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## Vobarilizumab

|           |                                                                                           |
|-----------|-------------------------------------------------------------------------------------------|
| Cat. No.: | HY-P99385                                                                                 |
| CAS No.:  | 1628814-88-9                                                                              |
| 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> | Vobarilizumab (ALX-0061) is an anti-IL-6R monoclonal antibody (mAb) ( $K_d$ : 0.19 pM). Vobarilizumab consists of an anti-IL-6R domain and an anti-human serum albumin domain. Vobarilizumab can be used in the research of inflammatory autoimmune diseases, such as rheumatoid arthritis <sup>[1][2][3]</sup> .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |               |                                                                |         |                                 |                 |                              |         |                                                                                                                     |               |                                   |         |                                 |                 |                              |         |                                             |
| <b>In Vitro</b>    | <p>Vobarilizumab shows a preferential binding affinity for sIL-6R compared with mIL-6R<sup>[2]</sup>.</p> <p>Vobarilizumab (0-10 nM) blocks the interaction of recombinant hIL-6 to recombinant hsIL-6R<sup>[3]</sup>.</p> <p>Vobarilizumab (0-100 nM) blocks proliferation of the TF-1 cells<sup>[3]</sup>.</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |               |                                                                |         |                                 |                 |                              |         |                                                                                                                     |               |                                   |         |                                 |                 |                              |         |                                             |
| <b>In Vivo</b>     | <p>Vobarilizumab (0.4-10 mg/kg, i.v.) inhibits hIL-6-induced inflammation in cynomolgus monkey<sup>[3]</sup>.</p> <p>Vobarilizumab (0.4-10 mg/kg, i.v.) shows a prolonged exposure through binding to serum albumin in cynomolgus monkeys<sup>[3]</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>hIL-6-induced inflammation in cynomolgus monkey<sup>[3]</sup></td> </tr> <tr> <td>Dosage:</td> <td>0.4 mg/kg, 2 mg/kg, or 10 mg/kg</td> </tr> <tr> <td>Administration:</td> <td>Intravenous injection (i.v.)</td> </tr> <tr> <td>Result:</td> <td>Inhibited the acute phase response parameters: plasma levels of C-reactive protein (CRP), fibrinogen and platelets.</td> </tr> </table><br><table border="1"> <tr> <td>Animal Model:</td> <td>Cynomolgus monkeys<sup>[3]</sup></td> </tr> <tr> <td>Dosage:</td> <td>0.4 mg/kg, 2 mg/kg, or 10 mg/kg</td> </tr> <tr> <td>Administration:</td> <td>Intravenous injection (i.v.)</td> </tr> <tr> <td>Result:</td> <td>Pharmacokinetic parameters of Vobarilizumab</td> </tr> </table> |  | Animal Model: | hIL-6-induced inflammation in cynomolgus monkey <sup>[3]</sup> | Dosage: | 0.4 mg/kg, 2 mg/kg, or 10 mg/kg | Administration: | Intravenous injection (i.v.) | Result: | Inhibited the acute phase response parameters: plasma levels of C-reactive protein (CRP), fibrinogen and platelets. | Animal Model: | Cynomolgus monkeys <sup>[3]</sup> | Dosage: | 0.4 mg/kg, 2 mg/kg, or 10 mg/kg | Administration: | Intravenous injection (i.v.) | Result: | Pharmacokinetic parameters of Vobarilizumab |
| Animal Model:      | hIL-6-induced inflammation in cynomolgus monkey <sup>[3]</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |               |                                                                |         |                                 |                 |                              |         |                                                                                                                     |               |                                   |         |                                 |                 |                              |         |                                             |
| Dosage:            | 0.4 mg/kg, 2 mg/kg, or 10 mg/kg                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |               |                                                                |         |                                 |                 |                              |         |                                                                                                                     |               |                                   |         |                                 |                 |                              |         |                                             |
| Administration:    | Intravenous injection (i.v.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  |               |                                                                |         |                                 |                 |                              |         |                                                                                                                     |               |                                   |         |                                 |                 |                              |         |                                             |
| Result:            | Inhibited the acute phase response parameters: plasma levels of C-reactive protein (CRP), fibrinogen and platelets.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |               |                                                                |         |                                 |                 |                              |         |                                                                                                                     |               |                                   |         |                                 |                 |                              |         |                                             |
| Animal Model:      | Cynomolgus monkeys <sup>[3]</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |               |                                                                |         |                                 |                 |                              |         |                                                                                                                     |               |                                   |         |                                 |                 |                              |         |                                             |
| Dosage:            | 0.4 mg/kg, 2 mg/kg, or 10 mg/kg                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |               |                                                                |         |                                 |                 |                              |         |                                                                                                                     |               |                                   |         |                                 |                 |                              |         |                                             |
| Administration:    | Intravenous injection (i.v.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  |               |                                                                |         |                                 |                 |                              |         |                                                                                                                     |               |                                   |         |                                 |                 |                              |         |                                             |
| Result:            | Pharmacokinetic parameters of Vobarilizumab                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |               |                                                                |         |                                 |                 |                              |         |                                                                                                                     |               |                                   |         |                                 |                 |                              |         |                                             |

| dose (mg/kg) | T <sub>1/2</sub> dominant (day) | AUC <sub>inf</sub> (μg/day/mL) | CL (mL/day/kg) | V <sub>ss</sub> (mL/kg) |
|--------------|---------------------------------|--------------------------------|----------------|-------------------------|
| 0.4 (i.v.)   | 1.73                            | 16.3                           | 24.8           | 42.8                    |
| 2 (i.v.)     | 5.0                             | 193                            | 10.4           | 53.7                    |
| 10 (i.v.)    | 6.61                            | 1136                           | 9              | 82.7                    |

## REFERENCES

- [1]. Kerschbaumer A, et al. Efficacy of pharmacological treatment in rheumatoid arthritis: a systematic literature research informing the 2019 update of the EULAR recommendations for management of rheumatoid arthritis. *Ann Rheum Dis.* 2020 Jun;79(6):744-759.
- [2]. M. Van Roy, et al. FRI0021 Alx-0061, an anti-IL-6r nanobody® for therapeutic use in rheumatoid arthritis, demonstrates in vitro a differential biological activity profile as compared to tocilizumab. *Ann Rheum Dis.* 2013. 72 (3).
- [3]. Van Roy M, et al. The preclinical pharmacology of the high affinity anti-IL-6R Nanobody® ALX-0061 supports its clinical development in rheumatoid arthritis. *Arthritis Res Ther.* 2015 May 20;17(1):135.

**Caution: Product has not been fully validated for medical applications. For research use only.**

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