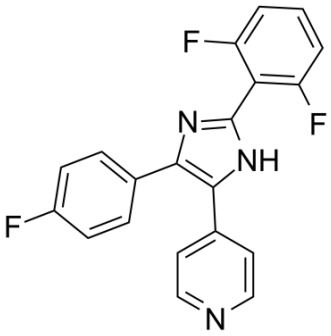
TA-01

Cat. No.:	HY-100114
CAS No.:	1784751-18-3
Molecular Formula:	$C_{20}H_{12}F_3N_3$
Molecular Weight:	351.32
Target:	Casein Kinase; p38 MAPK; Autophagy
Pathway:	Cell Cycle/DNA Damage; Stem Cell/Wnt; MAPK/ERK Pathway; Autophagy
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 : 50 mg/mL (142.32 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	2.8464 mL	14.2320 mL	28.4641 mL
	5 mM	0.5693 mL	2.8464 mL	5.6928 mL
	10 mM	0.2846 mL	1.4232 mL	2.8464 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: ≥ 2.5 mg/mL (7.12 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (7.12 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

TA-01 is a potent CK1 and p38 MAPK inhibitor, with IC_{50}s of 6.4 nM, 6.8 nM, 6.7 nM for CK1ε, CK1δ and p38 MAPK, respectively. TA-01 acts as a cardiogenic inhibitor.

IC_{50} & Target

CKI	CKIδ	p38 MAP kinase
6.4 nM (IC_{50})	6.8 nM (IC_{50})	6.7 nM (IC_{50})

In Vitro

TA-01 is a potent CK1 and p38 MAPK inhibitor, with IC_{50}s of 6.4 nM, 6.8 nM, 6.7 nM for CK1ε, CK1δ and p38 MAPK, respectively. TA-01 (5 μM) is not cytotoxic, completely inhibits cardiogenesis, but induces cardiogenesis at lower concentration[1].

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

PROTOCOL

Kinase Assay [1]	Compounds (TA-01) are dissolved in DMSO and tested at 10 μM concentrations against a panel of 97 kinases, which are related to stem cell differentiation and cell signaling pathways. Kinome profiling is carried out by kinase profiling service[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
Cell Assay [1]	HES-3, H7 and IPS are harvested and seeded at 1.1×10^6 cells/mL as EBs in ultra-low attachment 12-well plates in bSFS medium: DMEM supplemented with 2 mM l-glutamine, 0.182 mM sodium pyruvate, 1% non-essential amino acids, 0.1 mM β-mercaptoethanol, 5.6 mg/L transferrin, 20 μg/L sodium selenite, 0.25% (w/vol) Bovine Serum Albumin and 0.25% (w/vol) Hysoy. Cells are incubated at 37°C and 5% CO_2 to allow EB formation. The medium is refreshed after 1 day and then every 2-3 days. Cells are stimulated with the respective compounds (TA-01) dissolved in DMSO (1 μL DMSO/mL of media) starting from day 1 or day 4, until day 8. CHIR99021 is applied for the first 24 h only[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

REFERENCES

[1]. Laco F, et al. Cardiomyocyte differentiation of pluripotent stem cells with SB203580 analogues correlates with Wnt pathway CK1 inhibition independent of p38 MAPK signaling. J Mol Cell Cardiol. 2015 Mar;80:56-70.

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