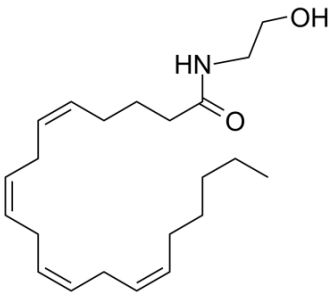
Anandamide

Cat. No.:	HY-10863
CAS No.:	94421-68-8
Molecular Formula:	$C_{22}H_{37}NO_2$
Molecular Weight:	347.53
Target:	Cannabinoid Receptor; GPR55; Endogenous Metabolite
Pathway:	GPCR/G Protein; Neuronal Signaling; Metabolic Enzyme/Protease
Storage:	Solution, -20°C, 2 years



SOLVENT & SOLUBILITY

In Vitro	DMSO : ≥ 250 mg/mL (719.36 mM) * "≥" means soluble, but saturation unknown.
In Vivo	1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline Solubility: ≥ 2.08 mg/mL (5.99 mM); Clear solution 2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline) Solubility: ≥ 2.08 mg/mL (5.99 mM); Clear solution 3. Add each solvent one by one: 10% DMSO >> 90% corn oil Solubility: ≥ 2.08 mg/mL (5.99 mM); Clear solution

BIOLOGICAL ACTIVITY

Description	Anandamide is an immune modulator in the central nervous system acts via not only cannabinoid receptors (CB1 and CB2) but also other targets (e.g., GPR18/GPR55).			
IC_{50} & Target	CB1	CB2	GPR18/GPR55	Human Endogenous Metabolite
In Vitro	Anandamide, acting via CB2 receptors, alleviates lipopolysaccharide (LPS)-induced neuroinflammation in rat primary microglial cultures. The endocannabinoid system modulates both neuronal and immune functions through two protein-coupled cannabinoid receptors (CB1 and CB2), although endocannabinoids, especially Anandamide (AEA), can activate numerous other receptors like PPARS, TRPV1, and GPR18/GPR55[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.			
In Vivo	Anandamide is an endocannabinoid binding both CB1R and CB2R. To evaluate the impact of CBR activation on whole-body glucose homeostasis, glucose tolerance is assessed after a single intraperitoneal Anandamide injection (10 mg/kg). The increase in glycemia in response to glucose ingestion is considerably smaller in mice treated with Anandamide compared with control, and this is associated with an improvement of glucose tolerance as illustrated by the $AUC_{0\text{-}2h}$ calculations[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.			

PROTOCOL

Animal Administration [2]

Mice[2]

Eleven-week-old C57BL/6J male mice and global CB1R$^{-/-}$ mice are housed individually on a 12/12-h light/dark schedule at 22-23°C with ad libitum access to water and food. A group of mice is subject to a high-fat diet (30% lard). After 16 weeks of diet, animals with a weight gain less than +10 g compared with controls are excluded from the study. Diet-induced obesity (DIO) mice (39.1±1.1 vs. 27.3±0.9 g, DIO vs. control) are glucose intolerant and insulin resistant. On the day of each experiment, food is removed from the cages for 6 h (from 8:00 A.M. to 2:00 P.M.). Anandamide is administered intraperitoneally at 10 mg/kg. In control experiments, animals are injected with vehicle (4% DMSO/1% Tween 80)[2].

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

REFERENCES

[1]. Malek N, et al. Anandamide, Acting via CB2 Receptors, Alleviates LPS-Induced Neuroinflammation in Rat Primary Microglial Cultures. Neural Plast. 2015;2015:130639.

[2]. Troy-Fioramonti S, et al. Acute activation of cannabinoid receptors by Anandamide reduces gastrointestinal motility and improves postprandial glycemia in mice. Diabetes. 2015 Mar;64(3):808-18.

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