



## Stat6 (280-480): sc-4120 WB

### BACKGROUND

Membrane receptor signaling by various ligands, including interferons and growth hormones such as EGF, induces activation of JAK kinases which then leads to tyrosine phosphorylation of proteins that have been designated Stats (signal transducers and activators of transcription). The first members of this family to be described include Stat1 $\alpha$  p91, Stat1 $\beta$  p84 (an 84 kDa form of p91 that lacks 38 COOH-terminal amino acids) and Stat2 p113. Stat1 and Stat2 are induced by IFN- $\alpha$  and form a heterodimer which is part of the ISGF3 transcription factor complex. Stat3, which becomes activated in response to epidermal growth factor (EGF) and interleukin-6 (IL-6), but not interferon- $\gamma$  (IFN- $\gamma$ ) or Stat4, is an additional member of this family. It has been suggested that the phosphorylated forms of both Stat3 and Stat4 form homodimers as well as heterodimers with the other members of the Stat family, and that differential activation of different Stat proteins in response to different ligands should help to explain specificity in nuclear signaling from the cell surface. Highest expression of Stat4 is seen in testis and myeloid cells. IL-12 has been identified as an activator of Stat4. Other members of the Stat family include Stat5, which has been shown to be activated by prolactin and by IL-3, and Stat6 (also designated IL-4 Stat), which is involved in IL-4-activated signaling pathways.

### REFERENCES

1. Fu, X. and Zhang, J. 1993. Transcription factor p91 interacts with the epidermal growth factor receptor and mediates activation of the c-Fos gene promoter. *Cell* 74: 1135-1145.
2. Shuai, K., Stark, G.R., Kerr, I.M., and Darnell, J.E. Jr. 1993. A single phosphotyrosine residue of Stat91 required for gene activation by interferon- $\gamma$ . *Science* 261: 1744-1746.
3. Zhong, Z., Wen, Z., and Darnell, J.E. Jr. 1994. Stat3: a Stat family member activated by tyrosine phosphorylation in response to epidermal growth factor and interleukin-6. *Science* 264: 95-98.
4. Darnell, J.E. Jr., Kerr, I.M., and Stark, G.R. 1994. JAK-Stat pathways and transcriptional activation in response to IFNs and other extracellular signaling proteins. *Science* 264: 1415-1421.
5. Akira, S., Nishio, Y., Inoue, M., Wang, X., Wei, S., Matsusaka, T., Yoshida, K., Sudo, T., Naruto, M., and Kishimoto, T. 1994. Molecular cloning of APRF, a novel IFN-stimulated gene factor 3 p91-related transcription factor involved in the gp130-mediated signaling pathway. *Cell* 77: 63-71.
6. Zhong, Z., Wen, Z., and Darnell, J.E. Jr. 1994. Stat3 and Stat4: members of the family of signal transducers and activators of transcription. *Proc. Natl. Acad. Sci. USA* 91: 4806-4810.
7. Hou, J., Schindler, U., Henzel, W.J., Ho, T.C., Brasseur, M., and McKnight, S.L. 1994. An interleukin-4-induced transcription factor: IL-4 Stat. *Science* 265: 1701-1706.

### SOURCE

Stat6 (280-480) is expressed in *E. coli* as a 53 kDa tagged fusion protein corresponding to amino acids 280-480 of Stat6 protein of mouse origin.

### PRODUCT

Stat6 (280-480) is purified from bacterial lysates (>98%) by glutathione agarose affinity chromatography; supplied as 10  $\mu$ g in 0.1 ml SDS-PAGE loading buffer.

### APPLICATIONS

Stat6 (280-480) is suitable as a Western blotting control for sc-1689 and sc-1698.

### STORAGE

Store at -20 $^{\circ}$  C; stable for one year from the date of shipment.

### RESEARCH USE

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