Anti-mIL-1α-mIgG1

Neutralizing recombinant monoclonal mouse antibody against mouse interleukin 1 alpha

Catalog code: mil1a-mab9-02

https://www.invivogen.com/anti-mil1a-igg

For research use only

Version 22K10-AK

PRODUCT INFORMATION

Contents: 200 µg purified Anti-mIL-1α-mIgG1 monoclonal antibody (mAb), provided azide-free and lyophilized.
Target: Murine IL-1α (mIL-1α)
Specificity: : No cross-reactivity with mIL-1β, human (h) IL-1β or hIL-1α
Clone: 6H7
Source: Chinese hamster ovary (CHO) cells
Isotype: Mouse IgG1, kappa
Purification: Affinity chromatography with protein A
Formulation: 0.2 µm filtered solution in a sodium phosphate buffer with glycine, saccharose, and stabilizing agents
Tested applications: Neutralization & blocking

Antibody resuspension (0.1 mg/ml)

Note: Ensure you see the lyophilized pellet before resuspension.
Resuspend Anti-mIL-1α-mIgG1 with sterile water:
Add 2 ml of sterile water per 200 µg vial.

Storage and stability

- Product is shipped at room temperature. Upon receipt, store lyophilized antibody at -20 °C. Lyophilized product is stable for at least 1 year.
- Reconstituted antibody is stable for 1 month at 4 °C and for 1 year at -20 °C. Avoid repeated freeze-thaw cycles.

Quality Control

- This product has been validated for neutralization using cellular assays.
- The complete sequence of this antibody has been verified.
- The absence of bacterial contamination (e.g. lipoproteins and endotoxins) has been confirmed using HEK-Blue™ TLR2 and HEK-Blue™ TLR4 cells.

BACKGROUND

Interleukin-1 alpha (IL-1α) is a dual-functional cytokine that can act as a transcription factor or an alarmin triggering local inflammation in response to pathogen infections or tissue damage[1-2]. It is constitutively expressed by different cell types, especially endo- and epithelial cells. It acts as a bioactive precursor that is further processed by various caspases into a mature secreted form and an N-terminal propiece[1]. The binding of the mature IL-1α to the IL-1R1 receptor triggers the formation of the IL-1R1/IL-1R3/MyD88 complex and induces MyD88-mediated intracellular signaling. This leads to the activation of the transcription factor NK-κB, and other protein kinase pathways. Ultimately, the expression of inflammatory cytokines and chemokines, such as IL-6 and IL-8, is induced [1-2].

DESCRIPTION

Anti-mIL-1α-mIgG1 is a recombinant mouse mAb against mIL-1α. It has been selected for its ability to efficiently neutralize the biological activity of the precursor, secreted and membrane-associated form of mIL-1α. The sequence of this mAb is 100% murine (constant and variable regions), as the original clone (clone 6H7) was raised in mice using a proprietary method. This feature ensures high antibody performance and overcomes immunogenic events. It is produced in CHO cells and purified by affinity chromatography.

APPLICATIONS

Anti-mIL-1α-mIgG1 is a neutralizing antibody. It can be used to block mIL-1α-induced cellular activation *in vitro*, as described below. InvivoGen also offers this mAb in the InvivoFit™ grade, specifically adapted for *in vivo* studies.

NEUTRALIZATION PROTOCOL

The exact concentration of antibody required to neutralize mIL-1α activity is dependent on the cytokine concentration, cell type, and growth conditions. Below is a protocol using recombinant mIL-1α as well as HEK-Blue™ IL-1β cells, which detect both IL-1α and IL-1β. These cells stably express the STAT6 gene, and a STAT6-inducible SEAP (secreted embryonic alkaline phosphatase) reporter gene. Changes in SEAP activity in the supernatant due to inhibition of IL-1α receptor binding can be assessed using QUANTI-Blue™ Solution, a SEAP detection reagent.

In a 96-well plate:
1. Prepare a serial dilution of the anti-mIL-1α-mIgG1 and a negative control (e.g. anti-β-Gal-mIgG1) starting 1 ng/ml to 5 µg/ml (final conc.).
2. Add 1 ng/ml recombinant mIL-1α to a final volume of 40 µl.
3. Incubate for 30 minutes at 37°C, 5% CO_2.
4. Prepare a suspension of HEK-Blue™ IL-1β cells (~3.2 x 10^5 cells/ml) in culture medium.
5. Add 160 µl (5 x 10^4 cells/well) of the cell suspension to each well.
6. Incubate the plate at 37°C, 5% CO_2 for 24 hours.
7. The next day: prepare QUANTI-Blue™ Solution and carry out the measurements following the instructions on the data sheet.

RELATED PRODUCTS

Product	Cat. Code
Anti-mIL-1α-mIgG1 InvivoFit™	mil1a-mab9-1
Anti-β-Gal-mIgG1	bgal-mab9-1
HEK-Blue™ IL-β Cells	hkb-il1bv2
QUANTI-Blue™ Solution	rep-qbs

1. Chiu JW, *et al.*, 2021. IL-1α Processing, Signaling and Its Role in Cancer Progression. Cells. 2021 Jan 7;10(1):92. **2. Dinarello CA, *et al.*, 2021.** Interleukin 1α: a comprehensive review on the role of IL-1α in the pathogenesis and treatment of autoimmune and inflammatory diseases. Autoimmunity Reviews, Volume 20, Issue 3.

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