Product Data Sheet

Product Name: Pembrolizumab
Cat. No.: GC19531

Chemical Properties

Cas. No.	1374853-91-4		
Formula		M.Wt	146266.23
Solubility		Storage	Store at -80°C,Avoid repeated freeze-thaw cycles

General tips: For obtaining a higher solubility , please warm the tube at 37 °C and shake it in the ultrasonic bath for a while.Stock solution can be stored below -20°C for several months.

Shipping Condition: Evaluation sample solution : ship with blue ice All other available size: ship with RT , or blue ice upon request.

Structure

Protocol

Cell experiment [1]:

Cell lines: CAOV-3 cells

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Preparation Method	CAOV-3 cells were cultured in RPMI 1640 medium containing with 10% fetal bovine serum (FBS), and penicillin (100U/ml) and streptomycin (100μg/ml) at 37°C in 5% CO_2/atmosphere. CAOV-3 cells were seeded onto 96-well microplates (3×10^3 cells/well). After incubation for 24h, cells were treated with a range of concentrations of Pembrolizumab (0, 0.5, 1, 2, 5, 10, and 20μg/ml) for 72h, cell viability was detected.
Reaction Conditions	0, 0.5, 1, 2, 5, 10, and 20μg/ml; 72h
Applications	Pembrolizumab treatment decreased the cell viability of CAOV-3 cells in a dose-dependent manner.

Animal experiment [2]:

Animal models	Female C57 mice
Preparation Method	Female C57 mice were housed under controlled temperature (21-23°C), humidity (30-35%) and light cycle (7:00 AM to 7:00 PM) and maintained on a standard chow diet. Pembrolizumab (15mg/kg) was administered daily by intraperitoneal injection for 10 days. Cardiac levels of IL-1α, IL-1β, IL-2, IL-6 and IL-10 were quantified through ELISA method.
Dosage form	15mg/kg/day; 10 days; i.p.
Applications	Pembrolizumab treatment significantly increased cardiac levels of IL-1α, IL-1β, IL-2, IL-6 in C57 mice.

Caution: Product has not been fully validated for medical applications. For research use only.
Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com
Address: 10292 Central Ave. #205, Montclair, CA, USA

References:

[1] Wu Y, Xu Z, Kou Z, et al. Pembrolizumab promotes degradation of cyclin dependent kinase 6 and suppresses ovarian cancer progression in vitro[J]. Scientific Reports, 2025, 15(1): 25283.

[2] Maurea N, De Lorenzo C, Passariello M, et al. Pembrolizumab, Ipilimumab and Nivolumab reduces cardiac pAMPK and IL-10, increases vascular NF-kB expression and levels of IL-1b, IL-2 and IL-6 in myocardial tissue[J]. European Heart Journal, 2022, 43(Supplement_2): ehac544. 2728.

Background

Pembrolizumab is a potent, highly selective, fully humanized immunoglobulin (Ig) G4-kappa monoclonal antibody against PD-1[1]. Pembrolizumab can disrupt the engagement of PD-1 with the related ligands and impede inhibitory signals in T cells, with resultant tumor recognition by cytotoxic T cell[2]. Pembrolizumab has been widely used to enhance the anti-tumor immune response and increase the level of IL-2[3].

In vitro, Pembrolizumab treatment for 72 hours significantly inhibited the viability of HO-8910 and CAOV-3 cells, with IC_{50} values of 21.07μg/ml and 15.52μg/ml, respectively[4]. Pembrolizumab treatment (3μg/ml) for 7 days significantly increased the secretion of IFNγ in primary non-small cell lung cancer (NSCLC) cells stimulated by anti-CD3 antibodies[5]. Treatment with 10μg/ml Pembrolizumab for 16 hours enhanced the killing effect of αROR1-CAR T cells on A549 cells under elevated pressure[6].

In vivo, Pembrolizumab treatment via intraperitoneal injection at a dose of 5mg/kg twice weekly for 24 days accelerated tumor growth in a colorectal cancer xenograft mouse model[7]. Intraperitoneal injection of Pembrolizumab at a dose of 15mg/kg daily for 10 days significantly reduced cardiac pAMPK and IL-10, increased vascular NF-kB expression and levels of IL-1b, IL-2 and IL-6 in myocardial tissue of mice[8].

References:

[1] Khoja L, Butler M O, Kang S P, et al. Pembrolizumab[J]. Journal for immunotherapy of cancer,

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2015, 3(1): 36.

[2] Garon E B, Rizvi N A, Hui R, et al. Pembrolizumab for the treatment of non–small-cell lung cancer[J]. New England journal of medicine, 2015, 372(21): 2018-2028.

[3] Oberg F G, Tunblad K, Slipicevic A, et al. Abstract C056: MIV-818 stimulates an antitumor immune response in vitro and enhances the effects of pembrolizumab[J]. Molecular Cancer Therapeutics, 2019, 18(12_Supplement): C056-C056.

[4] Wu Y, Xu Z, Kou Z, et al. Pembrolizumab promotes degradation of cyclin dependent kinase 6 and suppresses ovarian cancer progression in vitro[J]. Scientific Reports, 2025, 15(1): 25283.

[5] Colombo N, Dubot C, Lorusso D, et al. Pembrolizumab for persistent, recurrent, or metastatic cervical cancer[J]. New England Journal of Medicine, 2021, 385(20): 1856-1867.

[6] Ou Z, Dou X, Tang N, et al. Pressure increases PD-L1 expression in A549 lung adenocarcinoma cells and causes resistance to anti-ROR1 CAR T cell-mediated cytotoxicity[J]. Scientific reports, 2022, 12(1): 6919.

[7] Sahin I, George A, Zhang S, et al. Hyperprogression of a mismatch repair-deficient colon cancer in a humanized mouse model following administration of immune checkpoint inhibitor pembrolizumab[J]. Oncotarget, 2021, 12(21): 2131.

[8] Maurea N, De Lorenzo C, Passariello M, et al. Pembrolizumab, Ipilimumab and Nivolumab reduces cardiac pAMPK and IL-10, increases vascular NF-kB expression and levels of IL-1b, IL-2 and IL-6 in myocardial tissue[J]. European Heart Journal, 2022, 43(Supplement_2): ehac544. 2728.

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