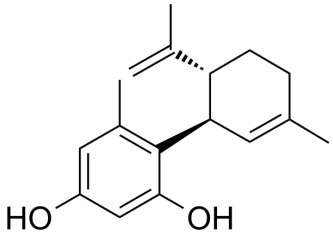
O-1602

Cat. No.:	HY-107541
CAS No.:	317321-41-8
Molecular Formula:	$C_{17}H_{22}O_2$
Molecular Weight:	258.36
Target:	GPR55
Pathway:	GPCR/G Protein; Neuronal Signaling
Storage:	-80°C



SOLVENT & SOLUBILITY

In Vitro

DMSO : 100 mg/mL (387.06 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	3.8706 mL	19.3528 mL	38.7057 mL
	5 mM	0.7741 mL	3.8706 mL	7.7411 mL
	10 mM	0.3871 mL	1.9353 mL	3.8706 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 (9.68 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (9.68 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (9.68 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

O-1602 is an agonist of GPR55 (G protein-coupled receptor 55). O-1602 reduces the number and activation of hippocampal microglia induced by METH (methamphetamine). O-1602 decreases the expression levels of NLRP3 inflammasome proteins, including NLRP3, ASC and Caspase-1[1].

In Vitro

O-1602 (10 μM and 100 μM; 10 days) increases intracellular calcium levels, promotes lipid accumulation, and increases the expression of CEBP-α, a key regulator of adipocyte differentiation at 100 μM[2].
O-1602 (0 μM and 10 μM; 10 days) promotes the accumulation of lipid in 3T3-L1 adipocytes[2].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Real Time qPCR[2]

Cell Line:	3T3-L1 cells
Concentration:	0.5 μg
Incubation Time:	6 h
Result:	Decreased the expression of neuropeptide Y, proopiate melanocortin, and cocaine and amphetamine regulatory transcript (CART) mRNA.

In Vivo

O-1602 (10 mg/kg, ip; once daily for 14 consecutive days) decreases levels of serum corticosterone, TNF-α, IL-1β, and IL-6 [1].
O-1602 (10 mg/kg, ip; once daily for 14 consecutive days) increases hippocampal GPR55 protein expression [1].
O-1602 (10 mg/kg, ip; once daily for 14 consecutive days) significantly increases DCX expression in the DG [1].
O-1602 (10 mg/kg, ip; once daily for 14 consecutive days) significantly decreases the number of microglia in the hippocampus [1].
O-1602 (10 mg/kg, ip; once daily for 14 consecutive days) increases expression levels of NLRP3, ASC, and Caspase-1 in the hippocampus [1].
O-1602 (0.1 mg/kg,ip; subchronically infused for 7 days) decreases the percentage of fat utilization over total energy consumption and decreases metabolic use of lipids leading to elevated fat deposition rates[2].
O-1602 (0.04 and 0.4 μg/h/rat, ip; for 7 days) increases the the amount of fat mass with O-1602 at the dose of 0.4 μg/h/rat[2].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	the model of METH-induced anxiety- and depression-like behaviors [1]
Dosage:	10 mg/kg, once daily for 14 consecutive days
Administration:	Intraperitoneal injection (i.p.)
Result:	Increased both time spent in the center area of the open field test and time exploring the open arms in the elevated plus maze test. Reduced immobility time in the forced swim and tail suspension tests.

Animal Model:	Adult male Sprague–Dawley rats (Harlam Iberica, Barcelona, Spain) (250–275 g, 10–12 weeks old)[2]
Dosage:	0.1, 0.5 and 1 mg/kg
Administration:	Intraperitoneal injection (i.p.)
Result:	Did not modify food intake and body weight gain.Increased the fat mass.

CUSTOMER VALIDATION

- Heliyon, 2024 Apr 26.

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REFERENCES

[1]. Jinlong Zhang, et al. GPR55 activation improves anxiety- and depression-like behaviors of mice during methamphetamine withdrawal.Heliyon, 10 (2024), e30462.

[2]. A. Díaz-Arteaga,et al. The atypical cannabinoid O-1602 stimulates food intake and adiposity in rats. Diabetes, Obesity and Metabolism. March 2012, Volume14, Issue3.

[3]. Peng Ma,et al. IAVPGEVA: Orally Available DPP4-Targeting Soy Glycinin Derived Octapeptide with Therapeutic Potential in Nonalcoholic Steatohepatitis.Journal of Agricultural and Food Chemistry. 2024, 72, 13, 7167–7178.

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