Pelitrexol

Cat. No.: HY-14530

CAS No.: 446022-33-9

Molecular Formula: $C_{20}H_{25}N_5O_6S$

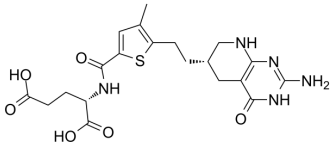
Molecular Weight: 463.51

Target: Antifolate

Pathway: Cell Cycle/DNA Damage

Storage:

Powder	-20°C	3 years
	4°C	2 years
In solvent	-80°C	2 years
	-20°C	1 year



SOLVENT & SOLUBILITY

In Vitro

DMSO : 25 mg/mL (53.94 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	2.1575 mL	10.7873 mL	21.5745 mL
	5 mM	0.4315 mL	2.1575 mL	4.3149 mL
	10 mM	0.2157 mL	1.0787 mL	2.1575 mL

Please refer to the solubility information to select the appropriate solvent.

In Vivo

1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.08 mg/mL (4.49 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.08 mg/mL (4.49 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.08 mg/mL (4.49 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Pelitrexol (AG 2037) is an inhibitor of glycinamide ribonucleotide formyltransferase (GARFT), a purine biosynthetic enzyme. Pelitrexol also inhibits mTORC1 by reducing GTP-bound Rheb level, a mTORC1 obligate activator. Pelitrexol shows robust tumor growth suppression in mice[1].

IC_{50} & Target

GARFT[1]

In Vitro

Pelitrexo (150 nM; 24 h) profoundly inhibits mTORC1 activity by reducing intracellular guanine nucleotides level as well as

GTP-bound Rheb protein level in A549 cells[1].
Pelitrexo (0-1000 mM; 16 h) strongly inhibits the phosphorylation level of ribosomal protein S6 (S6RP), S6K1, and Chk1 in a dose-dependent manner in NCI-H460 cells[1].
Pelitrexo (100 nM; 48 h) arrests cell cycle at G1 phase in NCI-H460 cells[1].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Cycle Analysis[1]

Cell Line:	NCI-H460 NSCLC
Concentration:	100 nM
Incubation Time:	4, 8, 24, 48 hours
Result:	Resulted 63% cells accumulation in G1 phase of the cell cycle.

Cell Cycle Analysis[1]

Cell Line:	NCI-H460 NSCLC
Concentration:	0, 10, 30, 100, 300, 1000 nM
Incubation Time:	16 hours
Result:	Inhibits the level of p-S6RP, p-S6K1, and p-Chk1.

In Vivo

Pelitrexo (10 mg/kg, 20 mg/kg; i.p.; every 4 days for 3 weeks) provokes both mTORC1 inhibition and robust tumor growth suppression in mice bearing nonsmall-cell lung cancer (NSCLC) xenografts[1].
Pelitrexo (20 mg/kg; i.p.; every 4 days for 3 weeks) inhibits GARFT-dependent purine biosynthesis and blocks mTORC1 function[1].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	Xenograft model of nonsmall-cell lung cancer (NSCLC) in mice[1]
Dosage:	10 mg/kg, 20 mg/kg
Administration:	Intraperitoneal injection; every 4 days for 3 weeks for group 1; administrated at 1, 4, 7 days for group 2
Result:	Inhibited tumor growth by 64% and 69% at 10 mg/kg and 20 mg/kg, respectively in group 1. Inhibited mTORC1-dependent phosphorylation of S6K1, S6RP and CAD at 20 mg/kg in group 2.

CUSTOMER VALIDATION

- Nat Commun. 2022 Nov 17;13(1):7031.

See more customer validations on www.MedChemExpress.com

REFERENCES

[1]. Emmanuel N, et al. Purine Nucleotide Availability Regulates mTORC1 Activity through the Rheb GTPase. Cell Rep. 2017 Jun 27;19(13):2665-2680.

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