

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

Description	Pembrolizumab (MK-3475) is a humanized IgG4 antibody inhibiting the programmed cell death 1 (PD-1) receptor, used in cancer immunotherapy.	
IC ₅₀ & Target	IC50: 0.6 nM (PD-1)	
In Vitro	Pembrolizumab (MK-3475) increases the secretion of cytokines IFN-γ, TNF-α and the apoptotic cell death of A549 cells ^[2] . ?Pembrolizumab improves the αROR1-CAR T-mediated cytotoxicity, and reduces tumorigenesis in the co-cultured αROR1-CAR T and A549 cells by blocking PD-1::PD-L1 interaction in αROR1-CAR T cells ^[2] . MCE has not independently confirmed the accuracy of these methods. They are for reference only.	
	Cell Cytotoxicity Assay ^[2]	
	Cell Line:	αROR1-CAR T and A549 cells
	Concentration:	10 μg/mL
	Incubation Time:	Adding Pembrolizumab after A549-Red-Fluc cells preconditioned in elevated pressure (+ 100 mmHg) for 7 days.
	Result:	Enhanced αROR1-CAR T killing of A549 lung cancer cells under elevated pressure.
	Apoptosis Analysis ^[2]	
	Cell Line:	A549 cells
	Concentration:	10 μg/mL
	Incubation Time:	
Result:	Increased the apoptotic cell death in A549 cells, and improve the αROR1-CAR T-mediated cytotoxicity.	
In Vivo	Pembrolizumab inhibits tumor size in A549 xenograft mice pretreated by pressure ^[2] . 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 ^[2]
Dosage:	5 mg/kg
Administration:	Pembrolizumab (5 mg/kg; Intravenous injection; Once)
Result:	Reduced tumorigenesis in α 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.
- J Biomed Inform. 2023 May 15;104383.
- bioRxiv. 2023 May 12.

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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. 2015 Oct 1;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.

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

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