

# Technical Brief

## Recombinant Human Thyroid Stimulating Hormone

Recombinant Human Thyroid Stimulating Hormone (hTSH) from Scripps Laboratories is now available for research use and diagnostic assay development. The ongoing global shortage in the supply of human pituitary glands has severely impacted the supply of native TSH to the diagnostic industry. In response, Scripps Laboratories developed Recombinant hTSH from CHO and HEK293 cells as dependable and cost-effective alternatives to native hTSH. The data presented here demonstrate their suitability for assay development and large-scale assay manufacturing purposes.

### SDS-PAGE

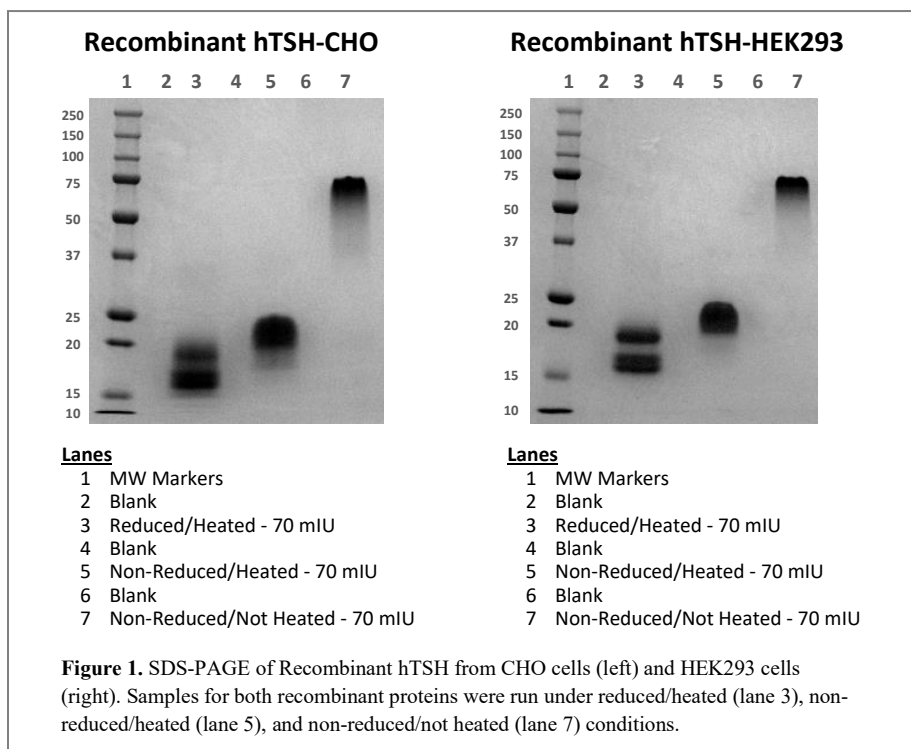
Figure 1 presents SDS-PAGE images of purified Recombinant hTSH from CHO cells (left image) and HEK293 cells (right image). Banding for both recombinants under a variety of conditions is consistent with the expected molecular weights of whole molecule hTSH and the alpha- and beta-subunits. In addition, both purified proteins show no visible contaminants under any of the sample conditions.

### SDS-PAGE

#### GLYCOPROTEIN STAIN

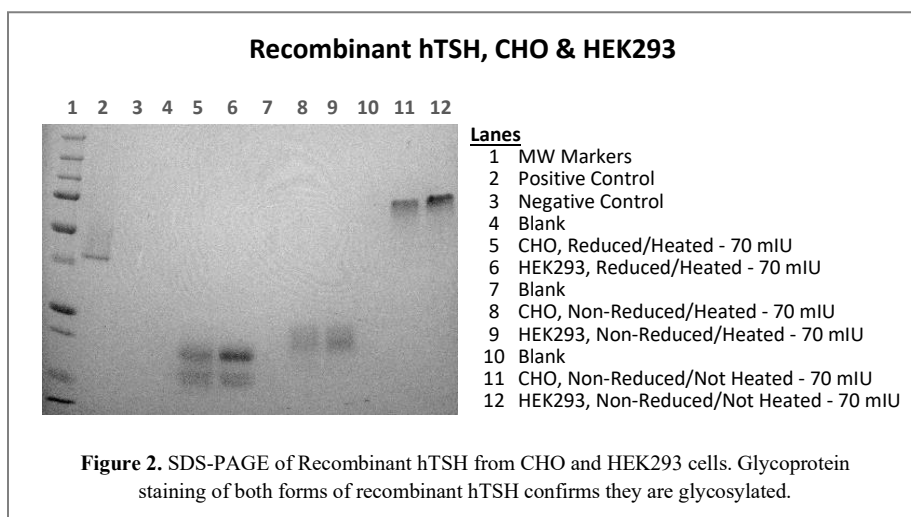
Native hTSH is a glycoprotein produced and secreted by the anterior lobe of the pituitary gland. Both recombinant forms of hTSH from Scripps Laboratories are produced in mammalian cell lines (CHO and HEK293) and both purified products are glycoproteins. Figure 2 is an SDS-PAGE of Recombinant hTSH, stained for carbohydrate moieties. Separation of the alpha- and beta-subunits of CHO and HEK293 recombinant hTSH is visible and both subunits are confirmed to be glycoproteins.

### SDS-PAGE



### SDS-PAGE

#### - Glycoprotein Stain -



## HPLC

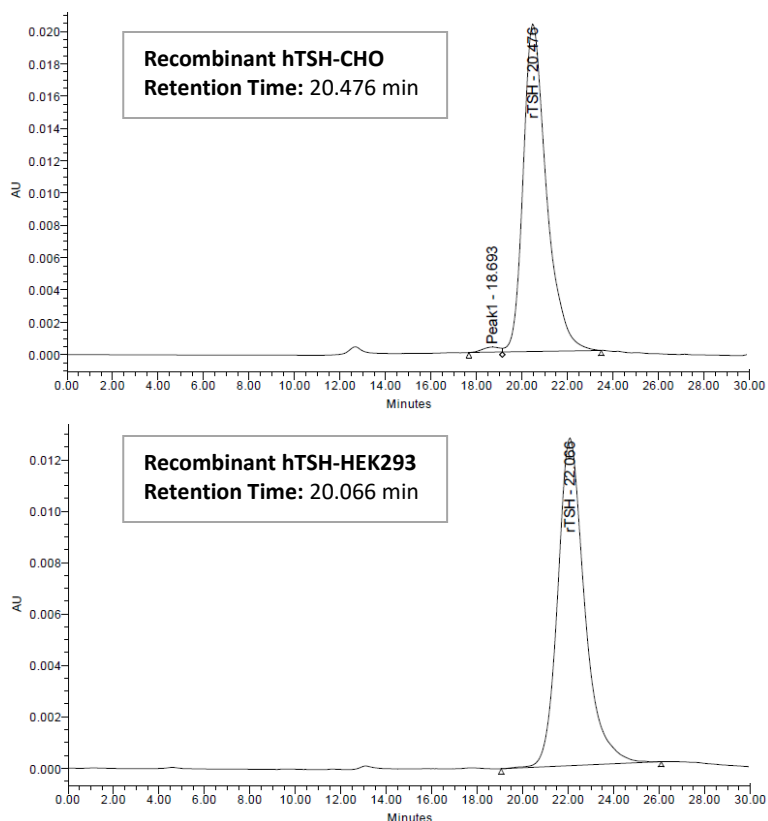
### HPLC

The HPLC profiles of Recombinant hTSH-CHO and Recombinant hTSH-HEK293 are shown in Figure 3. Both profiles display prominent single peaks, with a retention time of 20.476 min for recombinant hTSH-CHO and 20.066 min for recombinant hTSH-HEK293. The profiles confirm what is corroborated by SDS-PAGE: Both recombinant proteins are highly purified with no discernable contaminants.

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The data presented here for Recombinant hTSH-CHO and Recombinant hTSH-HEK293 indicate they are excellent replacements for native hTSH. Produced in mammalian cell culture systems, both recombinants are highly-purified, glycosylated proteins and are reactive in multiple antibody-based assay systems. Unit activity is determined on a clinical immunoassay system and reported for each lot.

Recombinant hTSH-CHO and hTSH-HEK293 are in stock and available now. Bulk quantities are available for large-scale manufacturing with excellent lot-to-lot consistency. Use the links at right to learn more.



**Figure 3.** HPLC analysis of Recombinant hTSH-CHO (top) and Recombinant hTSH-HEK293 (bottom). Analysis was performed using a Biozen 3  $\mu$ m dSEC-2, 200 Å, 300 x 7.8 mm column.

## Ordering Information

Product Description	Cat. No.	Part No.	
Recombinant Human Thyroid Stimulating Hormone - CHO	T0117	90685	<a href="#">View T0117-90685</a>
Recombinant Human Thyroid Stimulating Hormone - HEK293	T0117	90642	<a href="#">View T0117-90642</a>

*Expressed Without Affinity Tags*

