

# Fc $\epsilon$ RI $\beta$ (N-17): sc-33488

## BACKGROUND

IgE Fc Receptor I binds to the Fc region of immunoglobulins  $\epsilon$  chain with high affinity, and is responsible for initiating the allergic response. Binding of allergen to receptor-bound IgE leads to cell activation and the release of mediators such as histamines, responsible for the manifestations of allergy. IgE Fc Receptor I also induces the secretion of important lymphokines, effectors of the hypersensitivity response. It is a tetramer of a heavily glycosylated  $\alpha$  chain, a  $\beta$  chain, and two disulfide linked  $\gamma$  chains. Structurally, the  $\beta$  chain contains four transmembrane regions with long cytoplasmic domains potentially involved in intracellular signaling. The cytoplasmic domains of the  $\beta$  and  $\gamma$  subunits each contain a conserved consensus sequence, ITAM (immunoreceptor tyrosine activation motif). Phosphorylation of a pair of conserved tyrosine residues within this motif is required for signal transduction in mast cells and other hemopoietic cell types. A variant identified at Glu237 of the  $\beta$  subunit has been implicated as a risk factor for atopic dermatitis and asthma.

## REFERENCES

- Hackel, W., et al. 1968. Foreign body as cause of a large urethral calculus and diverticulum formation. *Z. Urol. Nephrol.* 61: 827-829.
- Shimizu, A., et al. 1988. Human and rat mast cell high-affinity immunoglobulin E receptors: characterization of putative  $\alpha$ -chain gene products. *Proc. Natl. Acad. Sci. USA* 85: 1907-1911.
- Le Coniat, M., et al. 1990. The human genes for the  $\alpha$  and  $\gamma$  subunits of the mast cell receptor for immunoglobulin E are located on human chromosome band 1q23. *Immunogenetics* 32: 183-186.
- Kuster, H., et al. 1992. The gene and cDNA for the human high affinity immunoglobulin E receptor  $\beta$  chain and expression of the complete human receptor. *J. Biol. Chem.* 267: 12782-12787.
- Maekawa, K., et al. 1992. Determination of the sequence coding for the  $\beta$  subunit of the human high-affinity IgE receptor. *FEBS Lett.* 302: 161-165.
- Penhallow, RC., et al. 1995. Temporal activation of nontransmembrane protein-tyrosine kinases following mast cell Fc  $\epsilon$  RI engagement. *J. Biol. Chem.* 270: 23362-23365.
- Gyimesi, E., et al. 2004. Basophil CD63 expression assay on highly sensitized atopic donor leucocytes—a useful method in chronic autoimmune urticaria. *Br. J. Dermatol.* 151: 388-396.
- Taube, C., et al. 2004. Mast cells, Fc epsilon RI, and IL-13 are required for development of airway hyperresponsiveness after aerosolized allergen exposure in the absence of adjuvant. *J. Immunol.* 172: 6398-6406.
- SWISS-PROT/TrEMBL (Q01362). World Wide Web URL: <http://www.expasy.ch/sprot/sprot-top.html>

## CHROMOSOMAL LOCATION

Genetic locus: MS4A2 (human) mapping to 11q12.1; Ms4a2 (mouse) mapping to 19 A.

## STORAGE

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

## SOURCE

Fc  $\epsilon$  RI $\beta$  (N-17) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an N-terminal cytoplasmic domain of Fc  $\epsilon$  RI $\beta$  of human 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-33488 P, (100  $\mu$ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## APPLICATIONS

Fc  $\epsilon$  RI $\beta$  (N-17) is recommended for detection of Fc  $\epsilon$  RI $\beta$  of human and, to a lesser extent, mouse and rat origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for Fc  $\epsilon$  RI $\beta$  siRNA (h): sc-45264, Fc  $\epsilon$  RI $\beta$  siRNA (m): sc-45265, Fc  $\epsilon$  RI $\beta$  shRNA Plasmid (h): sc-45264-SH, Fc  $\epsilon$  RI $\beta$  shRNA Plasmid (m): sc-45265-SH, Fc  $\epsilon$  RI $\beta$  shRNA (h) Lentiviral Particles: sc-45264-V and Fc  $\epsilon$  RI $\beta$  shRNA (m) Lentiviral Particles: sc-45265-V.

Molecular Weight of Fc  $\epsilon$  RI $\beta$ : 33 kDa.

## RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

## 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.



Try **Fc  $\epsilon$  RI $\beta$  (F-1): sc-393789** or **Fc  $\epsilon$  RI $\beta$  (5-RE9): sc-134340**, our highly recommended monoclonal alternatives to Fc  $\epsilon$  RI $\beta$  (N-17).