY

Usage:

This item is for LABORATORY ESEARCH USE ONLY. The product may not be used as drugs, agricultural or pesticidal products, food additives or household chemicals if supplied in powder then reconstitute it in 100 ul water for 1 mg/ml stock and store in liquid at 4°C for ~1 week or aliquots in suitable size and store at -20°C for long term storage..

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