



## ***DB030: STAT4 (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). STAT6 and STAT4 are two STAT family members that specifically mediate signals from the IL-4 and IL-12 receptors, respectively (6).

### **Origin:**

STAT4 (C20) is provided as an affinity purified rabbit polyclonal antibody, raised against a peptide mapping to the carboxy terminus of mouse Stat 4.

### **Product Details:**

Each vial contains 200 µg/ml of affinity purified rabbit IgG STAT4 (C20) DB030, in 1 ml PBS containing 0.1 % sodium azide and 0.2% gelatin.

### **Competition Studies:**

A blocking peptide is also available, *DB030P*, 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:**

STAT4 (C20) DB030 reacts with STAT4 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:**

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. Wurster AL, Tanaka T, Grusby MJ. The biology of Stat4 and Stat6. *Oncogene*. 2000 May 15; 19(21): 2577-84.

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