

Sterile

#11964

# Human IL-4 Neutralizing (D20H1) Rabbit mAb

100 µg

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Entrez-Gene ID #3565  
UniProt ID #P05112

rev. 06/16/14

**For Research Use Only. Not For Use In Diagnostic Procedures.**

## Species Cross-Reactivity: H

**Description:** Neutralizing antibodies can be used to inhibit normal biological function through their binding to biological molecules. These reagents can be used to determine the effects that a particular molecule has in biological systems. Human IL-4 Neutralizing (D20H1) Rabbit mAb has been shown to neutralize the proliferation of TF-1 cells *in vitro* with an  $ND_{50}$  in the range of 3-19 ng/ml.

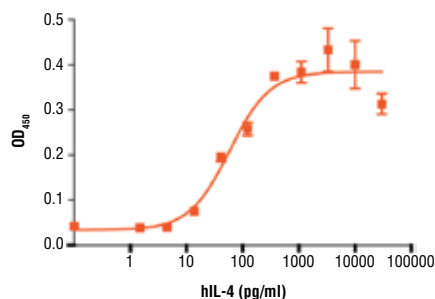
**Background:** Interleukin-4 (IL-4) is produced by T cells, NK T cells,  $\gamma\delta$  cells, and mast cells (1). Target cells include B cells, T cells, and macrophages (1). IL-4 induces differentiation of naive T cells into the Th2 phenotype. IL-4 also promotes B cell proliferation, antibody isotype switching, and expression of other Th2 cytokines including IL-5 and IL-9. IL-4-induced Th2 polarization is important in developing humoral immunity against extracellular pathogens (1) and is involved in the development of allergy and asthma (2). IL-4 binds to two distinct receptors, the type I receptor and type II receptor. The type I receptor is a heterodimer consisting of IL-4R $\alpha$  chain and the common gamma chain,  $\gamma_c$  (3,4). The type II receptor, which is shared with IL-13, is a heterodimer of IL-4R $\alpha$  and IL-13R $\alpha$ 1. Signaling initiated via type I receptor results in the activation of Jak1/Stat6, Jak3, and the PI3K/Akt pathways (3). The type II receptor activates the Jak1/Stat6 and the Tyk2/Stat3 pathways (3).

**Endotoxin:** Less than 0.1 EU/µg of antibody.

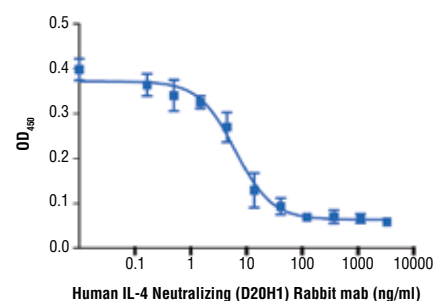
**Specificity/Sensitivity:** Human IL-4 Neutralizing (D20H1) Rabbit mAb binds to human IL-4 (hIL-4) and neutralizes its effects in a TF-1 cell proliferation assay. This antibody does not cross-react with mouse IL-4, human IL-13, or mouse IL-13.

**Source/Purification:** Monoclonal antibody is produced by immunizing animals with a recombinant human IL-4 protein.

**Directions for Use:** Cell Signaling Technology recommends incubation of the neutralizing antibody with the intended target for 1 hr at 37°C before addition to the experiment at an optimal concentration determined by the user.



The proliferation of TF-1 cells treated with increasing concentrations of hIL-4 #8919 was assessed. After 72 hr, cells were incubated with a tetrazolium salt and the  $OD_{450}$  was determined.



The ability of Human IL-4 Neutralizing (D20H1) Rabbit mAb to inhibit hIL-4-induced TF-1 cell proliferation was assessed. Cells were incubated with increasing concentrations of antibody in the presence of hIL-4 #8919 (500 pg/ml). After 72 hr, viable cells were detected by incubation with a tetrazolium salt and the  $OD_{450}$  was determined.

**Formulation:** Lyophilized from a 0.2 µm filtered solution in 10 mM HEPES with trehalose.

**Reconstitution:** Add sterile 10 mM HEPES pH 7.0 to a final concentration of greater than 50 µg/ml. Solubilize for 20 min at room temperature with occasional gentle vortexing.

**Storage:** Store lyophilized material at -20°C. After reconstitution, recommended storage at 4°C for 1 month or -20°C for 6 months. Avoid repeated freeze/thawing.

## Background References:

- (1) Corthay, A. (2006) *Scand J Immunol* 64, 93-6.
- (2) Nakajima, H. and Takatsu, K. (2007) *Int Arch Allergy Immunol* 142, 265-73.
- (3) Wills-Karp, M. and Finkelman, F.D. (2008) *Sci Signal* 1, pe55.
- (4) Mueller, T.D. et al. (2002) *Biochim Biophys Acta* 1592, 237-50.

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Applications: W—Western IP—Immunoprecipitation IHC—Immunohistochemistry ChIP—Chromatin Immunoprecipitation IF—Immunofluorescence F—Flow cytometry E-P—ELISA-Peptide Species Cross-Reactivity: H—human M—mouse R—rat Hm—hamster Mk—monkey Mi—mink C—chicken Dm—D. melanogaster X—Xenopus Z—zebrafish B—bovine Dg—dog Pg—pig Sc—S. cerevisiae Ce—C. elegans Hr—Horse All—all species expected Species enclosed in parentheses are predicted to react based on 100% homology.