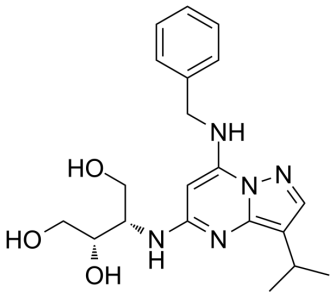
BS-194

Cat. No.:	HY-14372
CAS No.:	1092443-55-4
Molecular Formula:	$C_{20}H_{27}N_5O_3$
Molecular Weight:	385.46
Target:	CDK
Pathway:	Cell Cycle/DNA Damage
Storage:	4°C, protect from light * In solvent : -80°C, 6 months; -20°C, 1 month (protect from light)



SOLVENT & SOLUBILITY

In Vitro

DMSO : 100 mg/mL (259.43 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	2.5943 mL	12.9715 mL	25.9430 mL
	5 mM	0.5189 mL	2.5943 mL	5.1886 mL
	10 mM	0.2594 mL	1.2972 mL	2.5943 mL

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

BIOLOGICAL ACTIVITY

Description

BS-194 is an orally active, selective and potent CDK inhibitor. BS-194 inhibits CDK2, CDK1, CDK5, CDK7, CDK9 (IC_{50}s: 3, 30, 30, 250, and 90 nM respectively). BS-194 potently inhibits cancer cells proliferation. BS-194 can be used in the research of cancers like breast cancer, colon cancer[1].

IC_{50} & Target

CDK2 3 nM (IC_{50})	CDK1 30 nM (IC_{50})	CDK5 30 nM (IC_{50})	CDK7 250 nM (IC_{50})
CDK9 90 nM (IC_{50})			

In Vitro

BS-194 (compound 4k, 72 h) inhibits various cancer cells (MCF-7, MDA-MB-231, MCF-10A, CPLO-205, HCT-116, A549, SaOS2, PC3 ,HepG2, SK-Ov-3) growth, with IC_{50} values ranging from 100 nM to 1 μM[1].

BS-194 (10 μM, 24 h) promotes cell cycle arrest in in S and G2/M phases in HCT116 cells[1].

BS-194 (10 μM, 24 h) inhibits phosphorylation of CDK substrates, and promotes cyclin loss in HCT116 cells[1].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Cycle Analysis[1]

Cell Line:	HCT116
Concentration:	0, 0.01, 0.1, 1, 10 μM
Incubation Time:	24 h
Result:	Showed a significant reduction in G1, and increased in S and G2/M phases.

Western Blot Analysis[1]

Cell Line:	HCT116
Concentration:	0, 0.1, 10, 20 μM
Incubation Time:	0, 0.1, 10, 20 μM
Result:	Inhibited the phosphorylation of the CDK2 substrate RB (retinoblastoma) at Ser-780, Ser-795, Ser-801, Ser-807/Ser-811, and Thr-821. Inhibited levels of cyclin A, cyclin B, and cyclin D1. Inhibited phosphorylation of Thr-170 of CDK2.

In Vivo

BS-194 (compound 4K, intraperitoneal injection, 5 or 10 mg/kg, twice daily for 14 days) inhibits tumor growth with no apparent toxicity in MCF-7 tumor xenografts[1].
BS-194 (i.p., i.v., p.o., 10 mg/kg) is orally bioavailable, with elimination half-lives of 147 min (i.p.), 210 min (i.v.), and 178 min (p.o.) respectively[1].
BS-194 (oral gavage, 25 mg/mL) reduces rapid RB and PolII (RNA polymerase II) phosphorylation, but recovery within 24 h in nu/nu-BALB/c athymic nude mice[1].
BS-194 (oral gavage, 25 mg/kg, daily for 14 days) inhibits tumor growth in HCT116 tumor xenografts, with no significant loss in animal weights[1].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	Nude mice bearing MCF-7 cell[1]
Dosage:	5 or 10 mg/kg, twice daily for 14 days.
Administration:	Intraperitoneal injection
Result:	Inhibited tumor growth in a dose-dependent manner (30% and 40% reduction at 5 and 10 mg/kg dose, respectively).

Animal Model:	HCT116 tumor xenografts[1]
Dosage:	25 mg/kg, daily for 14 days.
Administration:	Oral gavage
Result:	Inhibited tumor growth by 50% reduction at 25 mg/kg. Decreased levels of Rb phosphorylation at Ser807/811 and Thr821 (in resected tumors).

Animal Model:	Mice (pharmacokinetic assay)[1]
Dosage:	10 mg/kg
Administration:	Intraperitoneal injection, intravenous injection, oral administration

Result: Pharmacokinetic profile of BS-194 (compound 4k).

administration route	dose (mg/kg)	bioavail-ability (%)	C_{max} (min)	$T_{1/2}$ (min)
i.p.	10	73	30	147
p.o.	10	88	15	178
administration route	dose (mg/kg)	$T_{1/2}$ (min)	Cl (mL/min/kg)	V_z
i.v.	10	210	5	1391

REFERENCES

[1]. Dean A Heathcote, et al. A novel pyrazolo[1,5-a]pyrimidine is a potent inhibitor of cyclin-dependent protein kinases 1, 2, and 9, which demonstrates antitumor effects in human tumor xenografts following oral administration. J Med Chem. 2010 Dec 23;53(24):

Caution: Product has not been fully validated for medical applications. For research use only.

Tel: 609-228-6898 Fax: 609-228-5909 E-mail: tech@MedChemExpress.com
Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA