4-IPP

Cat. No.: HY-110063

CAS No.: 41270-96-6

Molecular Formula: $C_{10}H_7IN_2$

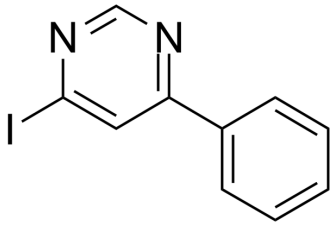
Molecular Weight: 282.08

Target: Macrophage migration inhibitory factor (MIF)

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 : 100 mg/mL (354.51 mM; Need ultrasonic)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	3.5451 mL	17.7255 mL	35.4509 mL
5 mM	0.7090 mL	3.5451 mL	7.0902 mL
10 mM	0.3545 mL	1.7725 mL	3.5451 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 (8.86 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (8.86 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (8.86 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

4-IPP (4-Iodo-6-phenylpyrimidine) is a specific suicide substrate and irreversible inhibitor of macrophage migration inhibitory factor (MIF)[1].

IC_{50} & Target

MIF[1]

In Vitro

4-IPP is a specific suicide substrate for MIF that binds covalently and irreversibly to MIF to inhibit its biologic activity[1].
4-IPP inhibits RANKL-induced p65 phosphorylation and nuclear translocation by preventing the interaction of MIF with

thioredoxin-interacting protein-p65 complexes[1].
4-IPP can inhibit receptor activator of NF-κB ligand (RANKL)-induced osteoclastogenesis and potentiate osteoblast-mediated mineralization and bone nodule formation[1].
4-IPP (0.5-200μM;24-72 hours) inhibits osteoclastogenesis in a dose-dependent manner[1].
4-IPP(5-20μM; 5 days) inhibits RANKL-induced osteoclast differentiation and bone resorption [1].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Cytotoxicity Assay[1]

Cell Line:	BMMs
Concentration:	0.5 μM, 1 μM, 2.5 μM, 5 μM, 10 μM, 25 μM, 50 μM, 100 μM, 200 μM
Incubation Time:	24 hours, 72 hours
Result:	Inhibited osteoclastogenesis in a dose-dependent manner.

Western Blot Analysis[1]

Cell Line:	BMMs
Concentration:	5 μM,10 μM, 20 μM
Incubation Time:	1 day, 3 days, 5 days
Result:	Inhibited RANKL-induced osteoclast differentiation and bone resorption.

In Vivo

4-IPP (1 mg/kg, 5 mg/kg; every 2 days; for 8 weeks) ameliorates the bone loss associated with estrogen deficiency by reducing osteoclastic activities and enhancing osteoblastic bone formation[1].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	8-weeks-old C57BL/6J male mice[1]
Dosage:	1 mg/kg, 5 mg/kg
Administration:	Intraperitoneal injection; every 2 days; for 8 weeks
Result:	Alleviated OVX-induced osteoporosis.

CUSTOMER VALIDATION

- Theranostics. 2023 Aug 18;13(13):4574-4600.
- Neural Regen Res. 2022.

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REFERENCES

[1]. Zheng L, et al. Macrophage migration inhibitory factor (MIF) inhibitor 4-IPP suppresses osteoclast formation and promotes osteoblast differentiation through the inhibition of the NF-κB signaling pathway. FASEB J. 2019 Jun;33(6):7667-7683.

Caution: Product has not been fully validated for medical applications. For research use only.

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