Recombinant mTOR Antibody [clone RM274] (R20291)

Catalog No.	Formulation	Size
R20291-0.1ML	Antibody in PBS with 50% glycerol, 1% BSA and 0.09% sodium azide	100 ul

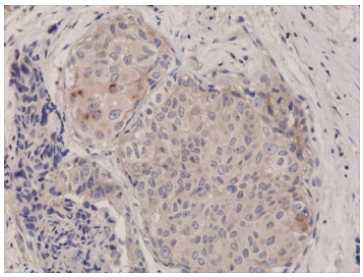
Recombinant RABBIT MONOCLONAL

Bulk quote request

Availability	1-3 business days
Species Reactivity	Human
Predicted Reactivity	Mouse, Rat
Format	Purified
Host	Rabbit
Clonality	Recombinant Rabbit Monoclonal
Isotype	Rabbit IgG
Clone Name	RM274
Purity	Protein A purified from animal origin-free supernatant
UniProt	P42345
Gene ID	2475
Localization	Cytoplasmic
Applications	Immunohistochemistry (FFPE): 1:500-1:1000 (1) Western blot: 1:1000-1:2000
Limitations	This recombinant mTOR antibody is available for research use only.



Western blot of human HeLa cell lysate using recombinant mTOR antibody at 1:1500. Predicted molecular weight ~280 kDa, also observed at ~220 kDa.



IHC testing of FFPE human breast cancer tissue with recombinant mTOR antibody at 1:1000.

Description

The Recombinant mTOR antibody is a recombinant reagent engineered to detect mechanistic target of rapamycin (mTOR), a serine/threonine kinase that serves as a master regulator of cell growth, proliferation, and metabolism. mTOR integrates signals from nutrients, growth factors, and cellular energy status to coordinate anabolic and catabolic processes. It functions as the catalytic core of two distinct complexes, mTORC1 and mTORC2, which differ in composition, upstream regulation, and downstream targets. The Recombinant mTOR antibody provides precise and reproducible detection of this kinase, making it indispensable for studying metabolic signaling and disease.

mTOR is encoded by the MTOR gene on chromosome 1p36 and belongs to the phosphatidylinositol 3 kinase related kinase (PIKK) family. Structurally, it contains HEAT repeats that mediate protein-protein interactions, a FAT domain, a kinase domain, and a regulatory FATC domain. In mTORC1, the kinase regulates protein synthesis, lipid biosynthesis, and autophagy in response to nutrients and energy levels. In mTORC2, it controls cytoskeletal organization and phosphorylates AGC kinases including AKT, SGK, and PKC. Dysregulation of mTOR signaling is implicated in cancer, metabolic disease, neurodegeneration, and aging. The Recombinant mTOR antibody enables detection of total protein across these biological contexts.

In western blotting, the Recombinant mTOR antibody identifies mTOR as a high molecular weight band, allowing researchers to quantify expression across tissues and experimental conditions. In immunohistochemistry, it highlights cytoplasmic and perinuclear localization, consistent with mTORÃ¢Â€Â™s role in signaling hubs such as the lysosome. In immunofluorescence, the antibody reveals subcellular distribution of mTOR in response to nutrient and growth factor stimulation. Recombinant production ensures batch-to-batch consistency and eliminates variability common to traditional polyclonal antibodies.

The Recombinant mTOR antibody is especially valuable in oncology, as hyperactivation of the PI3K/AKT/mTOR pathway supports tumor growth and survival. Pharmacological inhibitors of mTOR, including rapamycin and rapalogs, are used in both research and clinical settings to suppress aberrant signaling. This antibody provides a reliable tool for validating pathway activity and monitoring responses to therapeutic intervention. In metabolic research, mTOR detection informs studies of nutrient sensing, obesity, and diabetes. In neuroscience, the antibody is applied to examine mTORÃ¢Â€Â™s role in synaptic plasticity, memory formation, and neurodegenerative disorders. Synonym terms such as recombinant mechanistic target of rapamycin antibody, recombinant FKBP12 rapamycin associated protein antibody, and recombinant MTOR kinase antibody broaden product discoverability.

By offering validated and reproducible detection, the Recombinant mTOR antibody supports detailed analysis of cell signaling pathways that govern growth and survival. NSJ Bioreagents ensures strict quality control for this reagent, providing researchers confidence in western blotting, immunofluorescence, and immunohistochemistry. With specificity for mTOR, the Recombinant mTOR antibody is an indispensable tool for advancing studies in oncology, metabolism, and neurobiology.

Application Notes

The stated application concentrations are suggested starting points. Titration of the recombinant mTOR antibody may be required due to differences in protocols and secondary/substrate sensitivity.

1. A pH6 Citrate buffer or pH9 Tris/EDTA buffer HIER step is recommended for testing of FFPE tissue sections.

Immunogen

A peptide corresponding to the human serine/threonine-protein kinase mTOR was used as the immunogen for this recombinant mTOR antibody.

Storage

Store the recombinant mTOR antibody at -20oC (with glycerol) or aliquot and store at -20oC (without glycerol).

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