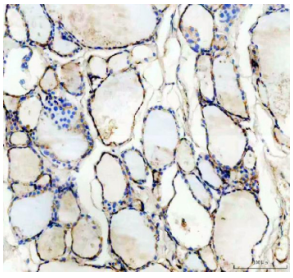
TSH Receptor Antibody / TSHR (R32688)

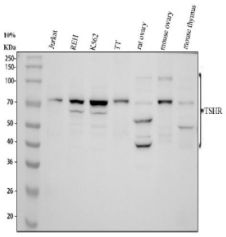
Catalog No.	Formulation	Size
R32688	0.5mg/ml if reconstituted with 0.2ml sterile DI water	100 ug

Bulk quote request

Availability	1-3 business days
Species Reactivity	Human, Mouse, Rat
Format	Antigen affinity purified
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Antigen affinity
Buffer	Lyophilized from 1X PBS with 2% Trehalose
UniProt	P16473
Localization	Cytoplasm, cell membrane
Applications	Western Blot : 0.5-1ug/ml Immunohistochemistry (FFPE) : 2-5ug/ml
Limitations	This TSH Receptor antibody is available for research use only.



IHC analysis of TSH Receptor Antibody / TSHR. TSH Receptor expression was examined in a paraffin-embedded section of human thyroid cancer tissue. Following heat-mediated antigen retrieval in EDTA buffer (pH 8.0), tissue sections were blocked with goat serum and incubated with a rabbit anti-TSH Receptor antibody. Immunoreactivity was visualized using an HRP-based detection system with DAB chromogen. Staining is primarily observed along the membranes of thyroid follicular epithelial cells, with additional cytoplasmic signal consistent with receptor synthesis and intracellular trafficking.



Western blot analysis of TSH Receptor Antibody / TSHR. Proteins were separated by 10% SDS-PAGE and transferred to a nitrocellulose membrane for immunodetection. Lane 1: human Jurkat whole cell lysates; Lane 2: human REH whole cell lysates; Lane 3: human K562 whole cell lysates; Lane 4: human TT whole cell lysates; Lane 5: rat ovary tissue lysates; Lane 6: mouse ovary tissue lysates; Lane 7: mouse thymus tissue lysates. Multiple immunoreactive bands corresponding to TSHR are observed, including species migrating at approximately 40 kDa, 70-80 kDa, and 110 kDa. The predicted molecular weight of full-length TSHR is approximately 87 kDa based on amino acid sequence. The higher molecular weight band is consistent with glycosylated full-length receptor, while lower molecular weight bands likely represent proteolytic cleavage products and partially processed receptor forms. Such banding heterogeneity is well documented for TSHR due to extensive N-linked glycosylation, extracellular domain cleavage, and variable post-translational processing across tissues and cell types.

Description

TSH Receptor Antibody targets Thyrotropin receptor, encoded by the TSHR gene. Thyrotropin receptor is a G protein-coupled receptor primarily localized to the plasma membrane of thyroid follicular epithelial cells, where it serves as the principal mediator of thyroid-stimulating hormone signaling. As a member of the class A rhodopsin-like GPCR family, Thyrotropin receptor plays a central role in regulating thyroid gland development, hormone synthesis, and iodine uptake, making it a key control point in endocrine physiology.

Functionally, Thyrotropin receptor is activated upon binding of thyroid-stimulating hormone, triggering coupling to Gs proteins and stimulation of adenylate cyclase. This leads to increased intracellular cyclic AMP levels and downstream activation of signaling cascades that regulate transcription of genes involved in thyroxine and triiodothyronine biosynthesis. In addition to canonical cAMP signaling, TSHR can engage alternative pathways involving phospholipase C and MAPK signaling, depending on cellular context and receptor conformation. A TSH Receptor Antibody is therefore useful for studies examining GPCR signaling dynamics, endocrine regulation, and receptor-mediated transcriptional control.

Expression of Thyrotropin receptor is highest in thyroid tissue, particularly within differentiated follicular cells, but lower level expression has also been reported in extrathyroidal tissues such as adipose tissue, bone, and immune-related cells. Subcellular localization is predominantly at the cell surface, consistent with its role as a hormone receptor, although intracellular pools may be observed during receptor biosynthesis, trafficking, or ligand-induced internalization. These localization patterns are often explored to better understand receptor regulation and signal attenuation mechanisms.

From a disease relevance perspective, Thyrotropin receptor is a major autoantigen in autoimmune thyroid disorders. Autoantibodies directed against TSHR can act as receptor agonists or antagonists, leading to dysregulated thyroid hormone production. Activating antibodies are strongly associated with Graves disease, where persistent receptor stimulation drives hyperthyroidism, while blocking antibodies are implicated in certain forms of hypothyroidism. Alterations in TSHR expression or signaling have also been explored in thyroid nodules and thyroid carcinomas, highlighting the receptorÃ¢Â€Â™s broader relevance to thyroid pathology.

At the molecular level, Thyrotropin receptor contains a large extracellular N-terminal domain responsible for ligand and autoantibody binding, seven transmembrane helices characteristic of GPCRs, and intracellular regions that mediate G protein coupling and regulatory interactions. Antibody-based detection of Thyrotropin receptor supports research focused on thyroid hormone regulation, autoimmune mechanisms, and GPCR biology. NSJ Bioreagents provides reagents intended for research use to support investigations involving Thyrotropin receptor expression and signaling.

Application Notes

Optimal dilution of the TSH Receptor antibody should be determined by the researcher.

Immunogen

Amino acids 515-538 (ITLERWYAITFAMRLDRKIRLRHA) from the beta subunit of the human protein were used as the immunogen for the TSH Receptor antibody.

Storage

After reconstitution, the TSH Receptor antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.