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SZABO-SCANDIC HandelsgmbH

Quellenstraße 110, A-1100 Wien

T. +43(0)1 489 3961-0

F. +43(0)1 489 3961-7

mail@szabo-scandic.com

www.szabo-scandic.com

[linkedin.com/company/szaboscandic](https://www.linkedin.com/company/szaboscandic) 

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

Description	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 ^[1] . Tocilizumab is remarkably effective for the study of severe COVID-19 (coronavirus disease) ^[4] .																	
IC₅₀ & Target	IL-6																	
In Vitro	<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^[2].</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 IC₅₀ of 13.5 ng/ml^[1].</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^[3].</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^[3].</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p> <p>Cell Proliferation Assay^[2]</p> <table border="1"> <tr> <td>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^[1]</p> <table border="1"> <tr> <td>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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Incubation Time:	2 days																	
Result:	Inhibited Ba/F3-gp130-IL-6R cell proliferation.																	

Western Blot Analysis^[3]

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

RT-PCR^[3]

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

In Vivo

Tocilizumab (Anti-Human IL6R, Humanized Antibody) (intravenous injection; 1.0 mg/100 μ L; twice a week, three weeks) decreases the volume of each metastatic focus in tocilizumab-injected mouse brains^[2].
?Tocilizumab (Anti-Human IL6R, Humanized Antibody) (intraperitoneal injection; 100 μ g/mL, every 48 hours; 20days) suppresses OSCC progression and suppresses Tumor Angiogenesis^[3].
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 ^[2]
Dosage:	1.0 mg/100 μ L
Administration:	Intravenous injection; 1.0 mg/100 μ L; twice a week, three weeks
Result:	Led the volume of each metastatic focus significantly smaller.

Animal Model:	SCID mice with SAS cells ^[3]
Dosage:	100 μ g/mL
Administration:	Intraperitoneal injection; 100 μ 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.

Tel: 609-228-6898

Fax: 609-228-5909

E-mail: tech@MedChemExpress.com

Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA