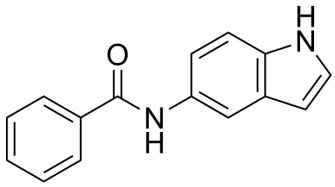
OAC2

Cat. No.:	HY-12884
CAS No.:	6019-39-2
Molecular Formula:	$C_{15}H_{12}N_2O$
Molecular Weight:	236.27
Target:	Oct3/4
Pathway:	Stem Cell/Wnt
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 (423.24 mM)

Ethanol : 25 mg/mL (105.81 mM; Need ultrasonic)

* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions	Mass / Solvent / Concentration	1 mg	5 mg	10 mg
	1 mM	4.2324 mL	21.1622 mL	42.3245 mL
	5 mM	0.8465 mL	4.2324 mL	8.4649 mL
	10 mM	0.4232 mL	2.1162 mL	4.2324 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 (10.58 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: 2.5 mg/mL (10.58 mM); Suspended solution; Need ultrasonic
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (10.58 mM); Clear solution
4. Add each solvent one by one: 10% EtOH >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.5 mg/mL (10.58 mM); Clear solution
5. Add each solvent one by one: 10% EtOH >> 90% (20% SBE-β-CD in saline)
   Solubility: 2.5 mg/mL (10.58 mM); Suspended solution; Need ultrasonic
6. Add each solvent one by one: 10% EtOH >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (10.58 mM); Clear solution

BIOLOGICAL ACTIVITY

Description	OAC2 is an Oct4-activating compound which activates expression through the Oct4 gene promoter.
In Vitro	Octamer-binding transcription factor 4 (Oct4) is a master regulator of the induction and maintenance of cellular pluripotency, and has crucial roles in early stages of differentiation. It is the only factor that cannot be substituted by other members of the same protein family to induce pluripotency[1]. Oct4 has been shown to be an essential regulator of embryonic stem cell (ESC) pluripotency and key to the reprogramming process. OAC2 is a structural analog of OAC1. OAC2 activates both Oct4 and Nanog reporters to a similar extent as OAC1. OAC1 and its two structural analogs OAC2 and OAC3 enhances reprogramming efficiency fourfold, up to as high as 2.75%, and accelerates the appearance of iPSC colonies 3 to 4 d when used in combination with the four reprogramming factors, Oct4, Sox2, Klf4, and c-Myc[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Cell Assay [2]	The Oct4-luc or Nanog-luc cells are treated with compound OAC1 or its structural analogs OAC2, OAC3 at 1 μM concentration or at indicated concentrations. Other compounds used include 2 μM BIO, 2 μM BIX, 2 μM 5'-azacytidine, 25 μg/mL Vitamin C, 10 nM Am580, 5 μM tranylcypromine, and 0.5 mM valporic acid. Luciferase reporter assays are performed 24 h after compound treatment or at indicated time points. For Topflash reporter assays, 0.2 μg β-catenin–responsive Topflash reporter gene plasmid is introduced into CV1 cells using trasfection. Compounds are added 6 h after transfection. Luciferase activity is measured 48 h after compound treatment using the Glo Luciferase Assay System[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

REFERENCES

[1]. Okuyama T, et al. Structural and mechanistic insights into nuclear transport and delivery of the critical pluripotency factor Oct4 to DNA. J Biomol Struct Dyn. 2017 Feb 6:1-50

[2]. Li W, et al. Identification of Oct4-activating compounds that enhance reprogramming efficiency. Proc Natl Acad Sci U S A. 2012 Dec 18;109(51):20853-8.

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