

## Product Information

### ANTI-STAT 1 $\alpha$

Developed in Rabbit, Affinity Isolated Antibody

Product Number **S 2190**

#### Product Description

Anti-STAT 1 $\alpha$  (Signal Transducer and Activator of Transcription) is produced in rabbit using as immunogen a synthetic mouse STAT 1 $\alpha$ . The antibody is affinity purified by epitope-specific affinity chromatography. Anti-STAT 1 $\alpha$  specifically recognizes the 88-92 kDa protein, identified as STAT 1 $\alpha$ . The antibody detects mouse STAT 1 $\alpha$ , but does not recognize human STAT 1 $\alpha$ . It has been used in immunoblotting applications.

STAT proteins (Signal Transduction and Activators of Transcription) are latent cytoplasmic transcription factors that have the dual function of signal transduction and activation of transcription. STATs are activated by tyrosine phosphorylation in response to different ligands, after which they translocate to the cell nucleus. The N-terminal region is highly homologous among the STAT proteins and surrounds a completely conserved arginine residue. STATs are a part of the JAK-STAT signaling pathway, a major pathway of the immune system. All cytokines transduce critical signals through this pathway.<sup>1-3</sup>

STAT 1 is activated by a number of different ligands, including IFN $\alpha$ , IFN $\gamma$ , EGF, PDGF and IL6. STAT 1 homodimer binds to a site termed GAS, first defined as required for IFN- $\gamma$  induction. Variations on this site are also used in response to IL6, PDGF, and other ligands. Phosphorylation of tyrosine 701 is required for STAT 1 dissociation from IFNGR1, homodimerization, and nuclear translocation. Tyrosine 701 phosphorylation impairment results in loss of STAT 1 functions.<sup>4,5</sup>

STAT 2, in contrast, is activated by IFN- $\alpha$  but not IFN- $\gamma$  or any of the other ligands mentioned above. STAT 3 is known to be activated by IGF, IL6, LIF, and perhaps other ligands but is not activated by IFN- $\gamma$ . STAT 4 is present in high concentration in the testis but has not been found in a phosphorylated form in cells.

#### Reagent

Anti-STAT 1 $\alpha$  is supplied as a solution in phosphate buffered saline, pH 7.3, with no preservatives added.

#### Storage/Stability

Store at  $-70^{\circ}\text{C}$ . For extended storage, upon initial thawing, freeze in working aliquots. Avoid repeated freezing and thawing, to prevent denaturing the antibody. Do not store in a frost-free freezer. Samples at working dilution should be discarded if not used within 12 hours. The antibody is stable for at least 6 months when stored appropriately.

#### Product Profile

The recommended working concentration of 0.1 to 0.5  $\mu\text{g/ml}$  is determined by immunoblotting using whole cell lysates from 3T3-L1, NSF60 and CTLL cells. Data demonstrate that only peptide corresponding to the mouse STAT1 $\alpha$  blocks the antibody signal, which confirms the specificity of Anti-STAT 1 $\alpha$  for 88-92 kDa protein corresponding to mouse STAT 1 $\alpha$ . It does not recognize human STAT 1 $\alpha$ .

Note: In order to obtain best results in different techniques and preparations we recommend determining optimal working concentration by titration test.

#### References

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2. Gutch, M.J., et al., Proc. Natl. Acad. Sci. U S A., **89**, 11411-11415 (1991).
3. Schindler, C., Exp. Cell Res., **253**, 7-14 (1999).
4. Mowen, K. A., et al., Cell, **104**, 731-741 (2001).
5. Ramana, C. V., et al., Oncogene, **19**, 2619-2627 (2000).

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