

p-Stat5a/b (5G4): sc-81524

BACKGROUND

Stat5 (signal transducers and activators of transcription 5) is important in regulating T cell functions involving the receptors for interleukin-2 (IL-2). IL-2 stimulates the rapid phosphorylation of both serine and tyrosine residues of Stat5a and Stat5b in human T lymphocytes and in several IL-2-responsive lymphocytic cell lines. IL-2 differentially induces serine phosphorylation of Stat5a and Stat5b on Ser 726 and Ser 731, respectively. Stat5b is preferentially phosphorylated and displays more protracted Serine phosphorylation kinetics than Stat5a. Both the acid-rich region and the COOH terminus of IL-2R β can independently mediate IL-2-induced Stat5a/b serine phosphorylation, suggesting that Stat5a/b serine phosphorylation occurs at a post-receptor level. Stat5a is phosphorylated on Tyr 694 in a Prolactin-sensitive manner, whereas serine phosphorylation is constitutive. Activation of Stat5 by IL-2 may help govern the biological effects of IL-2 during the immune response. Ser 779 is constitutively phosphorylated in the mammary gland, and Ser 725 phosphorylation influences Prolactin-stimulated *in vitro* DNA binding activity.

REFERENCES

- Hou, J., et al. 1995. Identification and purification of human Stat proteins activated in response to interleukin-2. *Immunity* 2: 321-329.
- Frank, D.A., et al. 1995. Interleukin 2 signaling involves the phosphorylation of Stat proteins. *Proc. Natl. Acad. Sci. USA* 92: 7779-7783.

CHROMOSOMAL LOCATION

Genetic locus: STAT5A/STAT5B (human) mapping to 17q21.2;
Stat5a/Stat5b (mouse) mapping to 11 D.

SOURCE

p-Stat5a/b (5G4) is a mouse monoclonal antibody raised against a synthetic phosphopeptide corresponding to the region surrounding Tyr 694/699 phosphorylated Stat5a/b of human origin.

PRODUCT

Each vial contains 50 μ g IgG₁ in 0.5 ml of PBS with < 0.1% sodium azide, 0.1% gelatin, PEG and sucrose.

APPLICATIONS

p-Stat5a/b (5G4) is recommended for detection of Tyr 694 phosphorylated Stat5a and Tyr 699 phosphorylated Stat5b of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)] and immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

Molecular Weight of p-Stat5a/b: 92/94 kDa.

Positive Controls: pervanadate treated MCF7 whole cell lysate.

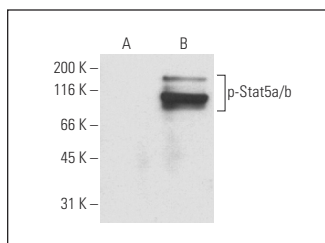
STORAGE

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.

DATA



p-Stat5a/b (5G4): sc-81524. Western blot analysis of Stat5a/b phosphorylation in untreated (A) and pervanadate treated (B) MCF7 whole cell lysates.

SELECT PRODUCT CITATIONS

- Daskalopoulos, E.P., et al. 2012. D2-dopaminergic receptor-linked pathways: critical regulators of CYP3A, CYP2C, and CYP2D. *Mol. Pharmacol.* 82: 668-678.
- Ward, T.M., et al. 2013. Truncated p110 ERBB2 induces mammary epithelial cell migration, invasion and orthotopic xenograft formation, and is associated with loss of phosphorylated Stat5. *Oncogene* 32: 2463-2474.
- Yang, M., et al. 2015. Anti-inflammatory effect of 1,25-dihydroxyvitamin D₃ is associated with crosstalk between signal transducer and activator of transcription 5 and the vitamin D receptor in human monocytes. *Exp. Ther. Med.* 9: 1739-1744.
- Clotaire, D.Z.J., et al. 2018. miR-19b-3p integrates Jak-Stat signaling pathway through Plzf to regulate self-renewal in dairy goat male germline stem cells. *Int. J. Biochem. Cell Biol.* 105: 104-114.
- Jiang, L., et al. 2019. Long non-coding RNA RP11-468E2.5 curtails colorectal cancer cell proliferation and stimulates apoptosis via the JAK/Stat signaling pathway by targeting Stat5 and Stat6. *J. Exp. Clin. Cancer Res.* 38: 465.
- Wolodko, K., et al. 2020. Leptin resistance in the ovary of obese mice is associated with profound changes in the transcriptome of cumulus cells. *Cell. Physiol. Biochem.* 54: 417-437.
- Jayakumar, P., et al. 2021. Prolactin attenuates neuroinflammation in LPS-activated SIM-A9 microglial cells by inhibiting NF κ B pathways via ERK1/2. *Cell. Mol. Neurobiol.* E-published.
- Nishi, H., et al. 2022. Essential amino acid intake is required for sustaining serum Insulin-like growth factor-I levels but is not necessarily needed for body growth. *Cells* 11: 1523.

PROTOCOLS

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