Recombinant Human IL-13 Rα2 Fc Chimera

Catalog Number: 614-INS

DESCRIPTION

Source Mouse myeloma cell line, NS0-derived

Human IL-13 Rα2 (Cys22 - Leu342) Accession # Q14627	TDIEGRMD	Human IgG_1 (Pro100 - Lys330)	6-His tag

N-terminus C-terminus

N-terminal Sequence Analysis Cys22

Structure / Form Disulfide-linked homodimer

Predicted Molecular Mass 65 kDa (monomer)

SPECIFICATIONS

SDS-PAGE 74 kDa, reducing conditions

Activity Measured by its ability to inhibit IL-13-dependent proliferation of TF-1 human erythroleukemic cells. Kitamura, T. *et al.* (1989) J. Cell Physiol. **140**:323.
The ED_{50} for this effect is typically 1-4 µg/mL in the presence of 8 ng/mL recombinant human IL-13.

Endotoxin Level <1.0 EU per 1 µg of the protein by the LAL method.

Purity >90%, by SDS-PAGE under reducing conditions and visualized by silver stain.

Formulation Lyophilized from a 0.2 µm filtered solution in PBS. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution Reconstitute at 200 µg/mL in sterile 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.

BACKGROUND

Interleukin-13 Receptor alpha 2 (IL-13 Ra2), also known as IL-13 Ra', IL-13 binding protein, and CD213a2, is a widely expressed 55 kDa cytokine receptor that plays an important role in the Th2-polarized immune responses characteristic of a variety of pathologies including parasitic infections and allergic asthma (1, 2). Mature human IL-13 Ra2 consists of a 317 amino acid (aa) extracellular domain with three fibronectin type-III domains, a WSxWS motif, a 20 aa transmembrane segment, and a 17 aa cytoplasmic domain (3). Within the ECD, human IL-13 Ra2 shares 64% and 62% aa sequence identity with mouse and rat IL-13 Ra2, respectively. A 40 kDa 50 kDa soluble form of IL-13 Ra2 can be generated by MMP-8 mediated shedding (4). The biological effects of IL-13 and IL-4 are closely related in part due to a shared receptor system. IL-13 binds to IL-13 Ra1 which then forms a signaling complex with IL-4 Ra (5, 6). IL-13 Ra2 functions as a decoy receptor by binding and internalizing IL-13 and preventing it from signaling through the IL-13 Ra1/IL-4 Ra complex (3, 7). IL-13 Ra2 can also block IL-4 induced responses by inhibiting IL-4 bound IL-13 Ra1/IL-4 Ra receptor complexes even though it does not itself bind IL-4 (8, 9). Aside from its decoy function, IL-13-activated IL-13 Ra2 directly promotes the development of tissue fibrosis by inducing the transcription of TGF-beta (10). Soluble IL-13 Ra2 retains ligand binding capability and attenuates responses to IL-13 but not to IL-4 (8, 11). The up-regulation of transmembrane and soluble IL-13 Ra2 during Th2-biased immune responses limits the extent of those responses (12 - 14). IL-13 Ra2 is expressed in some cancers, and its ability to block IL-13 and IL-4 contributes to tumorigenesis and metastasis (9, 15).

References:

1. Wynn, T.A. (2003) Annu. Rev. Immunol. **21**:425.
2. Tabata, Y. *et al.* (2007) Curr. Allergy Asthma Rep. **7**:338.
3. Caput, D. *et al.* (1996) J. Biol. Chem. **271**:16921.
4. Chen, W. *et al.* (2008) J. Allergy Clin. Immunol. **122**:625.
5. Andrews, A.-L. *et al.* (2006) J. Immunol. **176**:7456.
6. Zurawski, S.M. *et al.* (1995) J. Biol. Chem. **270**:13869.
7. Donaldson, D.D. *et al.* (1998) J. Immunol. **161**:2317.
8. Andrews, A.-L. *et al.* (2006) J. Allergy Clin. Immunol. **118**:858.
9. Rahaman, S.O. *et al.* (2002) Cancer Res. **62**:1103.
10. Fichtner-Feigl, S. *et al.* (2006) Nat. Med. **12**:99.
11. Zhang, J.G. *et al.* (1997) J. Biol. Chem. **272**:9474.
12. Chiaramonte, M.G. *et al.* (2003) J. Exp. Med. **197**:687.
13. Morimoto, M. *et al.* (2009) J. Immunol. **183**:1934.
14. Zheng, T. *et al.* (2008) J. Immunol. **180**:522.
15. Fujisawa, T. *et al.* (2009) Cancer Res. **69**:8678.