

# Anti-mIL-1 $\beta$ -mIgG1

Neutralizing recombinant monoclonal mouse antibody against murine interleukin 1 beta

Catalog code: mil1b-mab9-02

<https://www.invivogen.com/anti-mil1b-igg>

For research use only

Version 22J06-AK

## PRODUCT INFORMATION

**Contents:** 200  $\mu$ g purified anti-mIL-1 $\beta$ -mIgG1 monoclonal antibody (mAb) is provided azide-free and lyophilized.

**Target:** Murine interleukin 1 $\beta$  (mIL-1 $\beta$ )

**Specificity:** No cross-reactivity with human IL-1 $\beta$

**Clone:** 7E3

**Source:** Chinese hamster ovary (CHO) cells

**Isotype:** Mouse IgG1, kappa

**Purification:** Affinity chromatography with protein A

**Formulation:** 0.2  $\mu$ m filtered solution in a sodium phosphate buffer with glycine, saccharose, and stabilizing agents

**Tested applications:** Neutralization & blocking *in vitro*

### Antibody resuspension (0.1 mg/ml)

*Note:* Ensure you see the lyophilized pellet before resuspension.

Resuspend anti-mIL-1 $\beta$ -mIgG1 with sterile water:

Add 2 ml of sterile water per 200  $\mu$ g vial.

### Storage and stability

- Product is shipped at room temperature. Upon receipt, store lyophilized antibody at -20 °C.
- 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 beta (IL-1 $\beta$ ) is a secreted pro-inflammatory cytokine<sup>1</sup>. It participates in the generation of systemic and local immune responses to infection and injury<sup>2</sup>. IL-1 $\beta$  is produced by activated macrophages as a pro-protein, which is cleaved by caspase-1 upon inflammasome activation<sup>3</sup>. The resulting mature IL-1 $\beta$  is secreted through pores at the plasma membrane. Its binding 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- $\kappa$ B, and the JNK/p38 mitogen-activated protein kinase pathways. Ultimately, the expression of inflammatory cytokines and chemokines, such as IL-6 and IL-8, is induced<sup>4</sup>.

1. Dinarello C., 2018. Overview of the IL-1 family in innate inflammation and acquired immunity. *Immunol Rev.* 281(1): 8-27. 2. Sims J. & Smith D., 2010. The IL-1 family: regulators of immunity. *Nat Rev Immunol.* 10(2):89-102. 3. O'Neill L., 2008. The interleukin-1 receptor/Toll-like receptor superfamily: 10 years of progress. *Immunol. Rev.* 226:10-18. 4. Weber A. et al., 2010. Interleukin-1 (IL-1) pathway. *Sci Signal.* 3(105):cm1.

### TECHNICAL SUPPORT

InvivoGen USA (Toll-Free): 888-457-5873

InvivoGen USA (International): +1 (858) 457-5873

InvivoGen Europe: +33 (0) 5-62-71-69-39

InvivoGen Asia: +852 3622-3480

E-mail: [info@invivogen.com](mailto:info@invivogen.com)

## DESCRIPTION

Anti-mIL-1 $\beta$ -mIgG1 is a recombinant mouse monoclonal antibody (mAb) against mIL-1 $\beta$ . It has been selected for its ability to efficiently neutralize the biological activity of mIL-1 $\beta$ . Its sequence is 100% murine (constant and variable regions), as the original clone (clone 7E3) 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-1 $\beta$ -mIgG1 is a neutralizing antibody. It can be used to block mIL-1 $\beta$ -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-1 $\beta$  activity is dependent on the cytokine concentration, cell type, and growth conditions. Below is a protocol using recombinant mIL-1 $\beta$  as well as [HEK-Blue™ IL-1 \$\beta\$  cells](#). These cells endogenously express the human IL-1 receptor (hIL-1R) and were stably transfected with an NF- $\kappa$ B/AP-1 inducible SEAP (secreted embryonic alkaline phosphatase) reporter gene. Changes in SEAP activity in the supernatant due to inhibition of IL-1 $\beta$  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-1 \$\beta\$ -mIgG1](#) and a negative control (e.g. [anti- \$\beta\$ -Gal-mIgG1](#)) starting 10 ng/ml to 1  $\mu$ g/ml (final conc.).
2. Add 10 ng/ml recombinant mIL-1 $\beta$  to a final volume of 40  $\mu$ l.
3. Incubate for 30 minutes at 37°C, 5% CO<sub>2</sub>.
4. Prepare a suspension of [HEK-Blue™ IL-1 \$\beta\$  cells](#) (~3.2 x 10<sup>5</sup> cells/ml) in culture medium.
5. Add 160  $\mu$ l (5 x 10<sup>4</sup> cells/well) of the cell suspension to each well.
6. Incubate the plate at 37°C, 5% CO<sub>2</sub> 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-1 $\beta$ -mIgG1 InvivoFit™	mil1b-mab9-1
Anti- $\beta$ -Gal-mIgG1	bgal-mab9-02
HEK-Blue™ IL-1 $\beta$ cells	hkb-il1bv2
QUANTI-Blue™ Solution	rep-qbs