



## ***DB037: STAT1 (C19)***

### **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), (7).

### **Origin:**

STAT1 (C19) is provided as an affinity purified rabbit polyclonal antibody, raised against a peptide mapping to the carboxy terminus of human Stat1

### **Product Details:**

Each vial contains 200 µg/ml of affinity purified rabbit IgG STAT1 (C19)DB037, in 1 ml PBS containing 0.1 % sodium azide and 0.2% gelatin.

### **Competition Studies:**

A blocking peptide is also available, *DB037P*, 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:**

STAT1 (C19)DB037 reacts with STAT1α p91 and STAT1β p84 and of mouse, rat, and human origin by western blotting, immunoprecipitation, and immunohistochemistry. Western blotting starting dilution 1:200.

### **Storage:**

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

### **References:**

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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. Mascareno E, El-Shafei M, Maulik N, Sato M, Guo Y, Das DK, Siddiqui MA. JAK/STAT signaling is associated with cardiac dysfunction during ischemia and reperfusion. *Circulation* 2001 Jul 17;104(3):325-9

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