Recombinant Human IL-12 Rβ2 Fc Chimera

Catalog Number: 1959-B2B

DESCRIPTION

Source

Mouse myeloma cell line, NS0-derived human IL-12 R beta 2 protein

Human IL-12 Rβ2 (Lys24-Asn622) Accession # Q99665-1	IEGRMD	Human IgG_1 (Pro100-Lys330)	6-His tag

N-terminus C-terminus

N-terminal Sequence Analysis	Lys24
Structure / Form	Disulfide-linked homodimer
Predicted Molecular Mass	95 kDa

SPECIFICATIONS

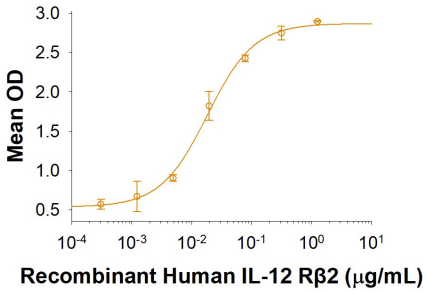
SDS-PAGE	112-133 kDa, reducing conditions
Activity	Measured by its binding ability in a functional ELISA. When Recombinant Human IL-12 (Catalog # 219-IL) is immobilized at 0.5 µg/mL, 100 µL/well, the concentration of Recombinant Human IL-12 Rβ2 Fc that produces 50% of the optimal binding response is 0.015-0.09 µg/mL.
Endotoxin Level	<0.10 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 with Trehalose. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 250 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.

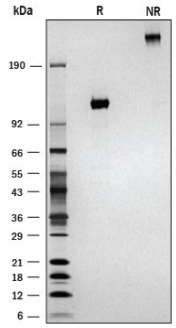
DATA

Binding Activity



When Recombinant Human IL-12 (Catalog # 219-IL) is immobilized at 0.5 µg/mL, Recombinant Human IL-12 R beta 2 Fc Chimera (Catalog # 1959-B2B) binds with an ED_{50} of 0.015-0.09 µg/mL.

SDS-PAGE



1 µg/lane of Recombinant Human IL-12 Rβ2 was resolved with SDS-PAGE under reducing (R) and non-reducing (NR) conditions and visualized by silverstaining, showing bands at 112-133 kDa and 220-260 kDa, respectively.

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-12 Rβ2 Fc Chimera

Catalog Number: 1959-B2B

BACKGROUND

The high-affinity IL-12 receptor complex includes the 100-kDa IL-12 Receptor β1 (IL-12 Rβ1) and the 130-kDa IL-12 Receptor β2 (IL-12 Rβ2) subunits, both type I transmembrane proteins within the cytokine receptor superfamily (1, 2). Its ligand, IL-12, is a disulfide-linked dimer of 35-kDa (IL-12α p35) and 40-kDa (IL-12β p40) subunits. IL-12 Rβ2 binds IL-12α and signals through Jak2, while IL-12 Rβ1 binds IL-12β and signals through Tyk2 (3). IL-12 Rβ1 is also a subunit of the IL-23 receptor complex (3). The 862 amino acid (aa) human IL-12 Rβ2 includes a 23 aa signal peptide, a 599 aa extracellular domain (ECD) with five fibronectin type III (Fn III) domains, 8 potential N-glycosylation sites, and a WSXWS motif, a 21 aa transmembrane domain and a 219 aa cytoplasmic region with a Box 1 motif and a tyrosine phosphorylation site that both mediate intracellular signaling (3). Human IL-12 Rβ2 ECD shares 69%, 67%, 79%, 81% and 82% aa sequence identity with mouse, rat, canine, porcine and bovine IL-12 Rβ2, respectively. Human and mouse IL-12 Rβ2 do not bind cross-species IL-12 (2). A human alternatively spliced 659 aa form contains a shortened, altered cytoplasmic sequence (4). Unlike IL-12 Rβ1, which is constitutive in T cells, NK cells and B cells, IL-12 Rβ2 expression is more limited (2). IL-12 Rβ2 is expressed following STAT1 activation by IFN-γ, IL-27 and/or T cell receptor stimulation of naïve T cells, allowing IL-12 to promote Th1, but not Th2, differentiation (5-7). Among B cells, surface expression is limited to naïve germinal center and memory B cells, and myeloma cells (2). Deletion of mouse IL-12 Rβ2 causes systemic overexpression of IL-6, accelerated maturation of thymocytes, deficient regulatory T cell maturation and function, and reduced splenic T cell apoptosis (2, 8-10). These mice are susceptible to autoimmune diseases such as experimental autoimmune encephalitis and spontaneous B cell malignancies (2, 8-10). In humans, polymorphism of the IL-12 Rβ2 gene is associated with systemic sclerosis (11).

References:

1. Presky, D.H. *et al.* (1996) Proc. Natl. Acad. Sci. USA **93**:14002.
2. Pistoia, V. *et al.* (2009) J. Clin. Oncol. **27**:4809.
3. Zou, J. *et al.* (1997) J. Biol. Chem. **272**:6073.
4. SwissProt accession # Q99665
5. Rogge, L. *et a*l. (1997) J. Exp. Med. **185**:825.
6. Becskei, A. and M.J. Grusby (2007) FEBS Lett. **581**:5199.
7. Szabo, S.J. *et al.* (1997) J. Exp. Med. **185**:817.
8. Zhao, Z. *et al.* (2008) J. Immunol. **181**:3870.
9. Gran, B. *et al.* (2010) Exp. Mol. Pathol. **89**:126.
10. Airoldi, I. *et al.* (2005) Blood **106**:3846.
11. Bossini-Castillo, L. *et al.* (2012) Hum. Mol. Genet. **21**: 926

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