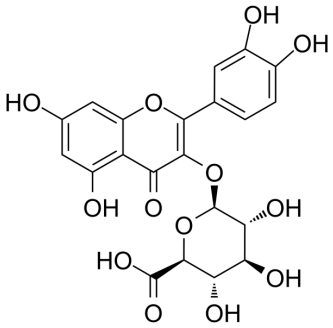
Miquelianin

Cat. No.:	HY-13930
CAS No.:	22688-79-5
Molecular Formula:	$C_{21}H_{18}O_{13}$
Molecular Weight:	478.36
Target:	Endogenous Metabolite
Pathway:	Metabolic Enzyme/Protease
Storage:	Powder -20°C 3 years 4°C 2 years In solvent -80°C 6 months -20°C 1 month



SOLVENT & SOLUBILITY

In Vitro

DMSO : ≥ 30 mg/mL (62.71 mM)

* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	2.0905 mL	10.4524 mL	20.9048 mL
5 mM	0.4181 mL	2.0905 mL	4.1810 mL
10 mM	0.2090 mL	1.0452 mL	2.0905 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 (5.23 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (5.23 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (5.23 mM); Clear solution

BIOLOGICAL ACTIVITY

Description	Miquelianin (Quercetin 3-O-glucuronide) is a metabolite of quercetin and a type of natural flavonoid.
IC_{50} & Target	Human Endogenous Metabolite
In Vitro	Miquelianin shows an antioxidant effect in human plasma. At 50 μM, miquelianin suppresses the consumption of the three antioxidants lycopene, β-carotene and α-tocopherol significantly[1]. In vitro studies indicate that miquelianin is able to

	reach the central nervous system from the small intestine[2]. Miquelianin significantly reduces the generation of β-amyloid (Aβ) peptides by primary neuron cultures generated from the Tg2576 AD mouse model. It is also capable of interfering with the initial protein-protein interaction of Aβ1–40 and Aβ1–42 that is necessary for the formation of neurotoxic oligomeric Aβ species[3]. Treatment with 0.1 μM miquelianin suppresses ROS generation, cAMP and RAS activation, phosphorylation of ERK1/2 and the expression of HMOX1, MMP2, and MMP9 genes. Miquelianin suppresses invasion of MDA-MB-231 breast cancer cells and MMP-9 induction, and inhibits the binding of [^{3}H]-NA to b2-AR. Miquelianin may function to suppress invasion of breast cancer cells by controlling b2-adrenergic signaling, and may be a dietary chemopreventive factor for stress-related breast cancer[4]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	Miquelianin treatment, compared to vehicle-control treatment, significantly improves AD-type deficits in hippocampal formation basal synaptic transmission and long-term potentiation[3]. A flavonoid fraction obtained from a crude extract of Hypericum perforatum (St. John's wort) is remarkably active in the forced swimming test. Miquelianin is one of the compound separated from the fraction[5]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Animal Administration [5]	Rats: Miquelianin is administered orally using the gavage techniques. The rats are treated with 0.6 mg/kg miquelianin for 12 days. Antidepressant activity is performed using the Forced Swimming Test[5]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Acta Pharm Sin B. 2021 Jan;11(1):143-155.
- Aging (Albany NY). 2021 Nov 25;13(22):24753-24767.
- Plants. 2021, 10(11), 2525.

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REFERENCES

[1]. Terao J, e al. Protection by quercetin and quercetin 3-O-beta-D-glucuronide of peroxynitrite-induced antioxidant consumption in human plasma low-density lipoprotein. Free Radic Res. 2001 Dec;35(6):925-31.

[2]. Juergenliemk G, et al. In vitro studies indicate that miquelianin (quercetin 3-O-beta-D-glucuronopyranoside) is able to reach the CNS from the small intestine. Planta Med. 2003 Nov;69(11):1013-7.

[3]. Butterweck V, et al. Flavonoids from Hypericum perforatum show antidepressant activity in the forced swimming test. Planta Med. 2000 Feb;66(1):3-6.

[4]. Yamazaki S, et al. Quercetin-3-O-glucuronide inhibits noradrenaline-promoted invasion of MDA-MB-231 human breast cancer cells by blocking β-adrenergic signaling. Arch Biochem Biophys. 2014 Sep 1;557:18-27.

[5]. Ho L, et al. Identification of brain-targeted bioactive dietary quercetin-3-O-glucuronide as a novel intervention for Alzheimer's disease. FASEB J. 2013 Feb;27(2):769-81.

Caution: Product has not been fully validated for medical applications. For research use only.

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