

Anti-hIL6R-To-hIgG1

Monoclonal human IgG1 antibody against human IL-6R (Tocilizumab)

Catalog code: hil6rto-mab1

<https://www.invivogen.com/anti-il6r-mabs>

For research use only, not for diagnostic or therapeutic use

Version 20H03-ED

PRODUCT INFORMATION

Contents:

- 100 µg of Anti-hIL6R-To-hIgG1, provided azide-free and lyophilized

Target: Human Interleukin-6 receptor (IL-6R)

Source: CHO cells

Isotype: Human IgG1

Light chain type: Kappa

Clonality: Monoclonal

Purification: By affinity chromatography with protein G

Formulation: 0.2 µm filtered solution in a sodium phosphate buffer with glycine, saccharose, and stabilizing agents

Storage

- Product is shipped at room temperature. Store lyophilized antibody at -20 °C. Lyophilized product is stable for at least 1 year.
- Reconstituted antibody is stable for 1 month when stored at 4 °C and for 1 year when aliquoted and stored at -20 °C. Avoid repeated freeze-thaw cycles.

Quality control

- Anti-hIL6R-To-hIgG1 has been functionally validated using HEK-Blue™ IL-6 cellular assays.
- Absence of bacterial contamination (e.g. lipoproteins and endotoxins) has been confirmed using HEK-Blue™ TLR2 and TLR4 cellular assays.

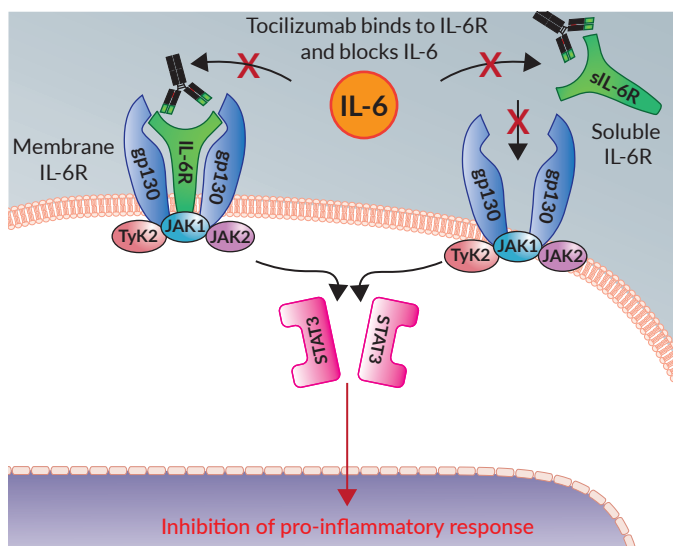
PRODUCT DESCRIPTION

Anti-hIL6R-To-hIgG1 is a recombinant monoclonal antibody (mAb) featuring the fully sequenced variable region of Tocilizumab and the constant region of the human (h)IgG1 isotype. Anti-hIL6R-To-hIgG1 was generated by recombinant DNA technology, produced in CHO cells, and purified by affinity chromatography with protein G.

IL-6R mAb background

Tocilizumab (TCZ) is a recombinant, humanized monoclonal antibody (mAb) directed against both soluble and membrane-bound human interleukin-6 receptors (hIL-6R). TCZ inhibits the binding of the inflammatory cytokine, IL-6 to its receptor, and in doing so reduces its pro-inflammatory activity¹.

IL-6 exerts its biological effects through the binding of two receptors, IL-6R and the trans membrane protein gp130. Despite only a few cells expressing IL-6R on their surface, many cells respond to IL-6 due to the existence of soluble IL-6R². This is called 'trans-signaling', and is associated with a pro-inflammatory response. On the contrary, 'classic' signaling via membrane-bound IL-6R has been associated with regenerative functions of IL-6². TCZ can block both modes of signaling¹.



IL-6 production is an important defensive mechanism but its dysregulation has been implicated in a number of autoimmune and inflammatory diseases¹. Thus, TCZ has been approved for the treatment of diseases such as rheumatoid arthritis (RA) and cytokine release syndrome (CRS), a side effect of CAR-T therapy. Furthermore, it is under investigation for the treatment of chronic graft-versus-host disease (cGVHD)³ and COVID-19⁴.

IgG1 Isotype effector function

Human IgG1 binds with high affinity to the Fc receptor on phagocytic cells and therefore, Anti-hIL6R-To-hIgG1 displays high effector functions, including antibody-dependent cell-mediated cytotoxicity (ADCC) and complement-dependent cytotoxicity (CDC).

1. Sheppard, M. *et al.* 2017. Tocilizumab (Actemra). Hum Vaccin Immunother 13, 1972-1988. 2. Rose-John, S. 2012. IL-6 trans-signaling via the soluble IL-6 receptor: importance for the pro-inflammatory activities of IL-6. Int J Biol Sci 8, 1237-1247. 3. Kattner, A.S. *et al.* 2020. IL6-receptor antibody tocilizumab as salvage therapy in severe chronic graft-versus-host disease after allogeneic hematopoietic stem cell transplantation: a retrospective analysis. Ann Hematol 99, 847-853. 4. Zhang, S. *et al.* 2020. Rational Use of Tocilizumab in the Treatment of Novel Coronavirus Pneumonia. Clin Drug Investig.

METHODS

Anti-hIL6R-To-hIgG1 resuspension (200 µg/ml)

Note: Ensure you see the lyophilized pellet before resuspension.

- Add 500 µl of sterile water to the vial and gently pipette until completely resuspended.
- Prepare aliquots and store at -20 °C until required.

TECHNICAL SUPPORT

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ANTIBODY ISOTYPE COLLECTION

For your research, InvivoGen provides an **Anti-hIL6R-To isotype family**. This collection consists of mAbs comprising the variable region of Tocilizumab, and differing constant regions of both **native** and **engineered human** isotypes. The isotypes differ in their effector functions, such as antibody-dependent cell-mediated cytotoxicity (ADCC), antibody-dependent cellular phagocytosis (ADCP), and complement dependent cytotoxicity (CDC) (see table below). The Anti-hIL6R-To isotype family will help you determine which isotype is the most suitable for your application.

Effector functions of native and engineered human isotypes

Effector functions	Native		Engineered
	IgG1	IgA2	IgG1Nq
ADCC	++	+	-
ADCP	+++	+	-
CDC	++	-	+/-

RELATED PRODUCTS

Product	Catalog Code
Anti-hIL6R-To-hlgG1Nq	hil6rto-mab12
Anti-hIL6R-To-hlgA2	hil6rto-mab7
HEK-Blue™ IL-6 cells	hkb-hil6
Recombinant human IL-6	rcyec-hil6

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