

## Tocilizumab

Cat. No.:	HY-P9917
CAS No.:	375823-41-9
Target:	Interleukin Related
Pathway:	Immunology/Inflammation
Storage:	Please store the product under the recommended conditions in the Certificate of Analysis.

### BIOLOGICAL ACTIVITY

<b>Description</b>	Tocilizumab (Anti-Human IL6R, Humanized Antibody) is an anti-human interleukin-6 receptor (IL-6R) neutralizing antibody, prevents binding of IL-6 to the IL-6R, thereby inhibiting both classic and trans-signaling. Tocilizumab (Anti-Human IL6R, Humanized Antibody) can be used for the treatment of rheumatoid arthritis <sup>[1]</sup> . Tocilizumab is remarkably effective for the study of severe COVID-19 (coronavirus disease) <sup>[4]</sup> .																
<b>IC<sub>50</sub> &amp; Target</b>	IL-6																
<b>In Vitro</b>	<p>Tocilizumab (Anti-Human IL6R, Humanized Antibody) (1-100 ng/mL; 24 hours, 48 hours) inhibits the cell proliferation (growth rate) in a dose-dependent manner, growth rate by HACM is reduced almost completely by 100 ng/mL tocilizumab<sup>[2]</sup>.</p> <p>?Tocilizumab (Anti-Human IL6R, Humanized Antibody) (0.001-10,000 µg/ml; 2 days) inhibits Ba/F3-gp130-IL-6R cell proliferation stimulated with hIL-6 with an IC<sub>50</sub> of 13.5 ng/ml<sup>[1]</sup>.</p> <p>?Tocilizumab (Anti-Human IL6R, Humanized Antibody) (1 µM; 6 hours) reduces the phosphorylation of STAT3 in vitro consistent with in vivo SAS cells<sup>[3]</sup>.</p> <p>?Tocilizumab (Anti-Human IL6R, Humanized Antibody) (1-5 µM; 24 hours) significantly reduces VEGF mRNA expression in SAS cells with serum-free medium<sup>[3]</sup>.</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p> <p>Cell Proliferation Assay<sup>[2]</sup></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">Cell Line:</td> <td>Human-derived HARA-B cells</td> </tr> <tr> <td>Concentration:</td> <td>1 ng/mL, 10 ng/mL, and 100 ng/mL</td> </tr> <tr> <td>Incubation Time:</td> <td>24 hours, 48 hours</td> </tr> <tr> <td>Result:</td> <td>Inhibited the IL-6R expressed on human-derived HARA-B cells.</td> </tr> </table> <p>Cell Cytotoxicity Assay<sup>[1]</sup></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">Cell Line:</td> <td>Ba/F3-gp130-IL-6R cells</td> </tr> <tr> <td>Concentration:</td> <td>0.001-10000 µg/ml</td> </tr> <tr> <td>Incubation Time:</td> <td>2 days</td> </tr> <tr> <td>Result:</td> <td>Inhibited Ba/F3-gp130-IL-6R cell proliferation.</td> </tr> </table>	Cell Line:	Human-derived HARA-B cells	Concentration:	1 ng/mL, 10 ng/mL, and 100 ng/mL	Incubation Time:	24 hours, 48 hours	Result:	Inhibited the IL-6R expressed on human-derived HARA-B cells.	Cell Line:	Ba/F3-gp130-IL-6R cells	Concentration:	0.001-10000 µg/ml	Incubation Time:	2 days	Result:	Inhibited Ba/F3-gp130-IL-6R cell proliferation.
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### Western Blot Analysis<sup>[3]</sup>

Cell Line:	SAS cells
Concentration:	1 $\mu$ M
Incubation Time:	6 hours
Result:	Reduced the phosphorylation of STAT3.

### RT-PCR<sup>[3]</sup>

Cell Line:	SAS cells
Concentration:	1-5 $\mu$ M
Incubation Time:	24 hours
Result:	Reduced VEGF mRNA expression.

### In Vivo

Tocilizumab (Anti-Human IL6R, Humanized Antibody) (intravenous injection; 1.0 mg/100  $\mu$ L; twice a week, three weeks) decreases the volume of each metastatic focus in tocilizumab-injected mouse brains<sup>[2]</sup>.  
?Tocilizumab (Anti-Human IL6R, Humanized Antibody) (intraperitoneal injection; 100  $\mu$ g/mL, every 48 hours; 20days) suppresses OSCC progression and suppresses Tumor Angiogenesis<sup>[3]</sup>.  
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	A brain metastasis model of lung tumor cells by inoculating HARA-B cells in nude mice <sup>[2]</sup>
Dosage:	1.0 mg/100 $\mu$ L
Administration:	Intravenous injection; 1.0 mg/100 $\mu$ L; twice a week, three weeks
Result:	Led the volume of each metastatic focus significantly smaller.

Animal Model:	SCID mice with SAS cells <sup>[3]</sup>
Dosage:	100 $\mu$ g/mL
Administration:	Intraperitoneal injection; 100 $\mu$ g/mL; every 48 hours; 20days
Result:	Suppressed the growth of advanced tumors.

## CUSTOMER VALIDATION

- J Biomed Sci. 2022 Nov 24;29(1):101.
- Cell Death Dis. 2021 Dec 20;13(1):16.
- Phytomedicine. 2023 Jan 11;111:154659.
- Breast Cancer Res. 2023 Apr 17;25(1):43.
- Immunology. 2023 Apr 17.

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## REFERENCES

- [1]. Garbers C, et al. Inhibition of classic signaling is a novel function of soluble glycoprotein 130 (sgp130), which is controlled by the ratio of interleukin 6 and soluble interleukin 6 receptor. *J Biol Chem*. 2011 Dec 16;286(50):42959-70.
- [2]. Mami Noda, et al. IL-6 Receptor Is a Possible Target against Growth of Metastasized Lung Tumor Cells in the Brain. *Int J Mol Sci*. 2013 Jan; 14(1): 515–526.
- [3]. Shinriki S, et al. Humanized anti-interleukin-6 receptor antibody suppresses tumor angiogenesis and in vivogrowth of human oral squamous cell carcinoma. *Clin Cancer Res*. 2009 Sep 1;15(17):5426-34.
- [4]. Chi Zhang, et al. Cytokine Release Syndrome in Severe COVID-19: Interleukin-6 Receptor Antagonist Tocilizumab May Be the Key to Reduce Mortality. *Int J Antimicrob Agents*. 2020 May;55(5):105954.
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**Caution: Product has not been fully validated for medical applications. For research use only.**

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