

## DESCRIPTION

<b>Species Reactivity</b>	Human
<b>Specificity</b>	Detects human IL-7 R $\alpha$ in direct ELISAs and Western blots. In direct ELISAs, less than 2% cross-reactivity with recombinant mouse IL-7 R $\alpha$ 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-7 R $\alpha$ /CD127
<b>Endotoxin Level</b>	<0.15 EU per 1 $\mu$ g of the antibody by the LAL method.
<b>Formulation</b>	Lyophilized from a 0.2 $\mu$ m filtered solution in PBS with Trehalose. See Certificate of Analysis for details.

## 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>Recommended Concentration</b>	<b>Sample</b>
<b>Western Blot</b>	0.1 $\mu$ g/mL	Recombinant Human IL-7 R $\alpha$ /CD127 Fc Chimera (Catalog # 306-IR)
<b>Flow Cytometry</b>	2.5 $\mu$ g/10 <sup>6</sup> cells	Human peripheral blood CD4 <sup>+</sup> lymphocytes

## PREPARATION AND STORAGE

<b>Reconstitution</b>	Reconstitute at 0.2 mg/mL in sterile PBS.
<b>Shipping</b>	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.
<b>Stability &amp; Storage</b>	<p><b>Use a manual defrost freezer and avoid repeated freeze-thaw cycles.</b></p> <ul style="list-style-type: none"> <li>● 12 months from date of receipt, -20 to -70 °C as supplied.</li> <li>● 1 month, 2 to 8 °C under sterile conditions after reconstitution.</li> <li>● 6 months, -20 to -70 °C under sterile conditions after reconstitution.</li> </ul>

## BACKGROUND

Interleukin 7 Receptor alpha (IL-7 R $\alpha$ ), also known as CD127, is a 75 kDa hematopoietin receptor superfamily member that plays an important role in lymphocyte differentiation, proliferation, and survival (1, 2). Mature human IL-7 R $\alpha$  consists of a 219 amino acid (aa) extracellular domain (ECD) with one fibronectin type-III domain and a WSXWS motif, a 25 aa transmembrane segment, and a 195 aa cytoplasmic domain (3). Alternate splicing of human IL-7 R $\alpha$  generates a secreted soluble form of the receptor (3). Within the ECD, human IL-7 R $\alpha$  shares 67% aa sequence identity with mouse and rat IL-7 R $\alpha$ . IL-7 R $\alpha$  associates with the common  $\gamma$  chain ( $\gamma_c$ ) to form the functional high affinity IL-7 receptor complex (4). The  $\gamma_c$  is also a subunit of the receptors for IL-2, -4, -9, -15, and -21. Human and mouse IL-7 show cross-species activity through the IL-7 receptor (3, 5). IL-7 R $\alpha$  is expressed on double negative (CD4<sup>-</sup>/CD8<sup>-</sup>) and CD4<sup>+</sup> or CD8<sup>+</sup> single positive T cells as well as on CD8<sup>+</sup> memory T cells and their precursors (6, 7). It is expressed early in B cell development, prior to the appearance of surface IgM (6). In mouse, IL-7 activation of IL-7 R $\alpha$  is critical for both T cell and B cell lineage development (8). In human, by contrast, it is required for T cell but not for B cell development (9). IL-7 induces the downregulation and shedding of cell surface IL-7 R $\alpha$  (10). IL-7 R $\alpha$  additionally associates with TSLP R to form the functional receptor for thymic stromal lymphopoietin (11, 12). TSLP indirectly regulates T cell development by modulating dendritic cell activation (2, 13). Knockout of TSLP R in mice provokes minor changes in B and T cell development compared to those seen with IL-7 R $\alpha$  deletion (8, 14). The complexity of IL-7 R $\alpha$  biology is suggested by the competition between IL-7 and TSLP for receptor binding and by the ability of IL-7 R $\alpha$  to form functional complexes with SCF R and HGF R (11, 12, 15, 16).

## References:

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