

Product Information



2-Arachidonoyl Glycerol-d₅

Item No. 362162

Formal Name: 5Z,8Z,11Z,14Z-eicosatetraenoic acid,
2-glycerol-1,1,2,3,3-d₅ ester

Synonym: 2-AG-d₅

MF: C₂₃H₃₃D₅O₄

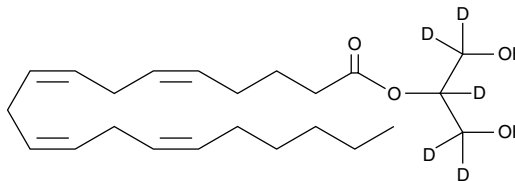
FW: 383.6

Chemical Purity: ≥95% (as a 9:1 mixture of 2-AG and 1-AG)

Deuterium Incorporation: ≥99% deuterated forms (d₁-d₅);
≤1% d₀

Stability: ≥6 months at -80°C

Supplied as: A solution in acetonitrile



Laboratory Procedures

2-Arachidonoyl glycerol-d₅ (2-AG-d₅) contains five deuterium atoms at the 1, 1', 2, 3, and 3' positions. It is intended for use as an internal standard for the quantification of 2-AG by GC- or LC-mass spectrometry (MS). For long term storage, we suggest that 2-AG-d₅ be stored as supplied at -80°C. It should be stable for at least six months.

2-AG-d₅ is supplied as a solution in acetonitrile. To change the solvent, simply evaporate the acetonitrile under a gentle stream of nitrogen and immediately add the solvent of choice. Solvents such as ethanol, DMSO, and dimethyl formamide (DMF) purged with an inert gas can be used. The solubility of 2-AG-d₅ in these solvents is approximately 10 mg/ml. Use these solutions at once as the long term stability of 2-AG-d₅ in these solvents is not known.

2-AG-d₅ is used as an internal standard for the quantification of 2-AG by stable isotope dilution MS. The accuracy of the sample weight in this vial is between 5% over and 2% under the amount shown on the vial. If better precision is required, the deuterated standard should be quantitated against a more precisely weighed unlabeled standard by constructing a standard curve of peak intensity ratios (deuterated *versus* unlabeled).

2-AG is an endogenous agonist of the CB₁ receptor.^{1,2} Unlike anandamide, 2-AG is present at relatively high levels in the central nervous system; it is the most abundant molecular species of monoacylglycerol found in rat brain.^{1,3} Formation of 2-AG is calcium-dependent and is mediated by the activities of phospholipase C and diacylglycerol lipase.¹ 2-AG acts as a full agonist at the CB₁ receptor. At a concentration of 0.3 nM, 2-AG induces a rapid, transient increase in intracellular free calcium in NG108-15 neuroblastoma X glioma cells through a receptor-dependent mechanism.²

References

1. Stella, N., Schweitzer, P., and Piomelli, D. A second endogenous cannabinoid that modulates long-term potentiation. *Nature* **388**, 773-778 (1997).
2. Sugiura, T., Kodaka, T., Nakane, S., *et al.* Evidence that the cannabinoid CB₁ receptor is a 2-arachidonoylglycerol receptor: structure-activity relationship of 2-arachidonoylglycerol, ether-linked analogues, and related compounds. *J. Biol. Chem.* **275**, 2794-2801 (1999).
3. Kondo, S., Kondo, H., Nakane, S., *et al.* 2-Arachidonoylglycerol, an endogenous cannabinoid receptor agonist: identification as one of the major species of monoacylglycerols in various rat tissues, and evidence for its generation through Ca²⁺-dependent and -independent mechanisms. *FEBS Lett.* **429**, 152-156 (1998).

Related Products

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WARNING: THIS PRODUCT IS FOR LABORATORY RESEARCH ONLY; NOT FOR ADMINISTRATION TO HUMANS. NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

MATERIAL SAFETY DATA

This material should be considered hazardous until information to the contrary becomes available. Do not ingest, swallow, or inhale. Do not get in eyes, on skin, or on clothing. Wash thoroughly after handling. This information contains some, but not all, of the information required for the safe and proper use of this material. Before use, the user must review the complete Material Safety Data Sheet, which has been sent *via* email to your institution.

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Cayman Chemical

Mailing address

1180 E. Ellsworth Road
Ann Arbor, MI
48108 USA

Phone

(800) 364-9897
(734) 971-3335

Fax

(734) 971-3640

E-Mail

custserv@caymanchem.com

Web

www.caymanchem.com