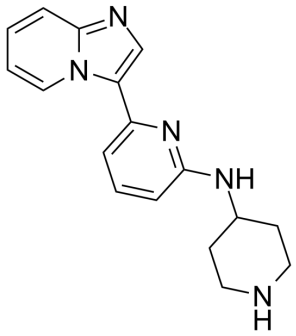
IRAK inhibitor 1



Cat. No.:	HY-13275
CAS No.:	1042224-63-4
Molecular Formula:	$C_{17}H_{19}N_5$
Molecular Weight:	293.37
Target:	IRAK
Pathway:	Immunology/Inflammation
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 : 16.67 mg/mL (56.82 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	3.4087 mL	17.0433 mL	34.0866 mL
	5 mM	0.6817 mL	3.4087 mL	6.8173 mL
	10 mM	0.3409 mL	1.7043 mL	3.4087 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: ≥ 1.67 mg/mL (5.69 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 1.67 mg/mL (5.69 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 1.67 mg/mL (5.69 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

IRAK inhibitor 1 is a potent IRAK-4 inhibitor with IC_{50} of 216 nM, is poorly active against JNK-1 and JNK-2 with IC_{50} of 3.801 μM, and >10 μM, respectively.

IC_{50} & Target

IC50: 216 nM (IRAK-4), 3.801 μM (JNK-1), >10 μM (JNK-2)[1]

In Vitro

IRAK inhibitor 1 possesses significant potency in an IRAK-4 enzyme assay but is poorly active against JNK-1 and JNK-2[1]. IRAK-4 is a novel member of the IRAK family with unique functional properties. IRAK-4 is the closest human homolog to

Pelle. Endogenous IRAK-4 interacts with IRAK-1 and TRAF6 in an IL-1-dependent manner, and overexpression of IRAK-4 can activate NF-κB as well as mitogen-activated protein (MAP) kinase pathways. Most strikingly, and in contrast to the other IRAKs, IRAK-4 depends on its kinase activity to activate NF-κB. In addition, IRAK-4 is able to phosphorylate IRAK-1, and overexpression of dominant-negative IRAK-4 is blocking the IL-1-induced activation and modification of IRAK-1, suggesting a role of IRAK-4 as a central element in the early signal transduction of Toll/IL-1 receptors, upstream of IRAK-1. IRAK-4 shares the domain structure of the other IRAKs and it is able to activate similar signal transduction pathways, namely NF-κB and MAPK pathways. It rapidly and transiently associates with IRAK-1 and TRAF6 in an IL-1-dependent manner but it is not functionally redundant with IRAK-1. IRAK-4 is an active protein kinase and requires its kinase activity to activate NF-κB. IRAK-4 might act upstream of IRAK-1 as an IRAK-1 activator[2].

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

REFERENCES

[1]. Buckley GM, et al. IRAK-4 inhibitors. Part II: A structure-based assessment of imidazo[1,2-a]pyridine binding. Bioorg Med Chem Lett. 2008 Jun 1;18(11):3291-5.

[2]. Li S, et al. IRAK-4: a novel member of the IRAK family with the properties of an IRAK-kinase. Proc Natl Acad Sci U S A. 2002 Apr 16;99(8):5567-72.

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