Recombinant Human IL-1 RII Fc Chimera

Catalog Number: 663-2R

DESCRIPTION

Source

Chinese Hamster Ovary cell line, CHO-derived human IL-1 RII protein

N-terminal Sequence Analysis	His21
Structure / Form	Disulfide-linked homodimer
Predicted Molecular Mass	63.7 kDa (monomer)

SPECIFICATIONS

SDS-PAGE	80-95 kDa, reducing conditions
Activity	Measured by its ability to inhibit IL-1β-dependent proliferation in D10.G4.1 mouse helper T cells. Symons, J.A. *et al.* (1987) in Lymphokines and Interferons, a Practical Approach. Clemens, M.J. *et al.* (eds): IRL Press. 272. Approximately 0.3-1.8 µg/mL of Recombinant Human (rh) IL-1 RII Fc Chimera will inhibit 50% of the biological response due to 50 pg/mL of rhIL-1β.
Endotoxin Level	<0.01 EU per 1 µg of the protein by the LAL method.
Purity	>95%, 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 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.

bio-techne®
Global bio-techne.com info@bio-techne.com techsupport@bio-techne.com TEL +1 612 379 2956
USA TEL 800 343 7475 Canada TEL 855 668 8722 China TEL +86 (21) 52380373
Europe | Middle East | Africa TEL +44 (0)1235 529449

Recombinant Human IL-1 RII Fc Chimera

Catalog Number: 663-2R

BACKGROUND

IL-1 Receptor II (also IL-1 R2) is a 60 - 70 kDa member of the interleukin-1 receptor family of proteins (1 - 4). It serves as a non-signaling ligand-binding decoy receptor for IL-1β and IL-1α (4). IL-1 binds to a cell surface complex composed of IL-1 RI and IL-1 RAcP. Upon activation, this complex recruits MyD88 for downstream signaling (4, 5). The proinflammatory action of IL-1 is antagonized by IL-1ra which binds to IL-1 RI but does not initiate signaling. A second natural antagonist is IL-1 RII, a cell surface receptor that binds both IL-1α and β, but not IL-1ra. IL-1 RII is found on astrocytes, neutrophils, anterior pituitary acidophils that secrete GH, corneal epithelium, testicular Leydig and Sertoli cells, B cells and monocytes/macrophages (6 - 12). Mature human IL-1 RII is a 385 amino acid (aa) type I transmembrane glycoprotein that contains a 330 aa extracellular region with three Ig-like domains (aa 14 - 343), a 26 aa transmembrane segment, and a 29 aa cytoplasmic domain with no signaling motifs (13). There is one soluble 55 - 60 kDa alternative splice form that shows a premature truncation after Gln296 (14). ARTS-1 mediated cleavage of IL-1 RII generates a 47 kDa isoform, while α-secretase cleavage after Arg338 creates a 50 - 55 kDa isoform that undergoes further processing back to Pro314 (15, 16). Human IL-1 RII shares 59% aa identity with mouse IL-1 RII in the extracellular region. Different forms of human IL-1 RII demonstrate differing binding affinities for IL-1. IL-1 RII has a preference for IL-1β over IL-1α, and binding requires the presence of IL-1 RAcP. This interaction prevents the association of IL-1 with IL-1 RI and also restricts IL-1 R to a non-signaling receptor complex (11, 17 - 19). The membrane IL-1 RII:IL-1 RAcP complex does not form a functional bond with IL-1ra, and cannot bind pro-IL-1β (11, 13, 19, 20). Soluble IL-1 RII, by contrast, demonstrates a different binding profile. Notably, it will bind pro-IL-1β rendering it unavailable for activation by extracellular proteases (19, 20). Although it will sequester both IL-1β and IL-1α, its interaction with soluble IL-1 RAcP creates a circulating high affinity complex for both IL-1β and IL-1α, thus potentiating its anti-inflammatory activity.

References:

1. Dinarello, C.A. (2011) Blood **117**:3720.
2. Boraschi, D. and A. Tagliabue (2006) Vitam. Horm. **74**:229.
3. Dunne, A. and L.A.J. O'Neill (2003) Sci STKE. Feb 25;2003(171):re3.
4. Dinarello, C.A. (2009) Annu. Rev. Immunol. **27**:519.
5. O'Neill, L.A.J. (2008) Immunol. Rev. **226**:10.
6. Pousset, F. *et al.* (2001) J. Neurochem. **79**:726.
7. Bourke, E. *et al.* (2003) J. Immunol. **170**:5999.
8. French, R.A. *et al.* (1996) Endocrinology **137**:4027.
9. Cubitt, C.L. *et al.* (2001) Invest. Ophthalmol. Vis. Sci. **42**:701.
10. Gomez, E. *et al.* (1997) Biol. Reprod. **56**:1513.
11. Lang, D. *et al.* (1998) J. Immunol. **161**:6871.
12. Mantovani, A. *et al.* (2001) Trends Immunol. **22**:328.
13. McMahan, C.J. *et al.* (1991) EMBO J. **10**:2821.
14. Liu, C. *et al.* (1996) J. Biol. Chem. **271**:20965.
15. Cui, X. *et al.* (2003) J. Immunol. **171**:6814.
16. Kuhn, P-H. *et al.* (2007) J. Biol. Chem. **282**:11982.
17. Smith, D.E. *et al.* (2003) Immunity **18**:87.
18. Makinowsky, D. *et al.* (1998) FEBS Lett. **429**:299.
19. Neumann, D. *et al.* (2000) J. Immunol. **165**:3350.
20. Symons, J. A. *et al.* (1995) Proc. Natl. Acad. Sci. USA **92**:1714.
21. Wang, D. *et al.* (2010) Nat. Immunol. **11**:905.

bio-techne®
Global bio-techne.com info@bio-techne.com techsupport@bio-techne.com TEL +1 612 379 2956
USA TEL 800 343 7475 **Canada** TEL 855 668 8722 **China** TEL +86 (21) 52380373
Europe | Middle East | Africa TEL +44 (0)1235 529449