(-)-Pinoresinol 4-O-glucoside

Cat. No.: HY-N0946

CAS No.: 41607-20-9

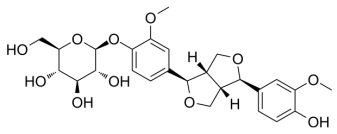
Molecular Formula: $C_{26}H_{32}O_{11}$

Molecular Weight: 520.53

Target: Glucosidase

Pathway: Metabolic Enzyme/Protease

Storage: Please store the product under the recommended conditions in the Certificate of Analysis.



BIOLOGICAL ACTIVITY

Description

(-)-Pinoresinol 4-O-glucoside ((-)-Pinoresinol 4-O-β-D-glucopyranoside) is a potent and orally active α-glucosidase inhibitor with an IC_{50} value of 48.13 μM. (-)-Pinoresinol 4-O-glucoside increases cell migration and early differentiation of pre-osteoblasts. (-)-Pinoresinol 4-O-glucoside increases protein level of BMP2, p-Smad1/5/8, RUNX2. (-)-Pinoresinol 4-O-glucoside attenuates oxidative stress, hyperglycemia and hepatic toxicity. (-)-Pinoresinol 4-O-glucoside has the potential for the research of osteoporosis and periodontal disease[1][2].

IC_{50} & Target

IC_{50}: 48.13 μM (α-Glucosidase)[1]

In Vitro

(-)-Pinoresinol 4-O-glucoside (0, 10, 30 μM; 24 h) increases cell migration during the differentiation of pre-osteoblasts in osteogenic supplement medium (OS) containing 50 μg/mL[1].

(-)-Pinoresinol 4-O-glucoside (10, 30 μM; 7 days) increases the early differentiation and increases mineralized nodule formation during differentiation of pre-Osteoblasts[1].

(-)-Pinoresinol 4-O-glucoside (10, 30 μM; 3 days) increases the expressio of BMP2, ALP, OCN mRNA levels in pre-osteoblasts[1].

(-)-Pinoresinol 4-O-glucoside (10, 30 μM; 3 days) increases protein level of BMP2, p-Smad1/5/8, RUNX2[1].

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

RT-PCR[1]

Cell Line:	pre-osteoblasts
Concentration:	10, 30 μM
Incubation Time:	3 days
Result:	Upregulated the mRNA level of BMP2 and its target osteoblast genes, ALP and osteocalcin (OCN).

Western Blot Analysis[1]

Cell Line:	pre-osteoblasts
Concentration:	10, 30 μM
Incubation Time:	3 days

Result:	Enhanced protein level of BMP2, followed by the phosphorylation of Smad1/5/8 and the expression of RUNX2.

In Vivo

(-)-Pinoresinol 4-O-glucoside (50 mg/kg; p.o.; twenty days) attenuates oxidative stress, hyperglycaemia and hepatic toxicity in mice[2].

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

Animal Model:	27-30 g, Male Swiss albino mice[2]
Dosage:	50 mg/kg
Administration:	P.o.; twenty days
Result:	Exhibited a hepatoprotective activity in vivo as it lowered AST and ALT levels, caused a prominent decline in serum glucose level by 37.83% in streptozotocin-treated mice with promising elevation in insulin level of 25.37%.

REFERENCES

[1]. Park KR, et al. Effects of PIN on Osteoblast Differentiation and Matrix Mineralization through Runt-Related Transcription Factor. Int J Mol Sci. 2020 Dec 16;21(24):9579.

[2]. Youssef FS, et al. Pinoresinol-4-O-β-D-glucopyranoside: a lignan from prunes (Prunus domestica) attenuates oxidative stress, hyperglycaemia and hepatic toxicity in vitro and in vivo. J Pharm Pharmacol. 2020 Dec;72(12):1830-1839.

Tel: 609-228-6898 Fax: 609-228-5909 E-mail: tech@MedChemExpress.com

Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA