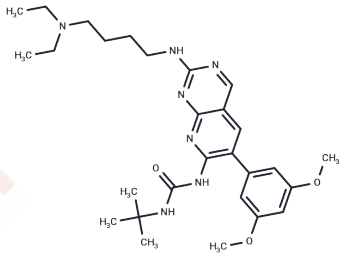
Data Sheet (Cat.No.T2642)

TargetMol

PD173074

Chemical Properties



CAS No. : 219580-11-7

Formula: C28H41N7O3

Molecular Weight: 523.67

Appearance: no data available

Storage: Powder: -20°C for 3 years | In solvent: -80°C for 1 year

Biological Description

Description	PD173074 is an effective FGFR1 inhibitor (IC50: 25 nM) and also inhibits VEGFR2 (IC50: 100-200 nM) in cell-free assays. The selectivity is higher ~1000-fold for FGFR1 than PDGFR and c-Src.
Targets(IC50)	Apoptosis,EGFR,FGFR,IGF-1R,Src,VEGFR
In vitro	PD173074 dose-dependently inhibited the autophosphorylation of VEGFR2 (IC50: 100-200 nM) and FGFR1 (IC50: 1-5 nM). PD173074 dose-dependently inhibited FGF-2-promoted granule neuron survival (IC50: 12 nM), which was more than 1,000-fold higher than SU 5402 activity. PD173074 specifically inhibited FGF-2-mediated cell proliferation, differentiation and MAPK activation in oligodendrocyte lineage cells. PD173074 was an ATP-competitive inhibitor of FGFR1 (Ki: 40 nM).PD173074 also dose-dependently and potently inhibited the autophosphorylation of FGFR3 (IC50: 5 nM). In multiple myeloma cell lines, PD173074 was active against wild-type and FGFR3 mutant types.PD173074 caused a significant decrease in the viability of FGFR3-expressing KMS11 and KMS18 cells (IC50<20 nM).
In vivo	PD173074 dose-dependently inhibited the autophosphorylation of VEGFR2 (IC50: 100-200 nM) and FGFR1 (IC50: 1-5 nM). PD173074 dose-dependently inhibited FGF-2-promoted granule neuron survival (IC50: 12 nM), which was more than 1,000-fold higher than SU 5402 activity. PD173074 specifically inhibited FGF-2-mediated cell proliferation, differentiation and MAPK activation in oligodendrocyte lineage cells. PD173074 was an ATP-competitive inhibitor of FGFR1 (Ki: 40 nM).PD173074 also dose-dependently and potently inhibited the autophosphorylation of FGFR3 (IC50: 5 nM). In multiple myeloma cell lines, PD173074 was active against wild-type and FGFR3 mutant types.PD173074 caused a significant decrease in the viability of FGFR3-expressing KMS11 and KMS18 cells (IC50<20 nM).
Kinase Assay	In vitro kinase inhibition assays: Assays using the full-length FGFR-1 kinase are performed in a total volume of 100 µL containing 25 mM HEPES buffer (pH 7.4), 150 mM NaCl, 10 mM MnCl2, 0.2 mM sodium orthovanadate, 750 µg/mL concentration of a random copolymer of glutamic acid and tyrosine (4:1), various concentrations of PD173074 and 60 to 75 ng of enzyme. The reaction is initiated by the addition of [γ-32P] ATP (5 µM ATP containing 0.4 µCi of [γ-32P]ATP per incubation), and samples are incubated at 25°C for 10 minutes. The reaction is terminated by the addition of 30% trichloroacetic acid and the precipitation of material onto glass-fiber filter mats. Filters are washed three times with 15% trichloroacetic acid, and the incorporation of [32P] into

	the glutamate tyrosine polymer substrate is determined by counting the radioactivity retained on the filters in a Wallac 1250 betaplate reader. Nonspecific activity is defined as radioactivity retained on the filters following incubation of samples without enzyme. Specific activity is determined as total activity (enzyme plus buffer) minus nonspecific activity. The concentration of PD173074 that inhibits FGFR-1 enzymatic activity by 50% (IC50) is determined graphically.
Cell Research	Cells are incubated with increasing concentrations of PD173074 in the presence of aFGF/heparin for 48 hours. The percentage of viable cells is determined by MTT.(Only for Reference)

Solubility Information

Solubility	Ethanol: 52.4 mg/mL (100.06 mM),Sonication is recommended. DMSO: 60 mg/mL (114.58 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	1.9096 mL	9.548 mL	19.096 mL
5 mM	0.3819 mL	1.9096 mL	3.8192 mL
10 mM	0.191 mL	0.9548 mL	1.9096 mL
50 mM	0.0382 mL	0.191 mL	0.3819 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Reference

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Huang G K, Huang C C, Kang C H, et al.Genetic Interference of FGFR3 Impedes Invasion of Upper Tract Urothelial Carcinoma Cells by Alleviating RAS/MAPK Signal Activity.International Journal of Molecular Sciences.2023, 24(2): 1776.
Skaper SD, et al. J Neurochem, 2000, 75(4), 1520-1527.
Bansal R, et al. J Neurosci Res, 2003, 74(4), 486-493.
Trudel S, et al. Blood, 2004, 103(9), 3521-3528.
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Zheng Y, et al. Inhibition of FGFR Signaling With PD173074 Ameliorates Monocrotaline-induced Pulmonary Arterial Hypertension and Rescues BMPR-II Expression. J Cardiovasc Pharmacol. 2015 Nov;66(5):504-14.
Mahe M, et al. An FGFR3/MYC positive feedback loop provides new opportunities for targeted therapies in bladder cancers. EMBO Mol Med. 2018 Apr;10(4). pii: e8163.

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