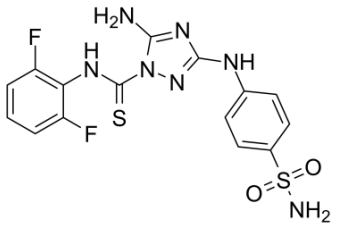
K00546

Cat. No.:	HY-103647
CAS No.:	443798-47-8
Molecular Formula:	$C_{15}H_{13}F_2N_7O_2S_2$
Molecular Weight:	425.44
Target:	CDK; VEGFR; GSK-3
Pathway:	Cell Cycle/DNA Damage; Protein Tyrosine Kinase/RTK; PI3K/Akt/mTOR; Stem Cell/Wnt



Storage:

Powder	-20°C	3 years
	4°C	2 years
In solvent	-80°C	6 months
	-20°C	1 month

SOLVENT & SOLUBILITY

In Vitro

DMSO : 100 mg/mL (**235.05 mM;** Need ultrasonic)
H_2O : < 0.1 mg/mL (insoluble)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	2.3505 mL	11.7525 mL	23.5051 mL
	5 mM	0.4701 mL	2.3505 mL	4.7010 mL
	10 mM	0.2351 mL	1.1753 mL	2.3505 mL

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

BIOLOGICAL ACTIVITY

Description

K00546 is a potent **CDK1** and **CDK2** inhibitor with **IC_{50}**s of 0.6 nM and 0.5 nM for **CDK1/cyclin B** and **CDK2/cyclin A**, respectively. K00546 is also a potent **CDC2-like kinase 1 (CLK1)** and **CLK3** inhibitor with **IC_{50}**s of 8.9 nM and 29.2 nM, respectively[1][2][3].

IC_{50} & Target

Cdk1/cyclin B 0.6 nM (IC_{50})	cdk2/cyclin A 0.5 nM (IC_{50})	CLK1 8.9 nM (IC_{50})	CLK3 29.2 nM (IC_{50})
VEGF-R2 32 nM (IC_{50})	GSK-3 140 nM (IC_{50})		

In Vitro

K00546 binds to the SLK ATP-binding site forming three hydrogen bonds with the kinase hinge residues E109 and C111. The sulphamoyl moiety of K00546 also interacts with the main chain of L40[1].

K00546 (compound 3n) also inhibits PKA, casein kinase-1, MAP kinase (ERK-2), calmodulin kinase, VEGF-R2, GSK-3 and PDGF-Rβ with IC_{50} values of 5.2 μM, 2.8 μM, 1.0 μM, 8.9 μM, 0.032 μM, 0.14 μM and 1.6 μM, respectively[2].

REFERENCES

[1]. Ashley C W Pike, et al. Activation segment dimerization: a mechanism for kinase autophosphorylation of non-consensus sites. EMBO J. 2008 Feb 20;27(4):704-14.

[2]. Oleg Fedorov, et al. Specific CLK inhibitors from a novel chemotype for regulation of alternative splicing. Chem Biol. 2011 Jan 28;18(1):67-76.

[3]. Ronghui Lin, et al. 1-Acyl-1H-[1,2,4]triazole-3,5-diamine analogues as novel and potent anticancer cyclin-dependent kinase inhibitors: synthesis and evaluation of biological activities. J Med Chem. 2005 Jun 30;48(13):4208-11.

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