

# Anti-hIL6R-To-hIgG1NQ

Monoclonal human IgG1NQ antibody against human IL-6R (Tocilizumab)

Catalog code: hil6rto-mab12, hil6rto-mab12-03

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

For research use only, not for diagnostic or therapeutic use

Version 23L19-MM

## PRODUCT INFORMATION

**Contents:** Anti-hIL6R-To-hIgG1NQ purified monoclonal antibody (mAb) is provided azide-free and lyophilized. It is available in two quantities:

**hil6rto-mab12:** 100 µg Anti-hIL6R-To-hIgG1NQ

**hil6rto-mab12-03:** 3 x 100 µg Anti-hIL6R-To-hIgG1NQ

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

**Source:** CHO cells

**Isotype:** Human IgG1NQ

**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. Upon receipt, store at -20°C.
- 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-hIgG1NQ 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.

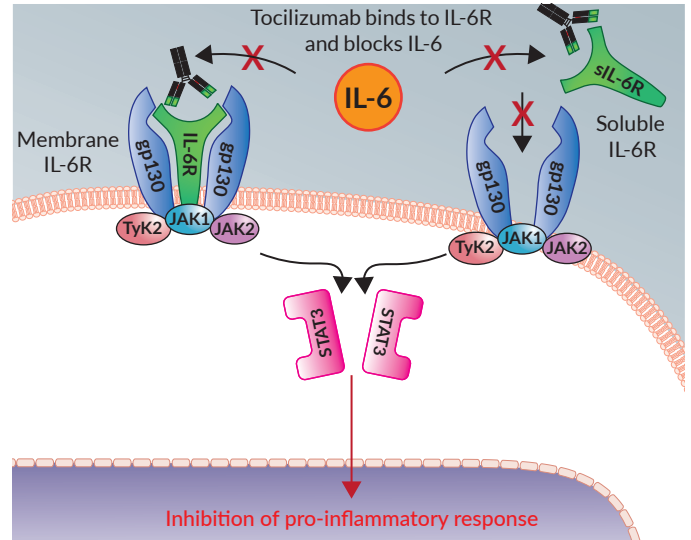
## PRODUCT DESCRIPTION

Anti-hIL6R-To-hIgG1NQ is a recombinant monoclonal antibody (mAb) featuring the fully sequenced variable region of Tocilizumab and the constant region of the human IgG1 isotype (hIgG1NQ). Anti-hIL6R-To-hIgG1NQ 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 activity<sup>1</sup>.

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-6R<sup>2</sup>. 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-6<sup>2</sup>. TCZ can block both modes of signaling<sup>1</sup>. Notably, IL-6 production is an important defensive mechanism but its dysregulation has been implemented in a number of autoimmune and inflammatory diseases<sup>1</sup>.



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)<sup>3</sup> and COVID-19<sup>4</sup>.

## IgG1NQ Isotype effector function

Anti-hIL6R-To-hIgG1NQ contains a N-glycosylation mutation in the constant region of human IgG1. Thus, potential asparagine (N) glycosylation sites are substituted by glutamine (Q) residues, resulting in the production of a non-glycosylated antibody. Glycosylation of an antibody has no effect on antigen binding but is essential for Fc receptor-mediated activity. Therefore, the effector function of Anti-hIL6R-To-hIgG1NQ is severely compromised.

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. IL-6-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-hIgG1NQ resuspension (200 µg/ml)

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

- Add 500 µl of sterile water to 100 µg 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-hIgG1	hil6rto-mab1
Anti-hIL6R-To-hIgA2	hil6rto-mab7
HEK-Blue™ IL-6 cells	hkb-hil6
Recombinant human IL-6	rcyec-hil6

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