

p-Stat5 (Tyr 694/Tyr 699): sc-11761

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 Stat5 α and Stat5 β in human T lymphocytes and in several IL-2-responsive lymphocytic cell lines. IL-2 differentially induces serine phosphorylation of Stat5 α and Stat5 β on Ser 726 and Ser 731, respectively. Stat5 β is preferentially phosphorylated and displays more protracted serine phosphorylation kinetics than Stat5 α . Both the acid-rich region and the COOH terminus of IL-2R β can independently mediate IL-2-induced Stat5 α/β serine phosphorylation, suggesting that Stat5 α/β serine phosphorylation occurs at a postreceptor level. Stat5 α 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-Stat5 (Tyr 694/Tyr 699) is available as either goat (sc-11761) or rabbit (sc-11761-R) polyclonal affinity purified antibody raised against a short amino acid sequence containing Tyr 694 phosphorylated Stat5 α and Stat5 β of human origin.

PRODUCT

Each vial contains 200 μ g IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-11761 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

Available as TransCruz reagent for Gel Supershift and ChIP applications, sc-11761 X, 200 μ g/0.1 ml.

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.

APPLICATIONS

p-Stat5 (Tyr 694/Tyr 699) is recommended for detection of Tyr 694 phosphorylated Stat5 α and Tyr 699 phosphorylated Stat5 β of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

p-Stat5 (Tyr 694/Tyr 699) is also recommended for detection of correspondingly phosphorylated Stat5 α and phosphorylated Stat5 β in additional species, including equine, canine, bovine, porcine and avian.

p-Stat5 (Tyr 694/Tyr 699) X TransCruz antibody is recommended for Gel Supershift and ChIP applications.

SELECT PRODUCT CITATIONS

- Goleva, E., et al. 2002. A role for Stat5 in the pathogenesis of IL-2-induced glucocorticoid resistance. *J. Immunol.* 169: 5934-5940.
- Cao, Q., et al. 2004. Leptin stimulates tissue inhibitor of metalloproteinase-1 in human hepatic stellate cells: respective roles of the JAK/Stat and JAK-mediated H₂O₂-dependant MAPK pathways. *Cancer Res.* 279: 4292-4304.
- Zhang, J., et al. 2004. Constitutive activation of the MEK/ERK pathway mediates all effects of oncogenic H-Ras expression in primary erythroid progenitors. *Blood* 104: 1679-1687.
- Clark, D.E., et al. 2005. ErbB-4/HER4 potentiates Stat5 α transcriptional activity by regulating novel Stat5 α serine phosphorylation event. *J. Biol. Chem.* 280: 24175-24180.
- Choudhary, C., et al. 2007. Activation mechanisms of Stat5 by oncogenic Flt-3-ITD. *Blood* 110: 370-374.
- Kamenicky, P., et al. 2008. Epithelial sodium channel is a key mediator of growth hormone-induced sodium retention in acromegaly. *Endocrinology* 149: 3294-3305.
- Lin, W.Y., et al. 2008. Hepatocyte nuclear factor-1 α regulates glucocorticoid receptor expression to control postnatal body growth. *Am. J. Physiol. Gastrointest. Liver Physiol.* 295: G542-G551.
- Santos, S.J., et al. 2008. Estrogen and progesterone are critical regulators of Stat5 α expression in the mouse mammary gland. *Endocrinology* 149: 329-338.
- Deng, C., et al. 2009. Prolactin blocks nuclear translocation of VDR by regulating its interaction with BRCA1 in osteosarcoma cells. *Mol. Endocrinol.* 23: 226-236.
- Tang, H., et al. 2011. Changes in growth hormone (GH), GH receptor, and GH signal transduction in hippocampus of congenital hypothyroid rats. *J. Neurosci. Res.* 89: 248-255.
- Nakamura, S., et al. 2012. Down-regulation of Thanatos-associated protein 11 by BCR-ABL promotes CML cell proliferation through c-Myc expression. *Int. J. Cancer* 130: 1046-1059.