



**DELTA
BIOLABS**

DB031: STAT5a (C20)

Background:

Signal Transducers and Activators of Transcription (STATs) are a family of cytoplasmic proteins that participate in cellular responses to cytokines and growth factors (1). Many cytokines involved in immune responses utilize the Jak-STAT signaling pathway. Jaks are receptor-associated protein tyrosine kinases, and STATs are activated by tyrosine phosphorylation (2). Abnormal signaling of the JAK-STAT pathway has been implicated in hematopoietic disorders including severe combined immunodeficiency and leukemia (4). STATs have been implicated in programming gene expression in biological events such as embryonic development, programmed cell death, organogenesis, innate immunity, adaptive immunity and cell growth regulation in many organisms (3). STAT1 knockout mice are defective in interferon-mediated functions. STAT4 and STAT6 knockout mice show defective responses to IL-12 and IL-4, respectively. Analyses of STAT5a and STAT5b knockout mice reveal important roles in prolactin-mediated mammary gland development and growth hormone-mediated induction of sexual dimorphism, respectively. Conditional knockout study of STAT3 demonstrates its critical roles in cytokine-mediated functions in several tissues, including T cells, macrophages, skin, and mammary gland (5). Abnormal activity of certain STAT family members, particularly STAT3 and STAT5, is associated with a wide variety of human malignancies, including hematologic, breast, head and neck, and prostate cancers (1). STAT5A and STAT6, are selectively activated when the heart is subjected to ischemic injury, whereas activation of STAT3 and STAT5A is involved in myocardial hypertrophy (6). STAT5 and STAT3, as these two STAT molecules are required for normal breast development and involution, respectively, and may play an important role in breast carcinogenesis (7). The activation of STAT5 proteins (STAT5a and STAT5b) is one of the earliest signaling events mediated by IL-2 family cytokines (8).

Origin:

STAT5a (C20) is provided as an affinity purified rabbit polyclonal antibody, raised against a peptide mapping to the carboxy terminus of mouse STAT5a.

Product Details:

Each vial contains 200 µg/ml of affinity purified rabbit IgG STAT5a (C20) DB031, in 1 ml PBS containing 0.1 % sodium azide and 0.2% gelatin.

Competition Studies:

A blocking peptide is also available, *DB031P*, for use in competition studies. Each vial contains 100 µg of peptide in 0.5 ml PBS with 0.1% sodium azide and 100 µg BSA.

Specificity:

STAT5a (C20) DB031 reacts with STAT5a of mouse, rat, and human origin by western blotting, immunoprecipitation, and immunohistochemistry. It does not cross-react with STAT5b.

Storage:

Store this product at 4° C, do not freeze. The product is stable for one year from the date of shipment.

References:

1. Turkson J, Jove STAT proteins: novel molecular targets for cancer drug discovery. *Oncogene*. 2000 Dec 27; 19(56): 6613-26.
2. Ivashkiv LB. Jak-STAT signaling pathways in cells of the immune system. *Rev Immunogenet*. 2000; 2(2): 220-30
3. Horvath CM. STAT proteins and transcriptional responses to extracellular signals. *Trends Biochem Sci*. 2000 Oct; 25(10): 496-502.
4. Nosaka T, Kitamura T. Janus kinases (JAKs) and signal transducers and activators of transcription (STATs) in hematopoietic cells. *Int J Hematol*. 2000 Jun; 71(4): 309-19.
5. Takeda K, Akira S. STAT family of transcription factors in cytokine-mediated biological responses. *Cytokine Growth Factor Rev*. 2000 Sep; 11(3): 199-207.
6. Mascareno E, Siddiqui MA. The role of Jak/STAT signaling in heart tissue renin-angiotensin system. *Mol Cell Biochem*. 2000 Sep; 212(1-2): 171-5.
7. Bromberg J. Signal transducers and activators of transcription as regulators of growth, apoptosis and breast development. *Breast Cancer Res*. 2000; 2(2): 86-90.
8. Lin JX, Leonard WJ. The role of Stat5a and Stat5b in signaling by IL-2 family cytokines. *Oncogene*. 2000 May 15; 19(21): 2566-76.