

**MULTISCREEN™ STABLE CELL LINE  
HUMAN RECOMBINANT TSH RECEPTOR**

**Data sheet**

**PRODUCT INFORMATION**

**Catalog Number:** H1177

**Lot Number:** H1177-120810

**Quantity:** 1 vial ( $2 \times 10^6$ ) frozen cells

**Freeze Medium:** Sigma Freezing Medium (C-6164)

**Host cell:** HEK293T

**Transfection:** Full-length Human TSHR cDNA (GenBank Accession Number NM\_000369) with FLAG-tag sequence at the N-terminus

**Recommended Storage:** Liquid nitrogen upon receiving

**Propagation Medium:** DMEM, 10% FBS, 1  $\mu$ g/mL puromycin

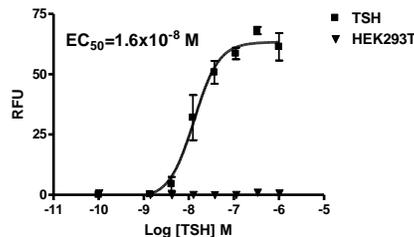
**Stability:** Stable in culture for minimum of two months

**Background:** The thyroid stimulating hormone receptor (TSHR) is expressed in the membrane of thyroid follicular cells. It is involved in regulating thyrocyte cell growth and function. TSHR is also the target autoantigen in thyroid autoimmune diseases. Autoantibodies to TSHR that act as agonists are responsible for the hyperthyroidism of Graves' Disease. Another class of autoantibodies that block the binding of TSH to TSHR may mediate the hypothyroidism associated with Hashimoto's thyroiditis, primary myxoedema, and neonatal hypothyroidism.

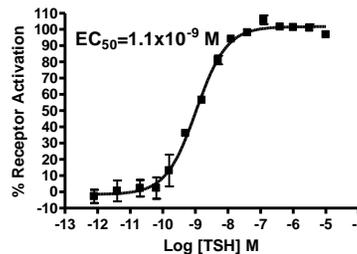
The Multispan TSHR cell line contains the cDNA sequence identical to GenBank sequence NM\_000369 except for one base pair mutation that results in a change in amino acid at position 727 (from glutamic acid to aspartic acid). This has been reported as a natural variant. The allele with glutamic acid has been proposed as a predisposing factor in toxic multinodular goiter pathogenesis.

**Application:** Functional assays

**Figure 1**



**Figure 2**



**Figure 1.** Dose-dependent stimulation of calcium flux upon treatment with ligand, measured with Multiscreen™ Calcium 1.0 No Wash Assay Kit (Multispan MSCA01). **Figure 2.** Dose-dependent stimulation of intracellular cAMP accumulation upon treatment with ligand, measured with Multiscreen™ TR-FRET cAMP 1.0 No Wash Assay Kit (Multispan MSCM01). **Figure 3.** Receptor expression on cell surface measured by flow cytometry (FACS) using an anti-FLAG antibody. Thin line: parental cells; thick line: receptor-expressing cells.

**References:**

Morgenthaler *et al.* (1999) Direct binding of thyrotropin receptor autoantibody to in vitro translated thyrotropin receptor: a comparison to radioreceptor assay and thyroid stimulating bioassay. *Thyroid* 9:466-475.

Davies *et al.* (2005) Thyrotropin receptor-associated diseases: from adenomata to Graves disease. *J Clin Invest* 115:1972-1983.

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**Figure 3**

