

DESCRIPTION

Species Reactivity	Mouse
Specificity	Detects mouse IL-12 R β 2 in direct ELISAs.
Source	Monoclonal Rat IgG _{2B} Clone # 918102
Purification	Protein A or G purified from hybridoma culture supernatant
Immunogen	Mouse myeloma cell line NS0-derived recombinant mouse IL-12 R β 2 Met1-Asn637 Accession # P97378
Endotoxin Level	<0.10 EU per 1 μ g of the antibody by the LAL method.
Formulation	Lyophilized from a 0.2 μ m filtered solution in PBS with Trehalose. See Certificate of Analysis for details. *Small pack size (-SP) is supplied as a 0.2 μ m filtered solution in PBS.

APPLICATIONS

Please Note: Optimal dilutions should be determined by each laboratory for each application. *General Protocols* are available in the *Technical Information* section on our website.

Blockade of Receptor-ligand Interaction In a functional ELISA, 30-180 ng/mL of this antibody will block 50% of the binding of 100 ng/mL of Recombinant Mouse IL-12 (Catalog # 419-ML) to immobilized Recombinant Mouse IL-12 R β 2 Fc Chimera (Catalog # 7406-MR) coated at 500 ng/mL (100 μ L/well). At 1 μ g/mL, this antibody will block >90% of the binding.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 0.5 mg/mL in sterile PBS.
Shipping	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below. *Small pack size (-SP) is shipped with polar packs. Upon receipt, store it immediately at -20 to -70 °C
Stability & Storage	Use a manual defrost freezer and avoid repeated freeze-thaw cycles. <ul style="list-style-type: none"> ● 12 months from date of receipt, -20 to -70 °C as supplied. ● 1 month, 2 to 8 °C under sterile conditions after reconstitution. ● 6 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 β 1 (IL-12 R β 1) and the 130 kDa IL-12 Receptor β 2 (IL-12 R β 2) 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-12 α p35) and 40 kDa (IL-12 β p40) subunits. IL-12 R β 2 binds IL-12 α and signals through Jak2, while IL-12 R β 1 binds IL-12 β and signals through Tyk2 (3). IL-12 R β 1 is also a subunit of the IL-23 receptor complex (3). The 874 amino acid (aa) mouse IL-12 R β 2 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 R β 2 ECD shares 91% aa sequence identity with rat IL-12 R β 2, and 68% with human, porcine and bovine IL-12 R β 2. Human and mouse IL-12 R β 2 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 R β 1, which is constitutively expressed on T cells, NK cells and B cells, IL-12 R β 2 expression is more restricted (2). On naive T cells, IL-12 R β 2 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 naive germinal center and memory B cells, and myeloma cells (2). Deletion of IL-12 R β 2 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 R β 2 gene is associated with systemic sclerosis (11).

References:

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