

Product Information



2-Arachidonoyl Glycerol-d₈

Catalog No. 362160

Formal Name: 5Z,8Z,11Z,14Z-eicosatetraenoic-5,6,8,9,11,12,14,15-d₈ acid, 2-glyceryl ester

Synonyms: 2-AG-d₈

MF: C₂₃H₃₀D₈O₄

FW: 386.6

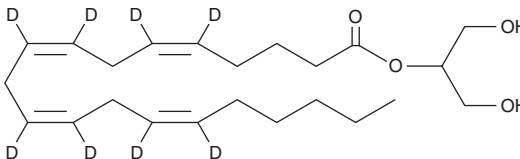
Chemical Purity: ≥95% (as a 9:1 mixture of the 2-AG and 1-AG)

Deuterium

Incorporation: ≤1% d₀

Stability: ≥6 months at -80°C

Supplied as: A solution in acetonitrile



Laboratory Procedures

2-Arachidonoyl glycerol-d₈ (2-AG-d₈) contains eight deuterium atoms at the 5, 6, 8, 9, 11, 12, 14, and 15 positions. It is intended for use as an internal standard for the quantification of 2-arachidonoyl glycerol (2-AG) by GC- or LC-mass spectrometry (MS). For long term storage, we suggest that 2-AG-d₈ be stored as supplied at -80°C. It will be stable for at least six months.

2-AG-d₈ is supplied as a solution in acetonitrile. 2-AG-d₈ undergoes ready isomerization to 1(3)-AG-d₈. Protic solvents such as ethanol, water, etc., tend to enhance the rate of isomerization. Hence, it is highly recommended that 2-AG-d₈ be stored in acetonitrile until ready to use. 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 and DMSO purged with an inert gas can be used. The solubility of 2-AG-d₈ in these solvents is approximately 10 mg/ml. Use these solutions at once as the long term stability of 2-AG-d₈ in these solvents is not known.

2-AG-d₈ 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.⁴

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).
4. Sugiura, T., Kodaka, T., Kondo, S., *et al.* Is the cannabinoid CB₁ receptor a 2-arachidonoylglycerol receptor? Structural requirements for triggering a Ca²⁺ transient in NG108-15 cells. *J. Biochem.* **122**, 890-895 (1997).

Related Products

2-Arachidonoyl Glycerol - Cat. No. 62160 • Arachidonoyl 2'-Chloroethylamide - Cat. No. 91054 • 1-Arachidonoyl Glycerol-d₅ - Cat. No. 362152 • 2-Arachidonoyl Glycerol-d₅ - Cat. No. 362162

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 under separate cover to the MSDS supervisor at your institution.

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