

## Pembrolizumab

|                   |   |
|-------------------|---|
| Cat. No.:         | HY-P9902  |
| CAS No.:          | 1374853-91-4  |
| Molecular Weight: | 146266.23   |
| Target:           | PD-1/PD-L1  |
| Pathway:          | Immunology/Inflammation   |
| Storage:          | Please store the product under the recommended conditions in the Certificate of Analysis. |

### BIOLOGICAL ACTIVITY

|                                     |  |  |            |                                    |                |               |                  |   |         |   |            |            |                |               |                  |  |         |  |
|-------------------------------------|--|--|------------|------------------------------------|----------------|---------------|------------------|---|---------|---|------------|------------|----------------|---------------|------------------|--|---------|--|
| <b>Description</b>                  | Pembrolizumab (MK-3475) is a humanized IgG4 antibody inhibiting the programmed cell death 1 (PD-1) receptor, used in cancer immunotherapy.   |  |            |                                    |                |               |                  |   |         |   |            |            |                |               |                  |  |         |  |
| <b>IC<sub>50</sub> &amp; Target</b> | IC50: 0.6 nM (PD-1)  |  |            |                                    |                |               |                  |   |         |   |            |            |                |               |                  |  |         |  |
| <b>In Vitro</b>                     | <p>Pembrolizumab (MK-3475) increases the secretion of cytokines IFN-<math>\gamma</math>, TNF-<math>\alpha</math> and the apoptotic cell death of A549 cells<sup>[2]</sup>.<br/>         ?Pembrolizumab improves the <math>\alpha</math>ROR1-CAR T-mediated cytotoxicity, and reduces tumorigenesis in the co-cultured <math>\alpha</math>ROR1-CAR T and A549 cells by blocking PD-1::PD-L1 interaction in <math>\alpha</math>ROR1-CAR T cells<sup>[2]</sup>.<br/>         MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p> <p>Cell Cytotoxicity Assay<sup>[2]</sup></p> <table border="1"> <tr> <td>Cell Line:</td> <td><math>\alpha</math>ROR1-CAR T and A549 cells</td> </tr> <tr> <td>Concentration:</td> <td>10 <math>\mu</math>g/mL</td> </tr> <tr> <td>Incubation Time:</td> <td>Adding Pembrolizumab after A549-Red-Fluc cells preconditioned in elevated pressure (+ 100 mmHg) for 7 days.</td> </tr> <tr> <td>Result:</td> <td>Enhanced <math>\alpha</math>ROR1-CAR T killing of A549 lung cancer cells under elevated pressure.</td> </tr> </table> <p>Apoptosis Analysis<sup>[2]</sup></p> <table border="1"> <tr> <td>Cell Line:</td> <td>A549 cells</td> </tr> <tr> <td>Concentration:</td> <td>10 <math>\mu</math>g/mL</td> </tr> <tr> <td>Incubation Time:</td> <td></td> </tr> <tr> <td>Result:</td> <td>Increased the apoptotic cell death in A549 cells, and improve the <math>\alpha</math>ROR1-CAR T-mediated cytotoxicity.</td> </tr> </table> |  | Cell Line: | $\alpha$ ROR1-CAR T and A549 cells | Concentration: | 10 $\mu$ g/mL | Incubation Time: | Adding Pembrolizumab after A549-Red-Fluc cells preconditioned in elevated pressure (+ 100 mmHg) for 7 days. | Result: | Enhanced $\alpha$ ROR1-CAR T killing of A549 lung cancer cells under elevated pressure. | Cell Line: | A549 cells | Concentration: | 10 $\mu$ g/mL | Incubation Time: |  | Result: | Increased the apoptotic cell death in A549 cells, and improve the $\alpha$ ROR1-CAR T-mediated cytotoxicity. |
| Cell Line:                          | $\alpha$ ROR1-CAR T and A549 cells   |  |            |                                    |                |               |                  |   |         |   |            |            |                |               |                  |  |         |  |
| Concentration:                      | 10 $\mu$ g/mL  |  |            |                                    |                |               |                  |   |         |   |            |            |                |               |                  |  |         |  |
| Incubation Time:                    | Adding Pembrolizumab after A549-Red-Fluc cells preconditioned in elevated pressure (+ 100 mmHg) for 7 days.  |  |            |                                    |                |               |                  |   |         |   |            |            |                |               |                  |  |         |  |
| Result:                             | Enhanced $\alpha$ ROR1-CAR T killing of A549 lung cancer cells under elevated pressure.  |  |            |                                    |                |               |                  |   |         |   |            |            |                |               |                  |  |         |  |
| Cell Line:                          | A549 cells   |  |            |                                    |                |               |                  |   |         |   |            |            |                |               |                  |  |         |  |
| Concentration:                      | 10 $\mu$ g/mL  |  |            |                                    |                |               |                  |   |         |   |            |            |                |               |                  |  |         |  |
| Incubation Time:                    |  |  |            |                                    |                |               |                  |   |         |   |            |            |                |               |                  |  |         |  |
| Result:                             | Increased the apoptotic cell death in A549 cells, and improve the $\alpha$ ROR1-CAR T-mediated cytotoxicity.   |  |            |                                    |                |               |                  |   |         |   |            |            |                |               |                  |  |         |  |
| <b>In Vivo</b>                      | Pembrolizumab inhibits tumor size in A549 xenograft mice pretreated by pressure <sup>[2]</sup> .<br>MCE has not independently confirmed the accuracy of these methods. They are for reference only.  |  |            |                                    |                |               |                  |   |         |   |            |            |                |               |                  |  |         |  |

|                 |   |
|-----------------|---|
| Animal Model:   | Six-week-old male BALB/c athymic nude mice <sup>[2]</sup>                           |
| Dosage:         | 5 mg/kg   |
| Administration: | Pembrolizumab (5 mg/kg; Intravenous injection; Once)                                |
| Result:         | Reduced tumorigenesis in $\alpha$ ROR1-CAR T cells and co-cultured with A549 cells. |

## CUSTOMER VALIDATION

- J Immunother Cancer. 2022 Mar;10(3):e003667.
- Cell Death Dis. 2021 May 9;12(5):465.
- Cancer Immunol Immunother. 2021 Nov 12.
- ACS Appl Bio Mater. 2020 Sep 21.
- J Biomed Inform. 2023 May 15;104383.

See more customer validations on [www.MedChemExpress.com](http://www.MedChemExpress.com)

## REFERENCES

- [1]. Zhenglin Ou, et al. Pressure increases PD-L1 expression in A549 lung adenocarcinoma cells and causes resistance to anti-ROR1 CAR T cell-mediated cytotoxicity, Sci Rep
- [2]. Amita Patnaik, et al. Phase I Study of Pembrolizumab (MK-3475; Anti-PD-1 Monoclonal Antibody) in Patients with Advanced Solid Tumors. Clin Cancer Res.2015Oct1;21(19):4286-93.
- [3]. Schachter J, et al. Pembrolizumab versus ipilimumab for advanced melanoma: final overall survival results of a multicentre, randomised, open-label phase 3 study (KEYNOTE-006). Lancet. 2017 Aug 16. pii: S0140-6736(17)31601-X.
- [4]. Amita Patnaik, et al. Phase I Study of Pembrolizumab (MK-3475; Anti-PD-1 Monoclonal Antibody) in Patients with Advanced Solid Tumors. Clin Cancer Res.2015Oct1;21(19):4286-93.

**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](mailto:tech@MedChemExpress.com)

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