

Recombinant Human Thyroid Stimulating Hormone

Cat. No. TSH-105H Lot. No. (See product label)

SPECIFICATION

Product Overview	Recombinant Human Thyroid Stimulating Hormone is a heterodimeric glycoprotein produced in <i>CHO cells</i> comprised of 2 non-covalently linked subunits-an α subunit of 92 amino acids & $\alpha \beta$ subunit of 118 amino acids and having a total molecular mass of 28.5 kDa. The TSH is purified by proprietary chromatographic techniques.
Species	Human
Source	CHO
Description	Thyroid-stimulating hormone (also known as TSH or thyrotropin) is a hormone synthesized and secreted by thyrotrope cells in the anterior pituitary gland which regulates the endocrine function of the thyroid gland. TSH stimulates the thyroid gland to secrete the hormones thyroxine (T4) and triiodothyronine (T3). TSH production is controlled by a Thyrotropin Releasing Hormone, (TRH), which is manufactured in the hypothalamus and transported to the Anterior Pituitary gland, where it increases TSH production and release. Somatostatin is also produced by the hypothalamus, and has an opposite effect on the pituitary production of TSH, decreasing or inhibiting its release. The level of Thyroid hormones (T3 and T4) in the blood have an additional effect on the pituitary release of TSH, When the levels of T3 and T4 are low, the production of TSH is increased, and conversely, when levels of T3 and T4 are high, then TSH production is decreased. This effect creates a regulatory negative feedback loop. TSH is a glycoprotein and consists of two subunits, the alpha and the beta subunit. The α (alpha) subunit is identical to that of human chorionic gonadotropin (HCG), luteinising hormone (LH), follicle-stimulating hormone

 Tel: 1-631-559-9269 1-516-512-3133

 Email: info@creative-biomart.com  Fax: 1-631-938-8127

 45-1 Ramsey Road, Shirley, NY 11967, USA

(FSH). The β (beta) subunit is unique to TSH, and therefore determines its function.

Physical Appearance Sterile Filtered White lyophilized (freeze-dried) powder.

Biological Activity The activity measured by the amount of cyclic monophosphate (cAMP) produced by a bovine thyroid-derived microsome preparation in response to the Human TSH was found to be >4 IU/mg.

Solubility It is recommended to reconstitute the lyophilized Thyroid Stimulating Hormone in sterile 18M Ω -cm H₂O not less than 100 g/ml, which can then be further diluted to other aqueous solutions.

Formulation The TSH was lyophilized from a concentrated (1.1 mg/ml) solution containing 36 mg mannitol, 5.1 mg sodium phosphate and 2.4 mg sodium chloride.

Purity Greater than 98.0% as determined by: (a) Analysis by RP-HPLC. (b) Analysis by SDS-PAGE.

Stability Lyophilized Thyroid Stimulating Hormone although stable at room temperature for 3 weeks, should be stored desiccated below -18C. Upon reconstitution TSH 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 avoid freeze-thaw cycles.

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