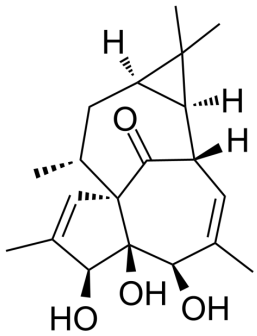
20-Deoxyingenol

Cat. No.:	HY-N0866
CAS No.:	54706-99-9
Molecular Formula:	$C_{20}H_{28}O_4$
Molecular Weight:	332.43
Target:	Autophagy
Pathway:	Autophagy
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 : 50 mg/mL (150.41 mM; Need ultrasonic)

Preparing Stock Solutions	Mass / Solvent / Concentration	1 mg	5 mg	10 mg
	1 mM	3.0082 mL	15.0408 mL	30.0815 mL
	5 mM	0.6016 mL	3.0082 mL	6.0163 mL
	10 mM	0.3008 mL	1.5041 mL	3.0082 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 (7.52 mM); Suspended solution; Need ultrasonic
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: 2.5 mg/mL (7.52 mM); Suspended solution; Need ultrasonic
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (7.52 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

20-Deoxyingenol, a diterpene, is isolated from the roots of Euphorbia kansui. 20-Deoxyingenol can promote autophagy and lysosomal biogenesis by promoting the nuclear translocation of transcription factor EB (TFEB) in vitro. 20-Deoxyingenol can be used for the research of osteoarthritis (OA)[1][2].

In Vitro

20-Deoxyingenol (2.5-10 mM; 24 h) protects chondrocytes against Tert-butyl hydroperoxide solution (TBHP; 100 μM)-induced cell death[2].
20-Deoxyingenol (5-10 mM) decreases the TBHP-induced upregulation of apoptosis protein cleaved-caspase3 and the

	senescence protein p16INK4a in chondrocytes[2]. 20-Deoxyingenol (2.5-40 mM; 24 h) has no cytotoxic effect on chondrocytes at the concentration less than 10 mM[2]. 20-Deoxyingenol (10 mM; 24 h) restores autophagy flux in TBHP treated chondrocytes[2]. 20-Deoxyingenol (4-10 mM; 24 h) promotes the nuclear level of TFEB in TBHP treated chondrocytes[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

In Vivo

20-Deoxyingenol (20 mg/kg/d; i.p. for 8 weeks) alleviates the progression of OA in the DMM model in mice[2].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	10-week-old C57BL/6 male wild-type (WT) mice with destabilization of the medial meniscus (DMM)[2]
Dosage:	20 mg/kg
Administration:	I.p. one time per day, for eight consecutive weeks
Result:	Had a slightly wider joint space and reduced bone density and calcification compared with the DMM group. Inhibited the decrease in the thickness of hyaline cartilage (HC), and alleviated the disorder and hypertrophy of chondrocytes in the joint tissues of mice after DMM surgery. Had less erosion on the surface of the articular cartilage and more proteoglycan content. Had more positive staining points of LAMP1 and LC3 II, and less cleaved-caspase3 and P16INK4a. Increased the nuclear level of TFEB.

CUSTOMER VALIDATION

- Pharmacol Res. 2021 Jan 15;105361.

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REFERENCES

[1]. Uemura D, et, al. Isolation and structures of 20-deoxyingenol new diterpene, derivatives and ingenol derivative obtained from “kansui”. Tetrahedron Letters. 1974; 15(29): 2527-2528.

[2]. Gu M, et, al. 20-Deoxyingenol alleviates osteoarthritis by activating TFEB in chondrocytes. Pharmacol Res. 2021 Jan 15;165:105361.

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