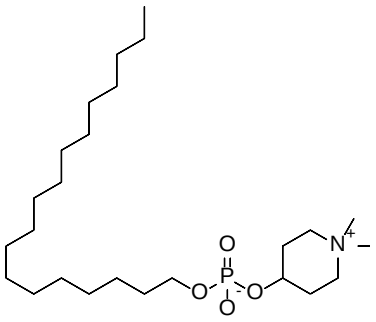
Product data sheet

MedKoo Cat#: 202220 Name: Perifosine CAS#: 157716-52-4 Chemical Formula: $C_{25}H_{52}NO_4P$ Exact Mass: 461.3634 Molecular Weight: 461.66	
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:

Perifosine is an orally active alkyl-phosphocholine compound with potential antineoplastic activity. Targeting cellular membranes, perifosine modulates membrane permeability, membrane lipid composition, phospholipid metabolism, and mitogenic signal transduction, resulting in cell differentiation and inhibition of cell growth. This agent also inhibits the anti-apoptotic mitogen-activated protein kinase (MAPK) pathway and modulates the balance between the MAPK and pro-apoptotic stress-activated protein kinase (SAPK/JNK) pathways, thereby inducing apoptosis. Perifosine has a lower gastrointestinal toxicity profile than the related agent miltefosine.

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
Water	10.0	21.7
Ethanol	30.0	65.0

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	2.17 mL	10.83 mL	21.66 mL
5 mM	0.43 mL	2.17 mL	4.33 mL
10 mM	0.22 mL	1.08 mL	2.17 mL
50 mM	0.04 mL	0.22 mL	0.43 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. Shen J, Hong Y, Zhao Q, Zhang JL. Preclinical evaluation of perifosine as a potential promising anti-rhabdomyosarcoma agent. Tumour Biol. 2016 Jan;37(1):1025-33. doi: 10.1007/s13277-015-3740-4. Epub 2015 Aug 13. PMID: 26269112.
2. Li Z, Tan F, Liewehr DJ, Steinberg SM, Thiele CJ. In vitro and in vivo inhibition of neuroblastoma tumor cell growth by AKT inhibitor perifosine. J Natl Cancer Inst. 2010 Jun 2;102(11):758-70. doi: 10.1093/jnci/djq125. Epub 2010 May 12. PMID: 20463309; PMCID: PMC2879416.

In vivo study

1. Zhu F, Kai J, Chen L, Wu M, Dong J, Wang Q, Zeng LH. Akt Inhibitor Perifosine Prevents Epileptogenesis in a Rat Model of Temporal Lobe Epilepsy. Neurosci Bull. 2018 Apr;34(2):283-290. doi: 10.1007/s12264-017-0165-7. Epub 2017 Aug 7. PMID: 28786074; PMCID: PMC5856709.

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2. Li Z, Tan F, Liewehr DJ, Steinberg SM, Thiele CJ. In vitro and in vivo inhibition of neuroblastoma tumor cell growth by AKT inhibitor perifosine. J Natl Cancer Inst. 2010 Jun 2;102(11):758-70. doi: 10.1093/jnci/djq125. Epub 2010 May 12. PMID: 20463309; PMCID: PMC2879416.

7. Bioactivity

Biological target: Perifosine is an oral Akt inhibitor which inhibits proliferation of different tumor cell lines with IC50s of 0.6-8.9 μM.

In vitro activity

Perifosine significantly inhibited RMS (Rhabdomyosarcoma) cell growth in concentration- and time-dependent manners. Meanwhile, perifosine induced dramatic apoptosis in RMS cells. At the signaling level, perifosine blocked AKT activation, while inducing reactive oxygen species (ROS) production as well as JNK and P38 phosphorylations in RMS cells.

Reference: Tumour Biol. 2016 Jan;37(1):1025-33. https://link.springer.com/article/10.1007/s13277-015-3740-4

In vivo activity

Rats pretreated with vehicle or perifosine were monitored for spontaneous seizures from week 1 to week 6 after KA (kainic acid) induced status epilepticus. All the vehicle-treated rats developed spontaneous seizures, with an average of 1.5 ± 0.3 seizures/24 h in week 1 and 3.8 ± 0.5 in week 6. In contrast, the perifosine-pretreated rats had a low frequency of 0.5 ± 0.1 seizures/24 h from week 1 to week 6 ($F = 3.124$, $P < 0.05$, Fig. 5B).

Reference: Neurosci Bull. 2018 Apr;34(2):283-290. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5856709/

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.