MIRA-1

Cat. No.: HY-108639

CAS No.: 72835-26-8

Molecular Formula: $C_8H_9NO_4$

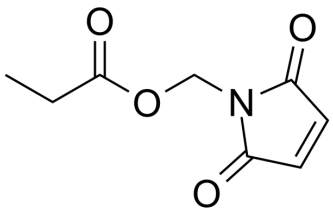
Molecular Weight: 183.16

Target: MDM-2/p53; Apoptosis

Pathway: Apoptosis

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 (545.97 mM; Need ultrasonic)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	5.4597 mL	27.2985 mL	54.5971 mL
5 mM	1.0919 mL	5.4597 mL	10.9194 mL
10 mM	0.5460 mL	2.7299 mL	5.4597 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 (13.65 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (13.65 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (13.65 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

MIRA-1 is a maleimide analogue. MIRA-1 can induce apoptosis in mutant p53 cells via restoration of p53-dependent transcriptional transactivation. MIRA-1 has anticancer activity[1].

IC_{50} & Target

IC_{50}: 10 μM (Saos-2 His273)[1]

In Vitro

MIRA-1 suppresses growth of Saos-2-His273 cells expressing mutant p53[1].
MIRA-1 (25 μM; 48 hours) inhibits cell growth in a mutant p53-dependent manner[1].

MIRA-1 (5 μM; 14 days) dramatically reduces the number of colonies formed by His273-expressing Saos-2 cells, but is much less efficient in inhibiting p53-null Saos-2 cells[1].
MIRA-1 (10 μM; 48 hours) causes a substantial increase in the fraction of Saos-2 and Saos-2-His273 cells with a sub-G1 DNA content in the presence of mutant p53[1].
MIRA-1 (5 and 10 μM; 24 hours) induces EGFP expression, MDM2 and Bax in SKOV-His175 cells[1].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Proliferation Assay

Cell Line:	Saos-2-His273, H1299-His175, SKOV-His175 and SKOV-His273[1]
Concentration:	25 μM
Incubation Time:	48 hours
Result:	Inhibited cell growth in a mutant p53-dependent manner, with survival rate of 18.5~39% in no doxycycline and 71.5~87.5% in doxycycline.

Apoptosis Analysis

Cell Line:	Saos-2 and Saos-2-His273 cells[1]
Concentration:	10 μM
Incubation Time:	48 hours
Result:	Caused a substantial increase in the fraction of cells with a sub-G1 DNA content in the presence of mutant p53.

REFERENCES

[1]. Bykov VJ, et al. Reactivation of mutant p53 and induction of apoptosis in human tumor cells by maleimide analogs [published correction appears in J Biol Chem. 2017 Dec 1;292(48):19607]. J Biol Chem. 2005;280(34):30384-30391.

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