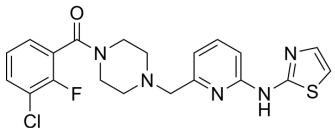
MK-8745

Cat. No.:	HY-13819
CAS No.:	885325-71-3
Molecular Formula:	$C_{20}H_{19}ClFN_5OS$
Molecular Weight:	431.91
Target:	Aurora Kinase; Apoptosis
Pathway:	Cell Cycle/DNA Damage; Epigenetics; Apoptosis
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 : ≥ 100 mg/mL (231.53 mM)

* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	2.3153 mL	11.5765 mL	23.1530 mL
5 mM	0.4631 mL	2.3153 mL	4.6306 mL
10 mM	0.2315 mL	1.1576 mL	2.3153 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 (5.79 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (5.79 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (5.79 mM); Clear solution

BIOLOGICAL ACTIVITY

Description	MK-8745 is an aurora A kinase inhibitor with an IC_{50} of 0.6 nM.
IC_{50} & Target	Aurora A 0.6 nM (IC_{50})
In Vitro	MK-8745 induces apoptotic cell death in a p53-dependent manner when tested in vitro in cell lines of multiple lineages.

Exposure of p53 wild-type cells to MK-8745 results in the induction of p53 phosphorylation (ser15) and an increase in p53 protein expression[1]. 1 μM of MK-8745 exposure for 24 h induces cell cycle arrest in all NHL cells, with variable degrees of G2/M arrest. Z138C cells are highly sensitive to MK-8745 (1 μ M) treatment and induces an approximate 5.5-fold increase in the G2/M phase cell population by 96 h. MK-8745 treatment inhibits phosphorylation of Aurora-A in Granta 519 and Z138C cells, while Akata and JVM2 has no effect. MK-8745 specifically inhibits Aurora-A specific function. MK-8745 treatment leads to apoptotic cell death[2].

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

PROTOCOL

Cell Assay [2]

A total of 10000 cells are plated per well in a 96-well plate and treated with MK-8745 for varying time points starting 24 h after plating. Cell viability is measured by the MTT assay[2].

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

CUSTOMER VALIDATION

- Sci Transl Med. 2018 Jul 18;10(450):eaaq1093.
- Elife. 2020 Dec 7;9:e61405.
- J Cell Sci. 2019 Jul 1;132(13):jcs229385.
- bioRxiv. 2021 Feb 5.

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REFERENCES

[1]. Jayasree S Nair et al. The induction of polyploidy or apoptosis by the Aurora A kinase inhibitor MK8745 is p53-dependent.

[2]. Aparajita Chowdhury et al. A novel Aurora kinase A inhibitor MK-8745 predictsTPX2 as a therapeutic biomarker in non-Hodgkin lymphoma cell lines.Leuk Lymphoma, 2012 Mar, 53(3):462-71.

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