

## IL-5R $\alpha$ (M-20): sc-674

### BACKGROUND

Interleukin 5 (IL-5) is a soluble T cell-derived factor, also known as T cell-replacing factor (TRF), that induces B cell and eosinophil growth and differentiation. IL-5 exerts its biological activity through the IL-5 receptor (IL-5R), which is composed of two chains: an  $\alpha$  chain that binds IL-5 with low affinity and a  $\beta$  chain that does not bind IL-5, but together with the IL-5  $\alpha$  chain, constitutes the high affinity IL-5 receptor. The cytoplasmic domain of both the  $\alpha$  and  $\beta$  chains is essential for signal transduction. Specifically, the membrane-proximal proline-rich sequence of the cytoplasmic domain of the IL-5R receptor  $\alpha$  subunit, IL-5R $\alpha$ , is critical for the IL-5 induced proliferative response, expression of nuclear proto-oncogenes and tyrosine phosphorylation of cellular proteins, such as JAK1 and JAK2. Alternative splicing of the IL-5R $\alpha$  gene produces several isoforms, including a membrane-anchored isoform and a soluble isoform. The soluble isoform competes with IL-5 for binding to IL-5R and inhibits IL-5-mediated receptor activation and inflammatory mediator production, and therefore may be useful in treating asthma.

### REFERENCES

- Takatsu, K., et al. 1980. Antigen-induced T cell-replacing factor (TRF). I. Functional characterization of a TRF-producing helper T cell subset and genetic studies on TRF production. *J. Immunol.* 124: 2414-2422.
- Tuypens, T., et al. 1992. Organization and chromosomal localization of the human IL-5R $\alpha$  gene. *Eur. Cytokine Netw.* 3: 451-459.
- Kikuchi, Y., et al. 1994. Biochemical and functional characterization of soluble form of IL-5 receptor  $\alpha$  (sIL-5R $\alpha$ ). Development of ELISA system for detection of sIL-5R $\alpha$ . *J. Immunol. Methods* 167: 289-298.
- Takaki, S., et al. 1994. A critical cytoplasmic domain of the interleukin-5 (IL-5) receptor  $\alpha$  chain and its function in IL-5-mediated growth signal transduction. *Mol. Cell. Biol.* 14: 7404-7413.
- Kotsimbos, A.T., et al. 1997. IL-5 and IL-5 receptor in asthma. *Mem. Inst. Oswaldo Cruz* 92: 75-91.
- Monahan, J., et al. 1997. Attenuation of IL-5-mediated signal transduction, eosinophil survival, and inflammatory mediator release by a soluble human IL-5 receptor. *J. Immunol.* 159: 4024-4034.

### CHROMOSOMAL LOCATION

Genetic locus: Il5ra (mouse) mapping to 6 E1.

### SOURCE

IL-5R $\alpha$  (M-20) is an affinity purified rabbit polyclonal antibody raised against a peptide mapping at the C-terminus of IL-5R $\alpha$  of mouse origin.

### PRODUCT

Each vial contains 200  $\mu$ g IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-674 P, (100  $\mu$ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

### APPLICATIONS

IL-5R $\alpha$  (M-20) is recommended for detection of IL-5R $\alpha$  of mouse and rat origin by Western Blotting (starting dilution 1:100, dilution range 1:50-1:500), immunofluorescence (starting dilution 1:25, dilution range 1:25-1:250) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for IL-5R $\alpha$  siRNA (m): sc-40064, IL-5R $\alpha$  shRNA Plasmid (m): sc-40064-SH and IL-5R $\alpha$  shRNA (m) Lentiviral Particles: sc-40064-V.

Molecular Weight of IL-5R $\alpha$  isoforms: 75/105 kDa.

Positive Controls: NAMALWA cell lysate: sc-2234.

### RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker<sup>™</sup> compatible goat anti-rabbit IgG-HRP: sc-2030 (dilution range: 1:2000-1:5000), Cruz Marker<sup>™</sup> Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz<sup>™</sup> Mounting Medium: sc-24941.

### SELECT PRODUCT CITATIONS

- Habas, R., et al. 2001. Wnt/frizzled activation of Rho regulates vertebrate gastrulation and requires a novel formin homology protein DAAM1. *Cell* 107: 843-854.
- Tamura, S., et al. 2002. Expression of Oncostatin M in hematopoietic organs. *Dev. Dyn.* 225: 327-331.
- Tamura, S., et al. 2003. Localization of Oncostatin M receptor  $\beta$  in adult and developing CNS. *Neuroscience* 119: 991-997.
- Wang, S., et al. 2004. Glucose up-regulates Thrombospondin 1 gene transcription and transforming growth factor- $\beta$  activity through antagonism of c-GMP-dependent protein kinase repression via upstream stimulatory factor 2. *J. Biol. Chem.* 279: 34311-34322.

### STORAGE

Store at 4° C, \*\*DO NOT FREEZE\*\*. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

### RESEARCH USE

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

### PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) or our catalog for detailed protocols and support products.