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## Teplizumab

Cat. No.:	HY-P99222
CAS No.:	876387-05-2
Target:	CD3
Pathway:	Immunology/Inflammation
Storage:	Please store the product under the recommended conditions in the Certificate of Analysis.

### BIOLOGICAL ACTIVITY

<b>Description</b>	Teplizumab (MGA-031) is a Fc receptor non-binding anti-human CD3 monoclonal antibody. Teplizumab reduces the loss of beta-cell function. Teplizumab can be used in the research of type 1 diabetes <sup>[1][2]</sup> .								
<b>IC<sub>50</sub> &amp; Target</b>	CD3 <sup>[1]</sup>								
<b>In Vitro</b>	<p>Teplizumab (10 ng/mL-10 µg/mL, 5 days) induces human CD8+ T-cell proliferation<sup>[3]</sup>.</p> <p>Teplizumab (6 days) increases the expression of CD25 and intracellular CTLA4 on CD8+ cells (freshly isolated PBMCs)<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>[1]</sup></p> <table border="1"> <tr> <td>Cell Line:</td> <td>Human PBMCs</td> </tr> <tr> <td>Concentration:</td> <td>10 ng/mL, 100 ng/mL, 1 µg/mL, 10 µg/mL.</td> </tr> <tr> <td>Incubation Time:</td> <td>5 days</td> </tr> <tr> <td>Result:</td> <td>Induced cell proliferation (measured by incorporation of [<sup>3</sup>H]thymidine in a 5-day assay.</td> </tr> </table>	Cell Line:	Human PBMCs	Concentration:	10 ng/mL, 100 ng/mL, 1 µg/mL, 10 µg/mL.	Incubation Time:	5 days	Result:	Induced cell proliferation (measured by incorporation of [ <sup>3</sup> H]thymidine in a 5-day assay.
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<b>In Vivo</b>	<p>Teplizumab (0.24 mg/kg, i.p.) induces migration of human CD4 T cells to the lamina propria and ablated the treatment effects of the drug on graft survival in NSG mice<sup>[2]</sup>.</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p> <table border="1"> <tr> <td>Animal Model:</td> <td>NOD/SCID IL2γc<sup>-/-</sup> (NSG) mice (a tolergenic humanized mouse model)<sup>[1]</sup></td> </tr> <tr> <td>Dosage:</td> <td>0.24 mg/kg, 5 µg</td> </tr> <tr> <td>Administration:</td> <td>Intraperitoneal injection (i.p.)</td> </tr> <tr> <td>Result:</td> <td>           Decreased CD4:CD8 ratio in the peripheral blood from 2.03 to 1.01, p &lt; 0.05.            Decreased circulating hCD4 cells in the peripheral blood.            Decreased in the proportion of T cells in the bone marrow and lung.            Increased in the total number of human CD45+ cells infiltrating the lamina propria of the small intestine.         </td> </tr> </table>	Animal Model:	NOD/SCID IL2γc <sup>-/-</sup> (NSG) mice (a tolergenic humanized mouse model) <sup>[1]</sup>	Dosage:	0.24 mg/kg, 5 µg	Administration:	Intraperitoneal injection (i.p.)	Result:	Decreased CD4:CD8 ratio in the peripheral blood from 2.03 to 1.01, p < 0.05. Decreased circulating hCD4 cells in the peripheral blood. Decreased in the proportion of T cells in the bone marrow and lung. Increased in the total number of human CD45+ cells infiltrating the lamina propria of the small intestine.
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## REFERENCES

- [1]. Kevan C Herold, et al. An Anti-CD3 Antibody, Teplizumab, in Relatives at Risk for Type 1 Diabetes. *N Engl J Med*. 2019 Aug 15;381(7):603-613.
- [2]. Frank Waldron-Lynch, et al. I Analysis of FcR non-binding anti-CD3 mAb in humanized mice identifies novel human gut tropic cells with regulatory function that are found in patients. *Sci Transl Med*. 2012 Jan 25;4(118):118ra12.
- [3]. Brygida Bisikirska, et al. TCR stimulation with modified anti-CD3 mAb expands CD8+ T cell population and induces CD8+CD25+ Tregs. *J Clin Invest*. 2005 Oct;115(10):2904-13.
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**Caution: Product has not been fully validated for medical applications. For research use only.**

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