3050 Spruce Street, St. Louis, MO 63103 USA
Tel: (800) 521-8956 (314) 771-5765 Fax: (800) 325-5052 (314) 771-5757
email: techservice@sial.com sigma-aldrich.com

Product Information

Monoclonal Anti-Interleukin-1α
Clone 4414
produced in mouse, purified immunoglobulin

Catalog Number **I7534**

Product Description

Monoclonal Anti-Interleukin-1α (IL-1α; mouse IgG2A isotype) is purified from a hybridoma produced by the fusion of mouse myeloma cells and B cells from a mouse immunized with amino acids 113-271 of recombinant human Interleukin-1α (GeneID 3552) expressed and purified from *Escherichia coli*. The antibody is purified by Protein G affinity chromatography.

Monoclonal Anti-Interleukin-1α recognizes human Interleukin-1α. Applications include immunoblotting, immunohistochemistry, ELISA, and neutralization.

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

Lyophilized from 0.2 μm-filtered solution in phosphate buffered saline containing carbohydrates.

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the 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 0.5 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.

Product Profile

Neutralization:
Human Interleukin-1α stimulates ^{3}H-thymidine incorporation by murine T-helper D10.G4.1 cells in a dose-dependent manner. The ED_{50} for this effect is typically 3-7 pg/mL.[5]

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.

Immunoblotting: a working concentration of 1-2 μg/mL is recommended to detect human Interleukin-1α. Using a colorimetric detection system, the detection limit for recombinant human Interleukin-1α is ~25 ng/lane under non-reducing and reducing conditions.

Immunohistochemistry: a working concentration of 8-25 μg/mL is recommended to detect human Interleukin-1α in cultured cells or tissue sections.

Capture ELISA: this antibody can be used as a capture reagent in a human Interleukin-1α sandwich immunoassay in combination with biotinylated human Interleukin-1α detection antibody and recombinant human Interleukin-1α as the standard. The suggested coating concentration range is 2-8 μg/mL and should be titrated to determine the optimal concentration.

Note: In order to obtain the best results using various techniques and preparations, it is recommended determine the optimal working dilutions by titration.

Endotoxin: <0.1 EU/μg 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).
5. Symons, J. A., et al., in *Lymphokines and Interferons, a practical approach*, IRL Press, M.J. Clemens, A. G. Morris and A.J.H. Gearing, eds. p. 272 (1987).

DXP,PHC,TMS 06/16-1