SANTA CRUZ BIOTECHNOLOGY, INC.

p-Stat6 (16E12): sc-81525

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Membrane receptor signaling by various ligands, including interferons and growth hormones like EGF, induces activation of JAK kinases, which then leads to tyrosine phosphorylation of the various Stat transcription factors. Activated Stat proteins form dimers, translocate to the nucleus, bind to specific response elements in promoters of target genes and transcriptionally activate these genes. Stimulation of susceptible cells by interleukin-4 (IL-4) leads to activation of Stat6 through the phosphorylation of tyrosine and serine residues. IL-4 activation of Stat6 also leads to dimerization, which directs Stat6 to the nucleus and renders it a sequence-specific transcription factor. Stat6 is also tyrosine-phosphorylated in response to IL-15 and is involved in IL-4 activated signaling pathways. The activation of Stat6 by JAK family protein tyrosine kinases is essential for the full response of cells to IL-4.

REFERENCES

1. Darnell, J.E., et al. 1994. JAK/Stat pathways and transcriptional activation in response to IFNs and other extracellular signaling proteins. Science 264: 1415-1421.
2. Hou, J., et al. 1994. An interleukin-4-induced transcription factor: IL-4 Stat. Science 265: 1701-1706.
3. Schindler, C. and Darnell, J.E. 1995. Transcriptional responses to polypeptide ligands: the JAK/Stat pathway. Annu. Rev. Biochem. 64: 621-651.
4. Moriggl, R., et al. 1998. Activation of Stat6 is not dependent on phosphotyrosine-mediated docking to the interleukin-4 receptor and can be blocked by dominant-negative mutants of both receptor subunits. Eur. J. Biochem. 251: 25-35.
5. Kamogawa, Y., et al. 1998. A conditionally active form of Stat6 can mimic certain effects of IL-4. J. Immunol. 161: 1074-1077.
6. Heim, M.H. 1999. The JAK/Stat pathway: cytokine signalling from the receptor to the nucleus. J. Recept. Signal Transduct. Res. 19: 75-120.
7. Pesu, M., et al. 2000. Interleukin-4-induced transcriptional activation by Stat6 involves multiple serine/threonine kinase pathways and serine phosphorylation of Stat6. Blood 95: 494-502.
8. Masuda, A., et al. 2000. Interleukin-15 induces rapid tyrosine-phosphorylation of Stat6 and the expression of interleukin-4 in mouse mast cells. J. Biol. Chem. 275: 29331-29337.

CHROMOSOMAL LOCATION

Genetic locus: STAT6 (human) mapping to 12q13.3.

SOURCE

p-Stat6 (16E12) is a mouse monoclonal antibody raised against a synthetic phosphopeptide corresponding to the region surrounding Tyr 641 phosphorylated Stat6 of human origin.

PRODUCT

Each vial contains 50 µg IgG_1 in 0.5 ml of PBS with < 0.1% sodium azide, 0.1% gelatin, PEG and sucrose.

APPLICATIONS

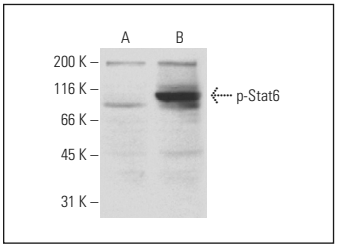
p-Stat6 (16E12) is recommended for detection of Tyr 641 phosphorylated Stat6 of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)] and immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

Suitable for use as control antibody for Stat6 siRNA (h): sc-29497, Stat6 shRNA Plasmid (h): sc-29497-SH and Stat6 shRNA (h) Lentiviral Particles: sc-29497-V.

Molecular Weight of p-Stat6: 105 kDa.

Positive Controls: HeLa + IL-4 cell lysate: sc-24686 or IL-4-treated Hep G2 whole cell lysate.

DATA



p-Stat6 (16E12): sc-81525. Western blot analysis of Stat6 phosphorylation in untreated (**A**) and IL-4-treated (**B**) Hep G2 whole cell lysates.

SELECT PRODUCT CITATIONS

1. Chattopadhyay, S., et al. 2009. Tumor-shed PGE2 impairs IL2Rγc-signaling to inhibit CD4 T cell survival: regulation by theaflavins. PLoS ONE 4: e7382.

STORAGE

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

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.