Recombinant Human Fcε RIα

Catalog Number: 6678-FC

DESCRIPTION

Source	Mouse myeloma cell line, NS0-derived human Fc epsilon RI alpha protein Val26-Gln205, with a C-terminal 6-His tag Accession # NP_001992
N-terminal Sequence Analysis	Val26
Predicted Molecular Mass	21.9 kDa

SPECIFICATIONS

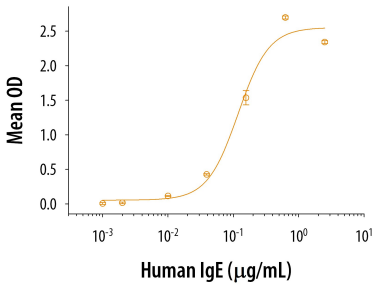
SDS-PAGE	45-58 kDa, reducing conditions
Activity	Measured by its binding ability in a functional ELISA. When Recombinant Human Fcε RIα is immobilized at 0.1 µg/mL (100 µL/well), the concentration of human IgE that produces 50% of the optimal binding response is found to be approximately 0.0200-0.200 µg/mL.
Endotoxin Level	<0.10 EU per 1 µg of the protein by the LAL method.
Purity	>95%, by SDS-PAGE visualized with Silver Staining and quantitative densitometry by Coomassie® Blue Staining.
Formulation	Lyophilized from a 0.2 µm filtered solution in PBS. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 100 µg/mL in PBS.
Shipping	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.
Stability & Storage	**Use a manual defrost freezer and avoid repeated freeze-thaw cycles.** • 12 months from date of receipt, -20 to -70 °C as supplied. • 1 month, 2 to 8 °C under sterile conditions after reconstitution. • 3 months, -20 to -70 °C under sterile conditions after reconstitution.

DATA

Bioactivity



Bioactivity of Human Fc epsilon RI alpha When Recombinant Human Fcε RIα (Catalog # 6678-FC) is immobilized at 0.1 µg/mL (100 µL/well), the concentration of human IgE that produces 50% of the optimal binding response is found to be approximately 0.0200-0.200 µg/mL.

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BACKGROUND

The α subunit of the high affinity IgE receptor (Fcε RIα or FcεRIA) is an IgE-binding type I transmembrane glycoprotein of the multichain immune recognition (MIRR) family (1, 2). The receptor, Fcε RI, is a tetrameric complex of one α, one β and two γ subunits ($\alpha\beta\gamma_2$) on mast cells and basophils (1). An alternate trimeric form ($\alpha\gamma_2$) is expressed on human, but not rodent, mast cells, basophils, eosinophils and professional antigen presenting cells (3). While the γ subunit is essential for expression of Fcε RIα on the cell surface and for cell signaling, the β subunit, when present, increases the halflife of the Fcε RI complex on the cell surface (3, 4). An isoform of the β subunit, βT, blocks processing of the α subunit and its cell surface expression (2, 3, 5). Human Fcε RIα cDNA encodes 257 amino acids (aa) including a 25 aa signal sequence, a 180 aa extracellular domain containing two Ig-like domains that bind IgE and an endoplasmic reticulum retention motif, a 21 aa transmembrane domain with a charged amino acid (Asp219) that contributes to intracellular transport, and a 32 aa cytoplasmic sequence (1, 3, 6). Human Fcε RIα shares 50-62% aa sequence identity with mouse, rat, equine, ovine, bovine, porcine and canine Fcε RIα. Binding of IgE alone increases surface expression of Fcε RI, while crosslinking of IgE/Fcε RI complexes by IgE ligands (allergens) initiates receptor internalization and signaling (2, 4, 5). Mast cell and basophil activation by IgE/Fcε RI crosslinking causes degranulation, releasing histamine, leukotrienes, prostaglandins, and other mediators of immediate-type and late-phase allergic reactions. Circulating autoantibodies that crosslink Fcε RIα are often found in patients with chronic urticaria (7). Fcε RI on human antigen presenting cells mediates uptake and processing of allergens for presentation by class II MHC (2, 3). Fcε RI expression on human DC and Langerhans cells is up-regulated during allergic reactions (atopy) and correlates with serum IgE concentration (3).

References:

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