

## ▶ Fc $\epsilon$ R $\gamma$ siRNA (h): sc-45267

### 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. The  $\gamma$  chains from Fc  $\epsilon$  RI are also subunits of other Fc receptors. The  $\gamma$  subunit is thought to be functionally significant in allowing the IgE Fc receptor to reach the cell surface. 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.

### REFERENCES

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2. 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.
3. 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.
4. 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.
5. Pang, J., et al. 1993. Characterization of the gene for the human high affinity IgE receptor (Fc  $\epsilon$  RI)  $\alpha$ -chain. *J. Immunol.* 151: 6166-6174.
6. Penhallow, R.C., et al. 1995. Temporal activation of nontransmembrane protein-tyrosine kinases following mast cell Fc  $\epsilon$  RI engagement. *J. Biol. Chem.* 270: 23362-23385.

### CHROMOSOMAL LOCATION

Genetic locus: FCER1G (human) mapping to 1q23.3.

### PRODUCT

Fc  $\epsilon$  R $\gamma$  siRNA (h) is a pool of 2 target-specific 19-25 nt siRNAs designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10  $\mu$ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see Fc  $\epsilon$  R $\gamma$  shRNA Plasmid (h): sc-45267-SH and Fc  $\epsilon$  R $\gamma$  shRNA (h) Lentiviral Particles: sc-45267-V as alternate gene silencing products.

For independent verification of Fc  $\epsilon$  R $\gamma$  (h) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-45267A and sc-45267B.

### STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at -20° C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at -20° C, avoid contact with RNases and repeated freeze thaw cycles.

Resuspend lyophilized siRNA duplex in 330  $\mu$ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330  $\mu$ l of RNase-free water makes a 10  $\mu$ M solution in a 10  $\mu$ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

### APPLICATIONS

Fc  $\epsilon$  R $\gamma$  siRNA (h) is recommended for the inhibition of Fc  $\epsilon$  R $\gamma$  expression in human cells.

### SUPPORT REAGENTS

For optimal siRNA transfection efficiency, Santa Cruz Biotechnology's siRNA Transfection Reagent: sc-29528 (0.3 ml), siRNA Transfection Medium: sc-36868 (20 ml) and siRNA Dilution Buffer: sc-29527 (1.5 ml) are recommended. Control siRNAs or Fluorescein Conjugated Control siRNAs are available as 10  $\mu$ M in 66  $\mu$ l. Each contain a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA. Fluorescein Conjugated Control siRNAs include: sc-36869, sc-44239, sc-44240 and sc-44241. Control siRNAs include: sc-37007, sc-44230, sc-44231, sc-44232, sc-44233, sc-44234, sc-44235, sc-44236, sc-44237 and sc-44238.

### GENE EXPRESSION MONITORING

Fc  $\epsilon$  R $\gamma$  (E-12): sc-390222 is recommended as a control antibody for monitoring of Fc  $\epsilon$  R $\gamma$  gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgG $\kappa$  BP-FITC: sc-516140 or m-IgG $\kappa$  BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

### RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor Fc  $\epsilon$  R $\gamma$  gene expression knockdown using RT-PCR Primer: Fc  $\epsilon$  R $\gamma$  (h)-PR: sc-45267-PR (20  $\mu$ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

### 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) for detailed protocols and support products.