

p-Ser (4A3): sc-81516



The Power to Question

BACKGROUND

Protein kinases catalyze the phosphorylation of serine, threonine or tyrosine residues in target substrates, providing a mechanism of control for myriad cellular signaling pathways. Several families of kinases phosphorylate both serine and threonine residues in target substrates, including the Raf, Rsk, ROCK, PAK, Ak and PKC families of serine/threonine protein kinases. The modification of proteins by phosphorylation can result in three dimensional changes to the structure of the protein and thereby alter its enzymatic activity or its ability to interact with other proteins. Antibodies targeted to phosphoserine may be used for the characterization of proteins with phosphorylated serine residues, and for the elucidation of cellular pathways involving serine phosphorylation.

REFERENCES

1. Crews, C.M., et al. 1992. The primary structure of MEK, a protein kinase that phosphorylates the ERK gene product. *Science* 258: 478-480.
2. Chen, R.H., et al. 1993. Phosphorylation of the c-Fos transrepression domain by mitogen-activated protein kinase and 90-kDa ribosomal S6 kinase. *Proc. Natl. Acad. Sci. USA* 90: 10952-10956.
3. Pages, G., et al. 1994. Constitutive mutant and putative regulatory serine phosphorylation site of mammalian MAP kinase kinase (MEK1). *EMBO J.* 13: 3003-3010.
4. Derijard, B., et al. 1995. Independent human MAP-kinase signal transduction pathways defined by MEK and MKK isoforms. *Science* 267: 682-685.
5. Nakagawa, O., et al. 1996. ROCK-I and ROCK-II, two isoforms of Rho-associated coiled-coil forming protein serine/threonine kinase in mice. *FEBS Lett.* 392: 189-193.
6. Brown, J.L., et al. 1996. Human Ste20 homologue hPAK1 links GTPases to the JNK MAP kinase pathway. *Curr. Biol.* 6: 598-605.

SOURCE

p-Ser (4A3) is a mouse monoclonal antibody raised against phosphoserine.

PRODUCT

Each vial contains 50 µg IgM kappa light chain in 0.5 ml of PBS with < 0.1% sodium azide, 0.1% gelatin, PEG and sucrose.

STORAGE

Store at 4° C, ****DO NOT FREEZE****. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

APPLICATIONS

p-Ser (4A3) is recommended for detection of a broad range of serine-phosphorylated proteins in crude cell extracts, preferring positively charged amino acids directly neighbored to phosphoserine of mouse, rat, human and canine origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)].

RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto B Blocking Reagent: sc-2335 (use 50 mM NaF, sc-24988, as diluent), Lambda Phosphatase: sc-200312A and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein L-Agarose: sc-2336 (0.5 ml agarose/2.0 ml).

SELECT PRODUCT CITATIONS

1. Carnevale, D., et al. 2012. PI3Kγ inhibition reduces blood pressure by a vasorelaxant Akt/L-type calcium channel mechanism. *Cardiovasc. Res.* 93: 200-209.
2. Thakur, B.K., et al. 2016. Physiological TLR5 expression in the intestine is regulated by differential DNA binding of Sp1/Sp3 through simultaneous Sp1 dephosphorylation and Sp3 phosphorylation by two different PKC isoforms. *Nucleic Acids Res.* 44: 5658-5672.
3. Baskaran, P., et al. 2016. Capsaicin induces browning of white adipose tissue and counters obesity by activating TRPV1 channel-dependent mechanisms. *Br. J. Pharmacol.* 173: 2369-2389.
4. Baskaran, P., et al. 2017. TRPV1 activation counters diet-induced obesity through sirtuin-1 activation and PRDM-16 deacetylation in brown adipose tissue. *Int. J. Obes.* 41: 739-749.
5. Wang, J., et al. 2019. HBx regulates transcription factor PAX8 stabilization to promote the progression of hepatocellular carcinoma. *Oncogene* 38: 6696-6710.
6. Lear, T.B., et al. 2019. KIAA0317 regulates pulmonary inflammation through SOCS2 degradation. *JCI Insight* 4: e129110.
7. Li, X., et al. 2021. PFKF facilitates ATG4B phosphorylation during amino acid deprivation-induced autophagy. *Cell. Signal.* 82: 109956.
8. He, Y., et al. 2021. T-cell receptor (TCR) signaling promotes the assembly of RanBP2/RanGAP1-SUMO1/Ubc9 nuclear pore subcomplex via PKC-θ-mediated phosphorylation of RanGAP1. *Elife* 10: e67123.
9. Marwarha, G., et al. 2022. GSK3β Inhibition is the molecular pivot that underlies the mir-210-induced attenuation of intrinsic apoptosis cascade during hypoxia. *Int. J. Mol. Sci.* 23: 9375.
10. Peng, Y., et al. 2023. PLK1 maintains DNA methylation and cell viability by regulating phosphorylation-dependent UHRF1 protein stability. *Cell Death Discov.* 9: 367.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.