Recombinant Mouse IL-12 Rβ2 Fc Chimera

Catalog Number: 7406-MR

DESCRIPTION

Source

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

N-terminal Sequence Analysis	Asn24
Structure / Form	Disulfide-linked homodimer
Predicted Molecular Mass	95.7 kDa (monomer)

SPECIFICATIONS

SDS-PAGE	125-145 kDa, reducing conditions
Activity	Measured by its binding ability in a functional ELISA. When Recombinant Mouse (rm) IL-12 Rβ2 Fc Chimera is immobilized at 0.5 µg/mL (100 µL/well), the concentration of rmIL-12 that produces 50% of the optimal binding response is found to be approximately 4 - 20 ng/mL.
Endotoxin Level	<0.10 EU per 1 µg of the protein by the LAL method.
Purity	>95%, by SDS-PAGE visualized with Silver Staining and quantitative densitometry by Coomassie® Blue Staining.
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.

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 of which are type I transmembrane proteins that belong to the cytokine receptor superfamily (1, 2). The complex's ligand, IL-12, is a disulfide-linked heterodimer composed 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 874 amino acid (aa) mouse IL-12 Rβ2 precursor includes a 23 aa signal peptide, a 614 aa extracellular domain (ECD), a 21 aa transmembrane segment and a 216 aa cytoplasmic region. The ECD possesses one C2-type Ig-like domain, five fibronectin type III (Fn III) repeats, 14 potential N-glycosylation sites, and a WSXWS motif, while the cytoplasmic region contains a Box 1 motif and three tyrosine phosphorylation sites that presumably mediate intracellular signaling (3). The mouse IL-12 Rβ2 ECD shares 91% aa sequence identity with rat IL-12 Rβ2, and 68% with human, porcine and bovine IL-12 Rβ2. Human and mouse IL-12 Rβ2 do not bind cross-species IL-12 (2). A 734 aa mouse isoform that lacks aa 363-503 within the Fn III domains is reported (4). Unlike IL-12 Rβ1, which is constitutively expressed on T cells, NK cells and B cells, IL-12 Rβ2 expression is more restricted (2). On naïve T cells, IL-12 Rβ2 is expressed following STAT1 activation by IFN-γ, IL-27 and/or T cell receptor ligation. This up-regulation allows 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 IL-12 Rβ2 causes systemic over-expression 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:

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