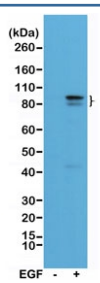
Phospho-STAT3 (pTyr705) Antibody / JAK STAT Signaling and Transcription Activation Marker [clone RM261] (R20279)

Catalog No.	Formulation	Size
R20279-0.1ML	Antibody in PBS with 50% glycerol, 1% BSA and 0.09% sodium azide	100 ul

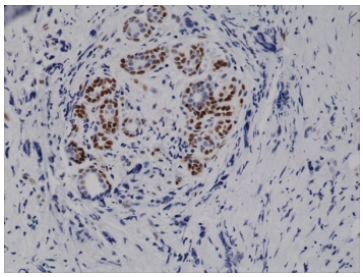
Recombinant RABBIT MONOCLONAL

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	RM261
Purity	Protein A purified from animal origin-free supernatant
UniProt	P40763
Gene ID	6774
Applications	Immunohistochemistry (FFPE): 1:1000-1:10;000 (1) Western blot: 1:1000-1:2000
Limitations	This Phospho-STAT3 (pTyr705) Antibody / JAK STAT Signaling and Transcription Activation Marker is available for research use only.



Phospho-STAT3 (pTyr705) Antibody A431 WB. Western blot analysis of human A431 cell lysates untreated (-) or treated (+) with epidermal growth factor (EGF) using phospho-STAT3 antibody detecting STAT3 phosphorylated at Tyr705, clone RM261. A band is detected at approximately 86-90 kDa, consistent with the predicted molecular weight of STAT3. Signal intensity is increased in the EGF-treated sample, consistent with activation of JAK-STAT signaling and growth factor-induced transcriptional pathway activation.



Phospho-STAT3 Antibody Breast Cancer IHC. Immunohistochemistry analysis of FFPE human breast carcinoma tissue stained with phospho-STAT3 antibody detecting STAT3 phosphorylated at Tyr705, clone RM261. Tumor epithelial cells show strong nuclear HRP-DAB brown staining with accompanying cytoplasmic signal, consistent with activated STAT3 transcriptional signaling. Surrounding stromal cells display lower staining intensity, while nuclei are counterstained blue. HIER: heat-mediated antigen retrieval in EDTA buffer.

Description

Signal transducer and activator of transcription 3 (STAT3) is a key transcription factor that mediates cellular responses to cytokines and growth factors through the JAK-STAT signaling pathway. Phospho-STAT3 (pTyr705) Antibody, clone RM261, is designed to detect STAT3 phosphorylated at tyrosine 705, a critical modification required for STAT3 activation, dimerization, and nuclear translocation. Phosphorylation at this site is widely used as a marker of STAT3 pathway activation and downstream transcriptional signaling.

STAT3 activation is typically initiated by cytokine receptors and receptor tyrosine kinases such as EGFR. Upon stimulation, upstream kinases including JAK family members phosphorylate STAT3 at Tyr705, promoting dimer formation through reciprocal SH2 domain interactions. These dimers translocate to the nucleus, where STAT3 binds DNA and regulates expression of genes involved in cell proliferation, survival, and immune response.

Phosphorylation of STAT3 at Tyr705 is a rapid and dynamic process that reflects active signaling. Growth factor stimulation, such as exposure to epidermal growth factor, leads to increased STAT3 phosphorylation, while unstimulated cells typically show lower basal levels. Detection of Tyr705 phosphorylation therefore provides a direct readout of pathway engagement and transcriptional activation.

Unlike total STAT3 detection, which reflects overall protein expression, phospho-specific detection at Tyr705 allows for assessment of signaling activity and functional state. Increased phospho-STAT3 levels are associated with activation of downstream transcriptional programs, making it a valuable marker for studying cytokine signaling, oncogenic pathways, and immune regulation.

Subcellular localization of phosphorylated STAT3 shifts upon activation. In unstimulated cells, STAT3 is primarily cytoplasmic, while phosphorylation at Tyr705 promotes nuclear accumulation where it functions as a transcription factor. Immunohistochemistry and immunofluorescence studies often reveal increased nuclear staining in activated cells, consistent with its role in gene regulation.

Dysregulation of STAT3 signaling is implicated in a wide range of diseases, particularly cancer, where constitutive activation promotes tumor growth, immune evasion, and resistance to therapy. Elevated phospho-STAT3 levels are commonly observed in tumor tissues and are associated with aggressive phenotypes and poor clinical outcomes. As a result, Tyr705 phosphorylation is frequently used as a biomarker for pathway activation and therapeutic targeting.

Phospho-STAT3 (pTyr705) Antibody, clone RM261, enables selective detection of the activated form of STAT3, supporting studies of JAK-STAT signaling, transcriptional regulation, and cellular response to growth factors and cytokines. Its specificity for the phosphorylated residue allows precise monitoring of pathway activation and dynamic signaling changes.

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

Application Notes

The stated application concentrations are suggested starting points. Titration of the Phospho-STAT3 (pTyr705) Antibody /

JAK STAT Signaling and Transcription Activation Marker 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 phospho-peptide corresponding to human phospho-Stat3 (Tyr705) was used as the immunogen for this recombinant Phospho-STAT3 (pTyr705) Antibody.

Storage

Store the Phospho-STAT3 (pTyr705) Antibody at -20oC (with glycerol) or aliquot and store at -20oC (without glycerol).

Alternate Names

Phospho-STAT3 antibody, STAT3 pTyr705 antibody, STAT3 Tyr705 antibody, phosphorylated STAT3 antibody, STAT3 activation marker antibody, phospho-STAT3 signaling antibody, clone RM261 antibody

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