Neoruscogenin

Cat. No.: HY-N2253

CAS No.: 17676-33-4

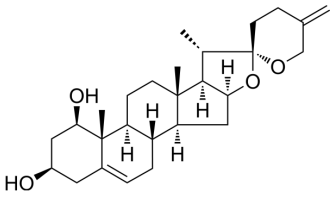
Molecular Formula: $C_{27}H_{40}O_4$

Molecular Weight: 428.6

Target: ROR

Pathway: Metabolic Enzyme/Protease; Vitamin D Related/Nuclear Receptor

Storage: 4°C, protect from light
* In solvent : -80°C, 6 months; -20°C, 1 month (protect from light)



SOLVENT & SOLUBILITY

In Vitro

DMSO : 50 mg/mL (116.66 mM; ultrasonic and warming and heat to 60°C)
Ethanol : 10 mg/mL (23.33 mM; ultrasonic and warming and heat to 60°C)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	2.3332 mL	11.6659 mL	23.3318 mL
5 mM	0.4666 mL	2.3332 mL	4.6664 mL
10 mM	0.2333 mL	1.1666 mL	2.3332 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 (5.83 mM); Suspended solution; Need ultrasonic
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 0.56 mg/mL (1.31 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 0.56 mg/mL (1.31 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Neoruscogenin, a member of the steroidal sapogenin family, is a high-affinity agonist of the nuclear receptor RORα (NR1F1) (EC_{50} = 0.11 μM)[1].

In Vitro

Neoruscogenin (0.1-10 μM) increases the cell viability, but has no effect on cell viability at 50 μM, and decreases the cell viability at 100 μM[2].
Neoruscogenin (0.1 μM, 5 days) promotes C2C12 myoblast differentiation[2].
Neoruscogenin (0.1 μM, 5 days) activates Akt/mTOR/rpS6 signaling pathway in C2C12 myoblasts, and inhibits the Atrogin-1 and MuRF-1 mRNA levels[2].

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

Western Blot Analysis[2]

Cell Line:	C2C12 myoblasts
Concentration:	0.1 μM
Incubation Time:	5 days
Result:	Increased protein expression of MyHC and MyOG at 0.1 μM, but did not work as well as 0.1 μM at 5 and 10 μM

In Vivo

Neoruscogenin (3 mg/kg,p.o. for seven days) activates hepatic RORα target gene (such as Bmal1, Cyp7b1, and G6Pase) expression in mice[1].

Neoruscogenin (1 mg/kg,i.p. every 2 days for 8 times) induces skeletal muscle hypertrophy in mice[2].

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

Animal Model:	male ICR mice[2]
Dosage:	1 mg/kg
Administration:	i.p.
Result:	Showd the larger size of TA muscles, and increasaed the weight of Gas muscles. Showed visible myofibers hypertrophy (H&E staining).

REFERENCES

[1]. Zhang D, et al. Novel Pro-myogenic Factor Neoruscogenin Induces Muscle Fiber Hypertrophy by Inhibiting MSTN Maturation and Activating the Akt/mTOR Pathway. J Agric Food Chem. 2023 Jan 11;71(1):499-511.

[2]. Helleboid S, et al. The identification of naturally occurring neoruscogenin as a bioavailable, potent, and high-affinity agonist of the nuclear receptor RORα (NR1F1).J Biomol Screen. 2014 Mar;19(3):399-406.

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