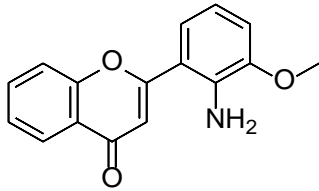


Product data sheet



MedKoo Cat#: 401680 Name: PD98059 CAS#: 167869-21-8 Chemical Formula: C ₁₆ H ₁₃ NO ₃ Exact Mass: 267.0895 Molecular Weight: 267.28	
Product supplied as: Powder	
Purity (by HPLC): ≥ 98%	
Shipping conditions: Ambient temperature	
Storage conditions: Powder: -20°C 3 years; 4°C 2 years. In solvent: -80°C 3 months; -20°C 2 weeks.	

1. Product description:

PD98059 also known as PD-98059, is a potent and selective inhibitor of MAP kinase kinase (also known as MAPK/ERK kinase or MEK kinase). It mediates its inhibitory properties by binding to the ERK-specific MAP kinase MEK, therefore preventing phosphorylation of ERK1/2 (p44/p42 MAPK) by MEK1/2. MAPK ERK1/2 is involved in TLR-induced production of cytokines.

2. CoA, QC data, SDS, and handling instruction

SDS and handling instruction, CoA with copies of QC data (NMR, HPLC and MS analytical spectra) can be downloaded from the product web page under “QC And Documents” section. Note: copies of analytical spectra may not be available if the product is being supplied by MedKoo partners. Whether the product was made by MedKoo or provided by its partners, the quality is 100% guaranteed.

3. Solubility data

Solvent	Max Conc. mg/mL	Max Conc. mM
DMSO	15.0	56.1

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	3.74 mL	18.71 mL	37.41 mL
5 mM	0.75 mL	3.74 mL	7.48 mL
10 mM	0.37 mL	1.87 mL	3.74 mL
50 mM	0.07 mL	0.37 mL	0.75 mL

5. Molarity Calculator, Reconstitution Calculator, Dilution Calculator

Please refer the product web page under section of “Calculator”

6. Recommended literature which reported protocols for in vitro and in vivo study

In vitro study

1. Zhao Y, Ge CC, Wang J, Wu XX, Li XM, Li W, Wang SS, Liu T, Hou JZ, Sun H, Fang D, Xie SQ. MEK inhibitor, PD98059, promotes breast cancer cell migration by inducing β -catenin nuclear accumulation. *Oncol Rep.* 2017 Nov;38(5):3055-3063. doi: 10.3892/or.2017.5955. Epub 2017 Sep 13. PMID: 29048617.

In vivo study

1. Rojewska E, Popiolek-Barczyk K, Kolosowska N, Piotrowska A, Zychowska M, Makuch W, Przewlocka B, Mika J. PD98059 Influences Immune Factors and Enhances Opioid Analgesia in Model of Neuropathy. *PLoS One.* 2015 Oct 1;10(10):e0138583. doi: 10.1371/journal.pone.0138583. PMID: 26426693; PMCID: PMC4591269.

7. Bioactivity

Biological target: PD98059 is a MEK inhibitor with an IC₅₀ of 5 μ M.

In vitro activity

To determine the antiproliferative effects of PD98059 on breast cancer cells, MCF-7 and MDA-MB-231 breast cancer cells were treated with 1, 5, 10 and 20 μ M PD98059 for 24 h. As shown in Fig. 1A and B, after incubation of the MCF-7 and MDA-MB-231 cells with 1, 5, 10 and 20 μ M PD98059 for 24 h, the expression of phosphorylated MEK1 which is an indicator of MEK1 activation

Product data sheet



was markedly decreased from 5 to 20 μM compared with the control group. PD98059 inhibited MCF-7 and MDA-MB-231 cell proliferation in a dose-dependent manner using MTT assay (Fig. 1C and D). For example, the cell growth inhibition ratio was increased from 4.7% at the dose of 1 μM to 33.1% at the dose of 50 μM in MCF-7 breast cancer cells. Similarly, the cell growth inhibition ratio was increased from 4.2% at the dose of 1 μM to 40.5% at the dose of 50 μM in the MDA-MB-231 breast cancer cells.

Reference: Oncol Rep. 2017 Nov;38(5):3055-3063. <https://www.spandidos-publications.com/or/38/5/3055>

In vivo activity

In CCI (chronic constriction injury) exposed rats single intrathecal PD98059 (2.5 mcg) administration produced significant antiallodynic effect after 30 min as assessed at day 7 by the von Frey test ($18.5 \text{ g} \pm 0.55$, $n = 10$; Fig 4C and 4D). Single intrathecal PD98059 (2.5 mcg) administration enhanced morphine-induced analgesia (24.2 ± 0.63 , $n = 8$, Fig 4C). Single intrathecal PD98059 (2.5 mcg) administration also enhanced buprenorphine-induced analgesia (23.25 ± 0.62 , $n = 7$, Fig 4D).

Reference: PLoS One. 2015 Oct 1;10(10):e0138583. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4591269/>

Note: The information listed here was extracted from literature. MedKoo has not independently retested and confirmed the accuracy of these methods. Customer should use it just for a reference only.