p-Stat4 (pY693.38): sc-136194

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BIOTECHNOLOGY

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BACKGROUND

Membrane receptor signaling by various ligands, including interferons and growth hormones, induces activation of JAK kinases, which then leads to tyrosine phosphorylation of the Stat transcription factors. Upon activation by tyrosine phosphorylation, Stat proteins dimerize, translocate to the nucleus and bind to specific regulatory elements that control gene expression. Stat4 is most highly expressed in testis and myeloid cells and is an important element in mediating IL-12 signals. IL-12 induces sustained activation and nuclear trans-location of Stat4, a process coupled to both tyrosine and serine phosphorylation of Stat4. Phosphorylation of Ser 721 of Stat4 is p38-dependent, and MEK-, ERK- and JNK-independent and is necessary for the transcriptional activity of Stat4.

REFERENCES

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3. Schindler, C. and Darnell, J.E. 1995. Transcriptional responses to polypeptide ligands: the JAK/Stat pathway. Annu. Rev. Biochem. 64: 621-651.

4. Yu, C.L., et al. 2000. Cytosolic tyrosine dephosphorylation of Stat5. J. Biol. Chem. 275: 599-604.

5. Visconti, R., et al. 2000. Importance of the MKK6/p38 pathway for interleukin-12-induced Stat4 serine phosphorylation and transcriptional activity. Blood 96: 1844-1852.

6. Athie, M.V., et al. 2000. IL-12 selectively regulates Stat4 via phosphatidylinositol 3-kinase and Ras-independent signal transduction pathways. Eur. J. Immunol. 30: 1425-1434.

7. Decker, T. and Kovarik, P. 2000. Serine phosphorylation of STATs. Oncogene 19: 2628-2637.

CHROMOSOMAL LOCATION

Genetic locus: STAT4 (human) mapping to 2q32.2; Stat4 (mouse) mapping to 1 C1.1.

SOURCE

p-Stat4 (pY693.38) is a mouse monoclonal antibody raised against a short amino acid sequence containing Tyr 693 phosphorylated Stat4 of human origin.

PRODUCT

Each vial contains 200 µg IgG$_{2b}$ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

STORAGE

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

APPLICATIONS

p-Stat4 (pY693.38) is recommended for detection of Tyr 693 phosphorylated Stat4 of mouse, rat and human 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)].

Suitable for use as control antibody for Stat4 siRNA (h): sc-36568, Stat4 siRNA (m): sc-36569, Stat4 shRNA Plasmid (h): sc-36568-SH, Stat4 shRNA Plasmid (m): sc-36569-SH, Stat4 shRNA (h) Lentiviral Particles: sc-36568-V and Stat4 shRNA (m) Lentiviral Particles: sc-36569-V.

Molecular Weight of p-Stat4: 89 kDa.

Positive Controls: RAW 264.7 + LPS/PMA cell lysate: sc-2212, HeLa + IL-4 cell lysate: sc-24686 or pervanadate-treated K-562 whole 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 A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml).

DATA
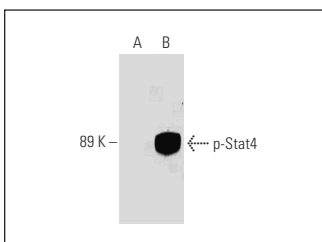
p-Stat4 (pY693.38): sc-136194. Western blot analysis of Stat4 phosphorylation in untreated (**A**) and pervanadate-treated (**B**) K-562 whole cell lysates.

SELECT PRODUCT CITATIONS

1. Eiza, N., et al. 2022. CD72-semaphorin3A axis: a new regulatory pathway in systemic lupus erythematosus. J. Autoimmun. 134: 102960.

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.