

Stat5 (A-9): sc-74442

BACKGROUND

Signal transducer and activator of transcription 5a (Stat5a) and Stat5b, which share 96% homology, undergo receptor tyrosine kinase or G protein-coupled receptor-dependent phosphorylation in response to cytokines or growth factors, and then form homo- or heterodimers that translocate to the nucleus, where they initiate transcription. Activation of Stat5a via IL-2, IL-3, IL-7 GM-CSF, erythropoietin, thrombopoietin and growth hormones influences proliferation, differentiation and apoptosis in lymphohematopoietic cells. Phosphorylation of Stat5a at Ser 127/Ser 128 and Ser 779 are contingent on ErbB4-mediated activation of Stat5a. Activation of Stat5b via IL-2, IL-4, CSF1 and growth hormones influences TCR signaling, apoptosis, adult mammary gland development and sexual dimorphism of liver gene expression. Stat5b is the major liver-expressed Stat5 form that has been shown to fuse with the retinoic acid receptor α gene in acute promyelocytic leukemias (APLL). Stat5a/B null mice have severely impaired lymphoid development and differentiation.

REFERENCES

1. Lin, J.X., et al. 2000. The role of Stat5a and Stat5b in signaling by IL-2 family cytokines. *Oncogene* 19: 2566-2576.
2. Sexl, V., et al. 2000. Stat5a/b contribute to interleukin 7-induced B-cell precursor expansion, but Abl- and Bcr/Abl-induced transformation are independent of Stat5. *Blood* 96: 2277-2283.
3. Mahajan, S., et al. 2001. Transcription factor Stat5a is a substrate of Bruton's tyrosine kinase in B cells. *J. Biol. Chem.* 276: 31216-31228.

CHROMOSOMAL LOCATION

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

SOURCE

Stat5 (A-9) is a mouse monoclonal antibody raised against amino acids 661-794 of Stat5a of human origin.

PRODUCT

Each vial contains 200 μ g IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin. Also available as TransCruz reagent for Gel Supershift and ChIP applications, sc-74442 X, 200 μ g/0.1 ml.

Stat5 (A-9) is available conjugated to agarose (sc-74442 AC), 500 μ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-74442 HRP), 200 μ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-74442 PE), fluorescein (sc-74442 FITC), Alexa Fluor® 488 (sc-74442 AF488), Alexa Fluor® 546 (sc-74442 AF546), Alexa Fluor® 594 (sc-74442 AF594) or Alexa Fluor® 647 (sc-74442 AF647), 200 μ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-74442 AF680) or Alexa Fluor® 790 (sc-74442 AF790), 200 μ g/ml, for Near-Infrared (NIR) WB, IF and FCM.

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STORAGE

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

APPLICATIONS

Stat5 (A-9) is recommended for detection of Stat5a and Stat5b of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

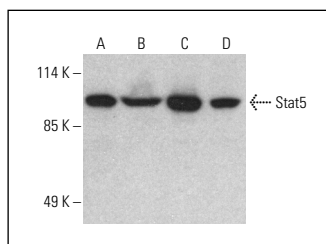
Suitable for use as control antibody for Stat5 siRNA (h): sc-29495, Stat5 siRNA (m): sc-29496, Stat5 shRNA Plasmid (h): sc-29495-SH, Stat5 shRNA Plasmid (m): sc-29496-SH, Stat5 shRNA (h) Lentiviral Particles: sc-29495-V and Stat5 shRNA (m) Lentiviral Particles: sc-29496-V.

Stat5 (A-9) X TransCruz antibody is recommended for Gel Supershift and ChIP applications.

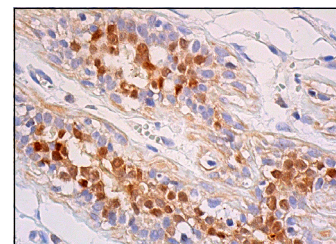
Molecular Weight of Stat5: 92 kDa.

Positive Controls: BJAB whole cell lysate: sc-2207, CCRF-CEM cell lysate: sc-2225 or K-562 whole cell lysate: sc-2203.

DATA



Stat5 (A-9) HRP: sc-74442 HRP. Direct western blot analysis of Stat5 expression in BJAB (A), CCRF-CEM (B) and K-562 (C) whole cell lysates and K-562 nuclear extract (D).



Stat5 (A-9): sc-74442. Immunoperoxidase staining of formalin fixed, paraffin-embedded human breast tissue showing nuclear and cytoplasmic staining of glandular cells and cytoplasmic staining of myoepithelial cells.

SELECT PRODUCT CITATIONS

1. Pullen, N.A., et al. 2012. Novel mechanism for Fc ϵ RI-mediated signal transducer and activator of transcription 5 (Stat5) tyrosine phosphorylation and the selective influence of Stat5b over mast cell cytokine production. *J. Biol. Chem.* 287: 2045-2054.
2. Jung, Y.Y., et al. 2022. Leelamine modulates Stat5 pathway causing both autophagy and apoptosis in chronic myelogenous leukemia cells. *Biology* 11: 366.
3. Ren, J.G., et al. 2023. RAB27B controls palmitoylation-dependent NRAS trafficking and signaling in myeloid leukemia. *J. Clin. Invest.* 133: e165510.
4. Takeda, K., et al. 2024. FL118 is a potent therapeutic agent against chronic myeloid leukemia resistant to BCR-ABL inhibitors through targeting RNA helicase DDX5. *Int. J. Mol. Sci.* 25: 3693.

RESEARCH USE

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