Product Data Sheet

Product Name: Atezolizumab (MPDL3280A)
Cat. No.: GC32704

Chemical Properties

Cas. No.	1380723-44-3	
SMILES	[Atezolizumab]	
Formula	M.Wt	144590.5
Solubility	Storage	Store at -80°C
General tips	For obtaining a higher solubility , please warm the tube at 37 ℃ and shake it in the ultrasonic bath for a while.Stock solution can be stored below -20℃ 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	Atezolizumab (MPDL3280A)	

Protocol

Cell experiment [1]:

Cell lines	Human OS cell lines HOS and 143B
Preparation Method	Cells were cultured in high glucose Dulbecco’s modified Eagle’s medium supplemented with 10% fetal bovine serum and 1% penicillin streptomycin at 37℃.
Reaction Conditions	Different concentrations (0, 2.5, 5, 10, 20, and 40 μg/ml) of atezolizumab were applied to human OS cell lines HOS and 143B for 24 h.

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Applications	Atezolizumab inhibits proliferation and induces immune independent apoptosis of osteosarcoma cells. The proliferation of HOS and 143B both were inhibited by atezolizumab in a dose-dependent manner. The IC_{50} values of HOS and 143B were between 10-20 μg/ml.

Animal experiment [2]:

Animal models	male C57BL/6 mice (age, 8-10 weeks old; weight, 20-25 g)
Preparation Method	The sepsis model was generated using the cecal ligation and puncture (CLP) procedure. Mice were anesthetized by intraperiton- eal injection of 40 mg/kg pentobarbital sodium. an incision was made in the lower abdomen. The cecum was ligated in the middle, and the distal cecum was punctured right through using a 21-gauge needle. Squeezed a small amount of stool into the abdominal cavity, and closed the abdominal incision layer by layer.
Dosage form	100 μg on days 1 and 4
Applications	Atezolizumab treatment reduces endotoxin levels and intestinal mucosal permeability as well as decreases ileum histological scores in septic mice. However, atezolizumab treatment increases the expression of tight junction proteins in the ileum during sepsis.

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References:

[1]. Liu Z, et al. Targeting autophagy enhances atezolizumab-induced mitochondria-related apoptosis in osteosarcoma. Cell Death Dis. 2021 Feb 8;12(2):164.

[2]. Chen J, et al. Atezolizumab alleviates the immunosuppression induced by PD-L1-positive neutrophils and improves the survival of mice during sepsis. Mol Med Rep. 2021 Feb;23(2):144.

Background

Atezolizumab, a specific monoclonal antibody against PD-L1, can inhibit the combination between PD-L1 and PD-1. Therefore, it showed various promising effects, such as inhibiting the proliferation and induce immune-independent apoptosis of osteosarcoma cells and reducing immunosuppression caused by T lymphocyte apoptosis in various cancer types.[1][2]

In vitro study indicated that atezolizumab could cause mitochondrial damage to induce the imbalance between oxidants and antioxidants and induce mitochondria-related apoptosis in OS cells by activating JNK pathway. Furthermore, atezolizumab induced autophagy, however, inhibition of autophagy enhances atezolizumab-induced apoptosis in osteosarcoma cells.[2]

Study demonstrated that atezolizumab could suppress the proliferation of OS cells in

vivo, and the suppression was further enhanced by the combination of CQ. Besides, atezolizumab promoted apoptosis of OS cells in vivo, and this phenomenon was exacerbated by the addition of CQ. Moreover, atezolizumab could increase the content of MDA while increasing the positive rate of ROS in OS.[2]

References:

[1]. Chen J, et al. Atezolizumab alleviates the immunosuppression induced by PD?L1?positive neutrophils and improves the survival of mice during sepsis. Mol Med Rep. 2021 Feb;23(2):144.

[2]. Liu Z, et al. Targeting autophagy enhances atezolizumab-induced mitochondria-related apoptosis in osteosarcoma. Cell Death Dis. 2021 Feb 8;12(2):164.