

Product Information



2-Arachidonoyl Glycerol

Item No. 62160

CAS Registry No.: 53847-30-6
Formal Name: 5Z,8Z,11Z,14Z-eicosatetraenoic acid, 2-glyceryl ester
Synonym: 2-AG
MF: C₂₃H₃₈O₄
FW: 378.6
Purity: ≥95% (as a 9:1 mixture of the 2-AG and 1-AG)
Stability: ≥6 months at -80°C
Supplied as: A solution in acetonitrile



Laboratory Procedures

For long term storage, we suggest that 2-Arachidonoyl glycerol (2-AG) be stored as supplied at -80°C. It should be stable for at least six months.

2-AG is supplied as a solution in acetonitrile. 2-AG undergoes ready isomerization to 1-AG. Protic solvents such as ethanol, water, etc., tend to enhance the rate of isomerization. Hence, it is highly recommended that 2-AG 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 in these solvents is approximately 10 mg/ml. Use these solutions at once as the long term stability of 2-AG in these solvents is not known.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. If an organic solvent-free solution of 2-AG is needed, it can be prepared by evaporating the acetonitrile and directly dissolving the neat oil in aqueous buffers. The solubility of 2-AG in PBS (pH 7.2) is approximately 150 µg/ml. Store aqueous solutions of 2-AG on ice and use within 12 hours of preparation. Although the aqueous solutions of 2-AG may be stable for more than 12 hours, we strongly recommend using a fresh preparation each day.

2-AG is an endogenous agonist of the cannabinoid-1 (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} 2-AG is an endogenous agonist of the CB₁ receptor. 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. 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 CB₁ receptor-dependent mechanism.² 2-AG is metabolized *in vitro* by MAG lipase and fatty acid amide hydrolase, with MAG lipase likely being the principle metabolizing enzyme *in vivo*.⁴

References

1. Stella, N., Schweitzer, P., and Piomelli, D. *Nature* **388**, 773-778 (1997).
2. Sugiura, T., Kodaka, T., Nakane, S., *et al.* *J. Biol. Chem.* **275**, 2794-2801 (1999).
3. Kondo, S., Kondo, H., Nakane, S., *et al.* *FEBS Lett.* **429**, 152-156 (1998).
4. Dinh, T.P., Carpenter, D., Leslie, F.M., *et al.* *Proc. Natl. Acad. Sci. USA* **99(16)**, 10819-10824 (2002).

Related Products

Prostaglandin E₁ Ethanolamide - Item No. 13012 • Prostaglandin E₂ Ethanolamide - Item No. 14012 • 1-Arachidonoyl Glycerol - Item No. 62150 • 1-Arachidonoyl Serinol - Item No. 62170 • 2-Linoleoyl Glycerol - Item No. 62260 • 1,2-Dioleoyl-3-linoleoyl-rac-glycerol - Item No. 62610 • 1-Palmitoyl-2-oleoyl-3-linoleoyl-rac-glycerol - Item No. 62660 • Arachidonoyl Ethanolamide - Item No. 90050 • R-1 Methanandamide - Item No. 90070 • S-1 Methanandamide - Item No. 90072 • R-2 Methanandamide - Item No. 90074 • S-2 Methanandamide - Item No. 90076 • Cannabidiol - Item No. 90080 • Cannabidiol (solution) - Item No. 90081 • Linoleyl Ethanolamide - Item No. 90155 • Mead Acid Ethanolamide - Item No. 90195 • α-Linolenoyl Ethanolamide - Item No. 90215 • Dihomo-γ-Linolenoyl Ethanolamide - Item No. 90235 • Stearoyl Ethanolamide - Item No. 90245 • Oleoyl Ethanolamide - Item No. 90265 • Palmitoyl Ethanolamide - Item No. 90350 • Docosatetraenoyl Ethanolamide - Item No. 90385 • Arachidonoyl 2'-Chloroethylamide - Item No. 91054 • 2-Arachidonoyl Glycerol-d₈ - Item No. 362160 • 2-Arachidonoyl Glycerol-d₃ - Item 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 *via* email to your institution.

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