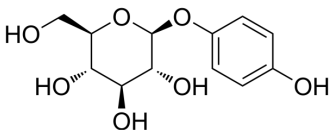
Arbutin

Cat. No.:	HY-N0192
CAS No.:	497-76-7
Molecular Formula:	$C_{12}H_{16}O_7$
Molecular Weight:	272.25
Target:	Tyrosinase; Endogenous Metabolite
Pathway:	Metabolic Enzyme/Protease
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 (183.65 mM)

H_2O : 33.33 mg/mL (122.42 mM; Need ultrasonic)

* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions	Mass / Solvent / Concentration	1 mg	5 mg	10 mg
	1 mM	3.6731 mL	18.3655 mL	36.7309 mL
	5 mM	0.7346 mL	3.6731 mL	7.3462 mL
	10 mM	0.3673 mL	1.8365 mL	3.6731 mL

Please refer to the solubility information to select the appropriate solvent.

In Vivo

1. Add each solvent one by one: PBS
   Solubility: 100 mg/mL (367.31 mM); Clear solution; Need ultrasonic
2. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.5 mg/mL (9.18 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (9.18 mM); Clear solution
4. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (9.18 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Arbutin (β-Arbutin) is a competitive inhibitor of tyrosinase, with K_i^{app} values of 1.42 mM for monophenolase; 0.9 mM for diphenolase. Arbutin is also used as depigmenting agents[1]. Arbutin is a natural polyphenol isolated from the bearberry plant Arctostaphylos uvaursi, possesses with anti-oxidant, anti-inflammatory and anti-tumor properties[2][3].

IC_{50} & Target	Human Endogenous Metabolite

In Vitro

Arbutin (0.3-5.4 mM; 24 hours, 48 hours, 72 hours; B16 murine melanoma cells) inhibites the viability of B16 murine melanoma cells in a time-and dose-dependent manner[2].
?Arbutin (1.4-5.4 mM; 24 hours) increases the apoptosis rate of B16 murine melanoma cell of treatment at a dose of 5.4 mM [2].

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

Cell Viability Assay[2]

Cell Line:	B16 murine melanoma cells
Concentration:	0.3 mM, 0.7 mM, 1.4 mM, 2.1 mM, 2.9 mM, 3.6 mM, 5.4 mM
Incubation Time:	24 hours, 48 hours or 72 hours
Result:	Inhibited the viability of B16 murine melanoma cells in a time- and dose-dependent manner.

Apoptosis Analysis[2]

Cell Line:	B16 murine melanoma cells
Concentration:	1.4 mM, 2.9 mM, 5.4 mM
Incubation Time:	24 hours
Result:	Caused apoptosis in 19.3% of the cells.

In Vivo

Arbutin (50 mg/kg, 100 mg/kg; oral administration; every day; for 17 days; male C57BL/6 mice) pretreatment exhibits markedly protective effects on ISO-induced cardiac hypertrophy in mice[3].

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

Animal Model:	Male C57BL/6 mice (20-25 g)[3]
Dosage:	50 mg/kg, 100 mg/kg
Administration:	Oral administration; every day; for 17 days
Result:	Ameliorated the ISO-induced myocardial injury.

CUSTOMER VALIDATION

- FEBS Open Bio. 2021 Jan;11(1):289-299.

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REFERENCES

[1]. Garcia-Jimenez A, et al. Action of tyrosinase on alpha and beta-arbutin: A kinetic study. PLoS One. 2017 May 11;12(5):e0177330.

[2]. Jiang L, et al. Investigation of the pro-apoptotic effects of arbutin and its acetylated derivative on murinemelanoma cells. Int J Mol Med. 2018 Feb;41(2):1048-1054.

[3]. Nalban N, et al. Arbutin Attenuates Isoproterenol-Induced Cardiac Hypertrophy by Inhibiting TLR-4/NF-κB Pathway in Mice. Cardiovasc Toxicol. 2019 Sep 4.

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