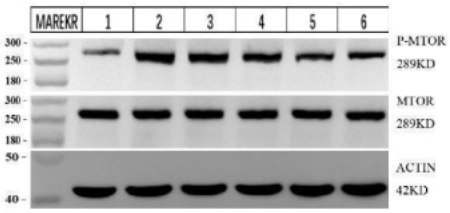
Phospho-mTOR (pSer2448) Antibody / mTOR Signaling and Translation Control Marker [clone IFF-13] (RQ8814)

Catalog No.	Formulation	Size
RQ8814	Antibody in PBS with 0.02% sodium azide, 50% glycerol and 0.4-0.5mg/ml BSA	100 ul

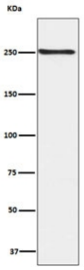
Recombinant RABBIT MONOCLONAL

Bulk quote request

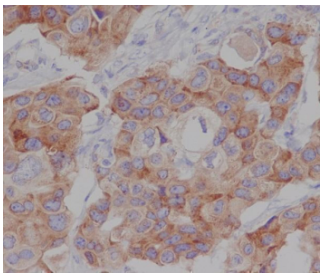
Availability	1-3 days
Species Reactivity	Human
Host	Rabbit
Clonality	Recombinant Rabbit Monoclonal
Isotype	Rabbit IgG
Clone Name	IFF-13
UniProt	P42345
Applications	Western blot: 1:500-1:2000 Immunohistochemistry (FFPE): 1:50-1:200
Limitations	This Phospho-mTOR (pSer2448) Antibody / mTOR Signaling and Translation Control Marker is available for research use only.



Phospho-mTOR (pSer2448) Antibody 4T1 WB. Western blot analysis of mouse 4T1 cell lysates including untreated, LPS-stimulated, and drug-treated conditions using phospho-mTOR antibody detecting mTOR phosphorylated at Ser2448, clone IFF-13. Lane 1: untreated, Lane 2: LPS-stimulated, Lane 3-5: increasing drug doses, Lane 6: positive control drug. A band is detected at approximately 289 kDa, consistent with the predicted molecular weight of mTOR. Phospho-mTOR levels vary across treatment conditions, reflecting modulation of mTOR pathway activity. Total mTOR and Actin are shown as controls.



Phospho-mTOR Antibody HEK293 WB. Western blot analysis of human HEK293 cell lysate using phospho-mTOR antibody detecting mTOR phosphorylated at Ser2448, clone IFF-13. A band is detected at approximately 250-290 kDa, consistent with the predicted molecular weight of mTOR. The signal supports detection of phosphorylated mTOR in HEK293 cells, a commonly used model for pathway signaling studies.



Phospho-mTOR Antibody Breast Cancer IHC. Immunohistochemistry analysis of FFPE human breast carcinoma tissue stained with phospho-mTOR antibody detecting mTOR phosphorylated at Ser2448, clone IFF-13. Tumor epithelial cells show cytoplasmic HRP-DAB brown staining with moderate intensity, consistent with activation of mTOR signaling and protein synthesis pathways within malignant cell populations. Surrounding stromal cells display lower staining, while nuclei are counterstained blue. HIER: boil tissue sections in pH8 EDTA for 20 min and allow to cool before testing.

Description

Mechanistic target of rapamycin (mTOR), also known as FRAP1, is a central regulator of cell growth, metabolism, and protein synthesis that integrates signals from growth factors, nutrients, and cellular energy status. Phospho-mTOR (pSer2448) Antibody, clone IFF-13, is designed to detect mTOR phosphorylated at serine 2448, a key regulatory site associated with activation of mTOR signaling and downstream control of translation.

mTOR functions within two distinct complexes, mTORC1 and mTORC2, which regulate different aspects of cellular physiology. Phosphorylation at Ser2448 is commonly associated with mTORC1 activity and reflects signaling downstream of the PI3K-AKT pathway. Activation of mTORC1 promotes protein synthesis through phosphorylation of downstream targets such as ribosomal protein S6 kinase (S6K) and 4E-BP1, leading to increased translation initiation and cellular growth.

Phosphorylation of mTOR at Ser2448 is dynamically regulated by upstream signaling inputs, including growth factor stimulation, cytokine signaling, and nutrient availability. Increased phosphorylation is typically observed in response to mitogenic signals, while inhibition of the pathway, such as through targeted drugs or nutrient deprivation, leads to reduced phosphorylation. Detection of Ser2448 phosphorylation therefore provides a reliable readout of mTOR pathway activation and signaling status.

Unlike total mTOR detection, which reflects overall protein expression, phospho-specific detection at Ser2448 enables assessment of functional activation of the pathway. This distinction is critical in studies of signaling dynamics, drug response, and metabolic regulation, where changes in phosphorylation state are often more informative than total protein levels.

Subcellularly, activated mTOR is localized primarily in the cytoplasm, where it associates with lysosomal membranes and signaling complexes that regulate translation and metabolism. Immunohistochemistry and immunofluorescence studies typically reveal cytoplasmic staining patterns consistent with its role in coordinating growth and biosynthetic processes.

Dysregulation of mTOR signaling is a hallmark of many cancers and metabolic diseases. Hyperactivation of mTOR promotes increased protein synthesis, cell growth, and survival, contributing to tumor progression and therapeutic resistance. As a result, phospho-mTOR is widely used as a biomarker for pathway activation and as a readout for response to mTOR inhibitors and related targeted therapies.

Phospho-mTOR (pSer2448) Antibody, clone IFF-13, enables selective detection of the activated form of mTOR, supporting studies of PI3K-AKT-mTOR signaling, translation control, and cellular growth regulation. Its specificity for Ser2448 phosphorylation makes it a valuable tool for investigating pathway activation and pharmacologic modulation in a wide range of biological systems.

This antibody is part of our full phospho antibody collection which can be explored for additional phosphorylation-specific targets and pathway markers.

Application Notes

Optimal dilution of the Phospho-mTOR (pSer2448) Antibody / mTOR Signaling and Translation Control Marker should be

determined by the researcher.

Immunogen

A synthetic peptide specific to the region of human mTOR protein surrounding phosphorylated serine 2448 was used as the immunogen for the Phospho-mTOR (pSer2448) Antibody.

Storage

Store the Phospho-mTOR (pSer2448) Antibody at -20oC.

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