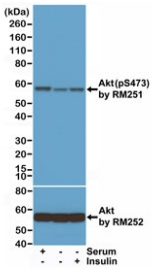
Phospho-AKT (pSer473) Antibody / PI3K-AKT Signaling and Survival Pathway Marker [clone RM251] (R20271)

Catalog No.	Formulation	Size
R20271-0.1ML	Antibody in PBS with 50% glycerol, 1% BSA and 0.09% sodium azide	100 ul

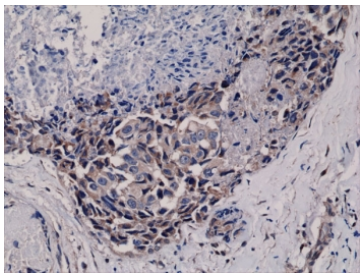
Recombinant RABBIT MONOCLONAL

Bulk quote request

Availability	1-3 business days
Species Reactivity	Human
Predicted Reactivity	Mouse, Rat, Bovine
Format	Purified
Host	Rabbit
Clonality	Recombinant Rabbit Monoclonal
Isotype	Rabbit IgG
Clone Name	RM251
Purity	Protein A purified from animal origin-free supernatant
UniProt	P31749, P31751, Q9Y243
Gene ID	207, 208, 10000
Applications	Immunohistochemistry (FFPE): 1:200-1:500 (1) Western blot: 1:1000-1:2000
Limitations	This Phospho-AKT (pSer473) Antibody / PI3K-AKT Signaling and Survival Pathway Marker is available for research use only.



Phospho-AKT (pSer473) Antibody HEK293 WB. Western blot analysis of human HEK293 cell lysates cultured with serum (+), serum starved (-), or treated with insulin using phospho-AKT antibody detecting AKT phosphorylated at Ser473, clone RM251. A band is detected at approximately 60 kDa, consistent with the predicted molecular weight of AKT. Signal intensity is reduced under serum starvation and increased following insulin treatment, consistent with activation of PI3K-AKT signaling. Total AKT is shown as a loading control.



Phospho-AKT Antibody Breast Cancer IHC. Immunohistochemistry analysis of FFPE human breast carcinoma tissue stained with phospho-AKT antibody detecting AKT phosphorylated at Ser473, clone RM251. Tumor epithelial cells show cytoplasmic and focal membranous HRP-DAB brown staining, consistent with activated PI3K-AKT signaling within malignant cell populations. Surrounding stromal cells display lower signal, while nuclei are counterstained blue. HIER: heat-mediated antigen retrieval in EDTA buffer.

Description

AKT, also known as protein kinase B, is a central regulator of cell survival, metabolism, and growth signaling downstream of the phosphatidylinositol 3-kinase (PI3K) pathway. Phospho-AKT (pSer473) Antibody, clone RM251, is designed to detect AKT phosphorylated at serine 473, a critical activation site required for full kinase activity and signaling function. Phosphorylation at this residue serves as a widely used marker of AKT pathway activation in response to extracellular stimuli such as growth factors, cytokines, and insulin.

AKT activation is initiated by PI3K-dependent generation of phosphatidylinositol (3,4,5)-trisphosphate, which recruits AKT to the plasma membrane where it is phosphorylated at two key sites: threonine 308 and serine 473. Phosphorylation at Ser473, mediated primarily by mTORC2, enhances AKT catalytic activity and stabilizes its active conformation. Detection of Ser473 phosphorylation therefore provides a reliable readout of AKT activation and downstream signaling engagement.

Activated AKT regulates a wide range of cellular processes, including glucose metabolism, protein synthesis, cell cycle progression, and inhibition of apoptosis. Through phosphorylation of downstream substrates such as GSK3, FOXO transcription factors, and mTOR pathway components, AKT promotes cell survival and growth. As a result, phospho-AKT is frequently used as a marker of pro-survival signaling and metabolic activation in both normal physiology and disease states.

Subcellularly, phosphorylated AKT is predominantly localized in the cytoplasm, with additional membrane-associated localization during activation. In immunofluorescence and immunohistochemistry applications, phospho-AKT staining is often observed in cytoplasmic and membranous compartments, reflecting recruitment to signaling complexes and active kinase function. Nuclear localization may also be detected in certain contexts, consistent with roles in transcriptional regulation and cell cycle control.

Phosphorylation of AKT at Ser473 is highly responsive to extracellular cues. Growth factor stimulation, such as exposure to serum or insulin, leads to rapid induction of Ser473 phosphorylation, while serum starvation reduces phosphorylation levels. This dynamic regulation makes phospho-AKT an ideal marker for monitoring pathway activation, drug response, and signaling modulation in experimental systems.

Dysregulation of the PI3K-AKT pathway is a hallmark of many cancers, where increased AKT activation promotes tumor cell survival, proliferation, and resistance to therapy. Elevated phospho-AKT levels are frequently observed in tumor tissues and are associated with aggressive disease and poor prognosis. Consequently, detection of Ser473 phosphorylation is widely used in cancer research and therapeutic development to assess pathway activation and treatment response.

Phospho-AKT (pSer473) Antibody, clone RM251, enables selective detection of the activated form of AKT, supporting studies of signaling pathway activation, metabolic regulation, and cellular survival mechanisms. Its ability to distinguish phosphorylated AKT from total protein levels makes it a valuable tool for investigating dynamic changes in PI3K-AKT signaling across a 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. For a microarray-validated AKT1 antibody supporting high-specificity detection, see our AKT1 antibody (clone AKT1/2552).

Application Notes

The stated application concentrations are suggested starting points. Titration of the Phospho-AKT (pSer473) Antibody / PI3K-AKT Signaling and Survival Pathway 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-Akt (Ser473) was used as the immunogen for this Phospho-AKT (pSer473) Antibody.

Storage

Store the Phospho-AKT (pSer473) Antibody at -20oC (with glycerol) or aliquot and store at -20oC (without glycerol).

Alternate Names

Phospho-AKT antibody, AKT pSer473 antibody, AKT Ser473 antibody, phospho-AKT1 Ser473 antibody, phosphorylated AKT antibody, AKT activation marker antibody, clone RM251 antibody

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