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Product Information

Anti-Interleukin-1α
produced in goat, IgG fraction of antiserum

Catalog Number **I8909**

Product Description

Anti-Interleukin-1α (IL-1α) is produced in goat using as immunogen recombinant human Interleukin-1α (GeneID 3552) expressed and purified from *Escherichia coli*. The antibody is purified using Protein G affinity chromatography.

Anti-Interleukin-1α recognizes human Interleukin-1α. Applications include immunoblotting and neutralization. This antibody will not neutralize the biological activity of rmIL-1α, rhIL-1β, or rmIL-1β. Based on immunoblotting results, this antibody shows less than 5% cross-reactivity with rmIL-1α.

Interleukin-1 (IL-1) is a name that designates two proteins, IL-1α and IL-1β, which are the products of distinct genes, but which share approximately 25% amino acid sequence identity. Both bind to the same cell surface receptor, and elicit nearly identical biological responses. IL-1α is synthesized as a precursor protein that lacks a signal peptide. IL-1α precursor is localized to the nucleus, cytosol, and plasma membrane. Mature IL-1α is generated via cleavage by the cysteine protease calpain. A small percentage of total cellular IL-1α precursor can be found on the surface of various cells. This membrane bound IL-1α is probably a glycosylated or myristoylated form of the cytokine.

Interleukin-1 (IL-1), originally known as lymphocyte activating factor (LAF), activates T cells and lymphocytes, which then proliferate and secrete interleukin-2.[1] IL-1 is primarily released from stimulated macrophages and monocytes, but also is released from several other cell types,[2] and is thought to play a key role in inflammatory and immune responses.[3] Other synonyms for IL-1 include: endogenous pyrogen (EP), mitogenic protein (MP), helper peak-1 (HP-1), T cell replacing factor III (TRF III or TRFH), B cell activating factor (BAF) and B cell differentiation factor (BDF).[4]

Reagent

Supplied lyophilized from a 0.2 µm filtered solution of phosphate buffered saline.

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Preparation Instructions

To one vial of lyophilized powder, add 1 mL of 0.2 µm filtered PBS to produce a 1 mg/mL stock solution. If aseptic technique is used, no further filtration should be necessary for use in cell culture environments.

Storage/Stability

Prior to reconstitution, store at –20 °C. Reconstituted product may be stored at 2-8 °C for up to one month. For extended storage, freeze in working aliquots at –20 °C. Repeated freezing and thawing, or storage in "frost-free" freezers, is not recommended.

Neutralization

To measure the ability of the antibody to neutralize the bioactivity of recombinant human Interleukin-1α on D10.G4.1 cells, recombinant human Interleukin-1α was incubated with various concentrations of the antibody for 1 hour at 37 °C in a 96 well plate. Following this preincubation period, D10.G4.1 cells were added. The assay mixture in a total volume of 200 µL, containing antibody at 0.001-1 µg/mL, recombinant human Interleukin-1α at 50 pg/mL, Concanavalin A at 1.25 mg/mL, and cells at 5 x 10^4 cells/mL, was incubated at 37 °C for 72 hours in a humidified CO_2 incubator. ^{3}H-thymidine was added during the final 4 hours of incubation. The cells were subsequently harvested onto glass fiber filters and the ^{3}H-thymidine incorporated into DNA was determined.

The Neutralization $Dose_{50}$ (ND_{50}) for this antibody is defined as that concentration of antibody required to yield one-half maximal inhibition of the cytokine activity on a responsive cell line, when that cytokine is present at a concentration just high enough to elicit a maximum response.

Product Profile
Immunoblotting: a working concentration of 1-2 µg/mL is recommended to detect human Interleukin-1α. The detection limit for recombinant human Interleukin-1α is ~2 ng/lane under non-reducing and reducing conditions. Because this antibody preparation is a total IgG fraction, complete monospecificity cannot be assumed.

Note: In order to obtain the best results using various techniques and preparations, we recommend determining the optimal working dilutions by titration.

Endotoxin: <10 ng/mg antibody as determined by the LAL method.

References

1. Gery, I., et al., *J. Exp. Med*., **136**, 128 (1972).
2. Oppenheim, J., et al., *Immunol. Today*, **7**, 45 (1986).
3. Durum, S., et al., *Ann. Rev. Immunol*., **3**, 263 (1985).
4. Aarden, L., et al., *J. Immunol*., **123**, 2928 (1979).

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