Anti-FcεR1α (human IgE receptor) antibody, mouse monoclonal (CRA1)

Product code	72-001
Size	100 μg
Storage	-20℃
Concentration	1.0 mg/ml
Buffer	PBS- with 50% glycerol
Purity	Purified IgG fraction with protein A from hybridoma cell culture medium.
Immunogen	Purified recombinant extracellular portion of human FcεR1α (corresponding to amino acids Met-26-197, where signal peptide is 1-25)
Isotype	Mouse IgG 2b
Reactivity	Human, house musk shrew
Special notes	Epitope: 26-110 amino acids
Application	1. Western blotting (～1μg/ml) 2. Immunoprecipitation (assay dependent) 3. Flow Cytometry (FC) (1~5 μg/ml) 4. IHC-P, IHC-F (~1 μg/ml) 5. Titration of IgE-bound receptor in combination with CRA2 antibody (Ref.3) 6. Promotion of migration of basophils (Ref.5)
Background	FcεR1α is subunit of the high affinity receptor for IgE to which IgE directly binds. FcεR1 is a tetrameric complex consisting of one α, one ß and two γ subunits. The latter two subunits are required for signal transduction activity. The FcεR1αcomplex plays an important role in triggering allergic responses. The CRA1 (AER37) monoclonal antibody reacts with the FcεR1αsubunit on a region that does not overlap the region of the IgE binding site, thus it does not compete with IgE for the receptor binding. Since the CRA2 (AER24) monoclonal antibody reacts with the IgE binding site on FcεR1α, it competes with IgE for the receptor binding. Combining the two antibodies, one can quantitatively measure the amounts of the IgE-bound FcεR1α. This product is the IgG fraction purified from serum-free culture medium of mouse hybridoma (CRA1) by propriety chromatography under mild conditions. Properties of CRA1 and CRA2 antibodies have been extensively characterized by Prof. Chisei Ra (Ref. 3, 4).
Data Link	UniProtKB/Swiss-Prot P12319 (FCERA_HUMAN)

Please note: All products are FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC PROCEDURES. NOT FOR MILITARY USE.

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Data Images: 72-001 Anti-FcεR1α (human IgE receptor) antibody, mouse monoclonal (CRA1)

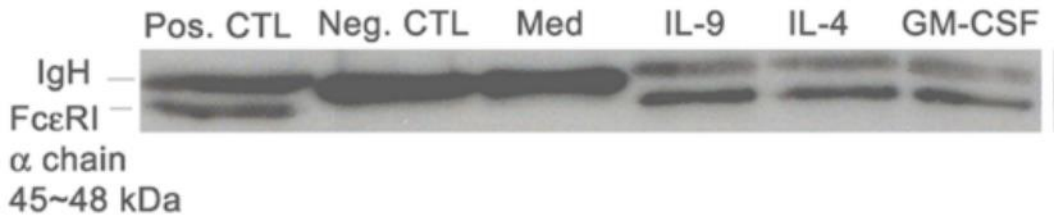

Fig.1 Western blot analysis of Fc ε R α expression induced by TH-2 cytokines in neutrophils from allergic asthmatics.

Total protein lysates were subjected to immunoprecipitation with IgE/anti IgE and Western blotting with CRA1. Basophilic cell line (KU812) was used as positive control. Negative control corresponds to neutrophil protein lysate analyzed without IgE/anti-IgE immunoprecipitation.

(Image from Alphonse MP et al. PLoS One. 2008 Apr 2;3(4):e1921.)

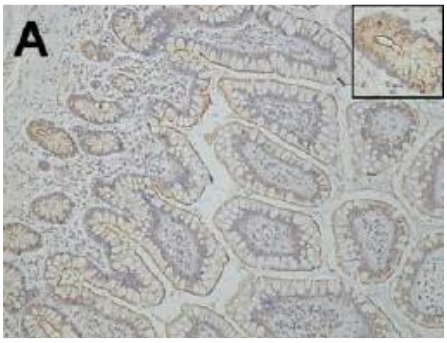

Fig.2 Immunohistochemical staining of FcεRα in section from intestinal tissue.

(A) FcεRαis detected on the membrane, as well as in the cytoplasm of epithelial cells in small intestine of a cancer patient.

(Imagefrom: Untersmayr E et al. (2010) PLoS ONE 5(2): e9023.)

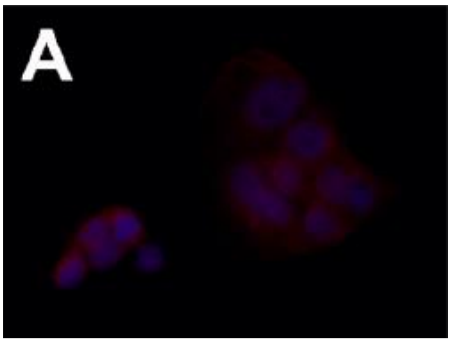

Fig.3 Immunofluorescence staining of Fc ε R α in human intestinal tumor cell line.

Abundant surface and cytoplasmatic FcεRI α expression is observed only in subconfluent Cao2/TC' cells (red). The cells were permeabilized withTriton-X-100.

As the second antibody, goat anti-mouse AlexaFluor 568 was used. Nuclei were stained with DAPI.**(Imagefrom:** Untersmayr E et al. (2010) PLoS ONE 5(2): e9023.)

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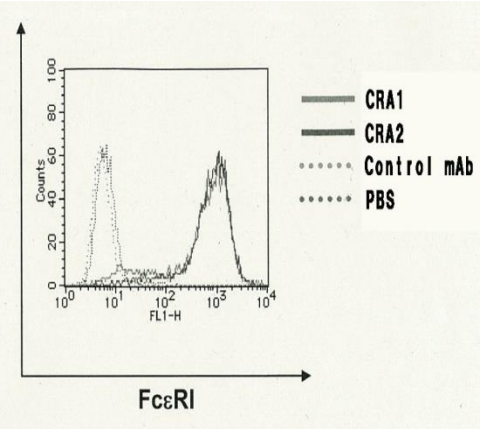

Fig.4　Flow-cytometry of CHO/Fc ε R1 α cells　with CRA1 and CRA2 antibodies

CHO cells were transfected with plasmid expressing human FcεRIα. The second antibody is FITC-conjugated anti-mouse IgG2b antibody.

References: This antibody has been used in the following publications.

1. Suzuki K. et al. The Fc receptor (FcR) γ subunit is essential for IgE-binding activity of cell-surface expressed chimeric receptor molecules constructed from human high-affinity IgE receptor (FcεRI) αand FcRγ subunits. Mol Immunol. 1998 Apr;35(5):259-70. **WB,IP　(human)**
2. Yamaguchi M et al. IgE enhances Fc epsilon receptor I expression and IgE-dependent release of histamine and lipid mediators from human umbilical cord blood-derived mast cells: synergistic effect of IL-4 and IgE on human mast cell Fc epsilon receptor I expression and mediator release.J Immuno1 162:5455-5465 (1999) PMID: 10228025　**FC (human)**
3. Hasegawa S et al. Functional Expression of the High Affinity Receptor for IgE (FceRI) in Human Platelets and Its' Intracellular Expression in Human Megakaryocytes" Blood 93;:2543-51 (1999) PMID: 10194433　FC (human)
4. Takai T et al. Epitope analysis and primary structures of variable regions of anti-human FcepsilonRI monoclonal antibodies, and expression of the chimeric antibodies fused with human constant regions. Biosci Biotechnol Biochem 64:1856-1867(2000) PMID: 055388 **WB, FC (human)**
5. Takai T et al."Direct expression of the extracellular portion of human FcepsilonRIalpha chain as inclusion bodies in Escherichia coli. Biosci Biotechnol Biochem 65:79-85 (2001) PMID: 11272849 **WB (human)**
6. Suzukawa M et al. IgE- and FcepsilonRI-mediated migration of human basophils. Int Immunol 17 : 1249-1255 (2005) PMID: 16103029 **Induction migration of basophils (human)**
7. Koketsu R et al. Activation of basophils by stem cell factor: comparison with insulin-like growth factor-I. J Investig Allergol Clin Immunol. 2008;18(4):293-9. PMID: 18714538 **Basophil histamine release (human)**
8. Alphonse MP et al Regulation of the high affinity IgE receptor (Fc epsilonRI) in human neutrophils: role of seasonal allergen exposure and Th-2 cytokines. PLoS One. 2008 Apr

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2;3(4):e1921. doi: 10.1371/journal.pone.0001921. PMID: 18382690. **WB, IF, FC (human)**

9. Untersmayr E. The high affinity IgE receptor Fc epsilonRI is expressed by human intestinal epithelial cells.PLoS ONE 5 (2):1-11 (2010) PMID: 20126404 **IHC-P, IF (human)**
10. Ono HK et al. Submucosal mast cells in the gastrointestinal tract are a target of staphylococcal enterotoxin type A. FEMS Immunol Med Microbiol. 2012 Apr;64(3):392-402. PMID:22211567. **IHC-F （house musk shrew）**
11. Ito R et al. Establishment of a Human Allergy Model Using Human IL-3/GM-CSF–Transgenic NOG Mice. J Immunol. 2013 Sep 15;191(6):2890-9. PMID: 23956433 **IHC-P (human)**
12. Ogihara K et al. Inhibition of an Allergen–Antibody Reaction Related to Japanese Cedar Pollinosis Using DNA Aptamers Against the Cry j 2 Allergen. Nucleic Acid Therapeutics. November 2015, 25(6): 311-316. PMID: 26484654 **WB (human)**

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72-005 Anti-FcεR1α (human IgE receptor) antibody, mouse monoclonal (CRA2)
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