

#### DESCRIPTION

|                           |                                                                                                                                                                                                                                                                             |
|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Species Reactivity</b> | Human                                                                                                                                                                                                                                                                       |
| <b>Specificity</b>        | Detects human and mouse IL-12 R $\beta$ 2 in direct ELISAs and Western blots. In direct ELISAs and Western blots, less than 5% cross-reactivity with recombinant human IL-12 R $\beta$ 1 is observed.                                                                       |
| <b>Source</b>             | Polyclonal Goat IgG                                                                                                                                                                                                                                                         |
| <b>Purification</b>       | Antigen Affinity-purified                                                                                                                                                                                                                                                   |
| <b>Immunogen</b>          | Mouse myeloma cell line NS0-derived recombinant human IL-12 R $\beta$ 2<br>Cys28-Asn622<br>Accession # Q99665                                                                                                                                                               |
| <b>Conjugate</b>          | Alexa Fluor 405<br>Excitation Wavelength: 405 nm<br>Emission Wavelength: 421 nm                                                                                                                                                                                             |
| <b>Formulation</b>        | Supplied 0.2mg/ml in 1X PBS with RDF1 and 0.09% Sodium Azide<br><br>*Contains <0.1% Sodium Azide, which is not hazardous at this concentration according to GHS classifications. Refer to the Safety Data Sheet (SDS) for additional information and handling instructions. |

#### 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.

|                                                |                                                                        |
|------------------------------------------------|------------------------------------------------------------------------|
| <b>Western Blot</b>                            | Optimal dilution of this antibody should be experimentally determined. |
| <b>Blockade of Receptor-ligand Interaction</b> | Optimal dilution of this antibody should be experimentally determined. |

#### PREPARATION AND STORAGE

|                                |                                                                                                                   |
|--------------------------------|-------------------------------------------------------------------------------------------------------------------|
| <b>Shipping</b>                | The product is shipped with polar packs. Upon receipt, store it immediately at the temperature recommended below. |
| <b>Stability &amp; Storage</b> | Protect from light. Do not freeze. 12 months from date of receipt, 2 to 8 °C as supplied                          |

#### BACKGROUND

Interleukin 12 (IL-12), the founding member of the IL-12 family of heterodimeric cytokines, is composed of two disulfide-linked 35 kDa and 40 kDa subunits. The 35 kDa subunit (p35) is a  $\alpha$ -helical protein homologous to IL-6 and G-CSF. The 40 kDa subunit (p40) contains one fibronectin type III and one Ig C2-like domain, and has a high degree of structural homology to type I cytokine receptors. Whereas p35 subunit is unique to IL-12, the p40 subunit is also a subunit of IL-23. IL-12 is an essential mediator of cellular-immunity that induces T cells and natural-killer cells to produce IFN- $\gamma$ . It is also required for the expansion and activation Th1 cells (1, 2).

The biological activities of IL-12 are mediated through the high-affinity receptor complex composed of the IL-12 Receptor  $\beta$ 1 (IL-12 R $\beta$ 1) and IL-12 Receptor  $\beta$ 2 (IL-12 R $\beta$ 2) subunits. IL-12 R $\beta$ 1 is a 100 kDa protein that is also a subunit of the IL-23 receptor complex. It binds IL-12/IL-23 p40 and is associated with Tyk2. IL-12 R $\beta$ 2 is a 130 kDa protein that interacts with p35 and is associated with Jak2. Both receptor subunits are type I membrane proteins that share similarities with the gp130/G-CSF R subgroup in the cytokine receptor superfamily. IL-12 R $\beta$ 2 cDNA encodes a 862 amino acid (aa) residue protein with a putative 27 aa residue signal peptide that is cleaved to generate the mature protein with a 595 aa residue extracellular domain, a 24 aa residue transmembrane domain and a 216 aa residue cytoplasmic region. Human and mouse IL-12 R $\beta$ 2 share 68% amino acid sequence identity. Whereas IL-12 R $\beta$ 1 expression has been detected in activated T cells, NK cells and B cells, the expression of IL-12 R $\beta$ 2 is more restricted. Among T cells, IL-12 R $\beta$ 2 is absent on naive T cells. Activation of T cells via TCR up-regulates IL-12 R $\beta$ 2 expression on human Th1 but not Th2 cells (1-4).

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