**Human Fcε RIα Antibody**  
Monoclonal Mouse IgG₂B Clone # 773704  
Catalog Number: MAB6678

### DESCRIPTION

**Species Reactivity**  
Human

**Specificity**  
Detects human Fcε RIα in direct ELISAs.

**Source**  
Monoclonal Mouse IgG₂B Clone # 773704

**Purification**  
Protein A or G purified from hybridoma culture supernatant

**Immunogen**  
Mouse myeloma cell line NS0-derived recombinant human Fcε RIα  
Val26-Gln205  
Accession # P12319

**Formulation**  
Lyophilized from a 0.2 µm filtered solution in PBS with Trehalose. See Certificate of Analysis for details.  
*Small pack size (-SP) is supplied either lyophilized or as a 0.2 µm filtered solution in PBS.

### APPLICATIONS

**Please Note:** Optimal dilutions should be determined by each laboratory for each application. General Protocols are available in the Technical Information section on our website.

<table>
<thead>
<tr>
<th>Applications</th>
<th>Recommended Concentration</th>
<th>Sample</th>
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</thead>
<tbody>
<tr>
<td>Flow Cytometry</td>
<td>2.5 µg/10⁶ cells</td>
<td>See Below</td>
</tr>
<tr>
<td>CyTOF-ready</td>
<td>Ready to be labeled using established conjugation methods. No BSA or other carrier proteins that could interfere with conjugation.</td>
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<tr>
<td>Neutralization</td>
<td>In a functional ELISA, 0.08-4 µg/mL of this antibody will block 50% of the binding of 300 ng/mL of human IgE to immobilized Recombinant Human Fcε RIα (Catalog # MAB6678-FC) coated at 2 µg/mL (100 µL/well). At 40 µg/mL, this antibody will block &gt;90% of the binding.</td>
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### DATA

**Flow Cytometry**  
Detection of Fcε RIα in Human blood cells by Flow Cytometry.  
Human peripheral blood cells were stained with Mouse Anti-Human ENPP-3/CD203c APC-conjugated Monoclonal Antibody (Catalog # FAB5756A) and either (A) Mouse Anti-Human Fcε RIα Monoclonal Antibody (Catalog # MAB6678) or (B) Mouse IgG₂B Isotype Control (Catalog # MAB2041) followed by Phycoerythrin-conjugated Anti-Mouse IgG Secondary Antibody (Catalog # F0102B).

### PREPARATION AND STORAGE

**Reconstitution**  
Sterile PBS to a final concentration of 0.5 mg/mL.

**Shipping**  
The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.  
*Small pack size (-SP) is shipped with polar packs. Upon receipt, store it immediately at -20 to -70 °C.

**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.  
- 6 months, -20 to -70 °C under sterile conditions after reconstitution.
The α subunit of the high affinity IgE receptor (FcεRIα or FcεRIA) is an IgE-binding type I transmembrane glycoprotein of the multichain immune recognition (MIRR) family (1, 2). The receptor, FcεRI, is a tetrameric complex of one α, one β and two γ subunits (αβγ2) on mast cells and basophils (1). An alternate trimeric form (αγ2) 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 FcεRIα on the cell surface and for cell signaling, the β subunit, when present, increases the half-life of the FcεRI 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 FcεRIα 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 FcεRIα shares 50-62% aa sequence identity with mouse, rat, equine, ovine, bovine, porcine and canine FcεRIα. Binding of IgE alone increases surface expression of FcεRI, while crosslinking of IgE/FcεRI complexes by IgE ligands (allergens) initiates receptor internalization and signaling (2, 4, 5). Mast cell and basophil activation by IgE/FcεRI crosslinking causes degranulation, releasing histamine, leukotrienes, prostaglandins, and other mediators of immediate-type and late-phase allergic reactions. Circulating autoantibodies that crosslink FcεRIα are often found in patients with chronic urticaria (7). FcεRI on human antigen presenting cells mediates uptake and processing of allergens for presentation by class II MHC (2, 3). FcεRI expression on human DC and Langerhans cells is up-regulated during allergic reactions (atopy) and correlates with serum IgE concentration (3).

References: