

# Product Information



## 2-Arachidonoyl Glycerol

Catalog No. 62160

**CAS Registry No.:** 53847-30-6  
**Formal Name:** 5Z,8Z,11Z,14Z-eicosatetraenoic acid, 2-glyceryl ester  
**Synonym:** 2-AG  
**MF:** C<sub>23</sub>H<sub>38</sub>O<sub>4</sub>  
**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 will 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 (CB<sub>1</sub>) receptor.<sup>1,2</sup> 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.<sup>1,3</sup> 2-AG is an endogenous agonist of the CB<sub>1</sub> 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.<sup>1</sup> 2-AG acts as a full agonist at the CB<sub>1</sub> 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 CB<sub>1</sub> receptor-dependent mechanism.<sup>2</sup> 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*.<sup>4</sup>

### 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 E<sub>1</sub> Ethanolamide - Cat. No. 13012 • Prostaglandin E<sub>2</sub> Ethanolamide - Cat. No. 14012 • 1-Arachidonoyl Glycerol - Cat. No. 62150 • 1-Arachidonoyl Serinol - Cat. No. 62170 • 2-Linoleoyl Glycerol - Cat. No. 62260 • 1,2-Dioleoyl-3-linoleoyl-rac-glycerol - Cat. No. 62610 • 1-Palmitoyl-2-oleoyl-3-linoleoyl-rac-glycerol - Cat. No. 62660 • Arachidonoyl Ethanolamide - Cat. No. 90050 • R-1 Methanandamide - Cat. No. 90070 • S-1 Methanandamide - Cat. No. 90072 • R-2 Methanandamide - Cat. No. 90074 • S-2 Methanandamide - Cat. No. 90076 • Cannabidiol - Cat. No. 90080 • Linoleyl Ethanolamide - Cat. No. 90155 • Mead Acid Ethanolamide - Cat. No. 90195 • α-Linolenoyl Ethanolamide - Cat. No. 90215 • Dihomo-γ-Linolenoyl Ethanolamide - Cat. No. 90235 • Stearoyl Ethanolamide - Cat. No. 90245 • Oleoyl Ethanolamide - Cat. No. 90265 • Palmitoyl Ethanolamide - Cat. No. 90350 • Docosahexaenoyl Ethanolamide - Cat. No. 90385 • Arachidonoyl 2'-Chloroethylamide - Cat. No. 91054 • 2-Arachidonoyl Glycerol-d<sub>8</sub> - Cat. No. 362160 • 2-Arachidonoyl Glycerol-d<sub>5</sub> - Cat. No. 362162

**WARNING: THIS PRODUCT IS NOT INTENDED OR APPROVED FOR HUMAN OR VETERINARY USE. USE OF THIS PRODUCT FOR HUMAN OR ANIMAL TESTING IS EXTREMELY HAZARDOUS AND MAY RESULT IN DISEASE, SEVERE INJURY, OR DEATH.**

### 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.

### WARRANTY AND LIMITATION OF REMEDY

Cayman Chemical Company makes no warranty or guarantee of any kind, whether written or oral, expressed or implied, including without limitation, any warranty of fitness for a particular purpose, suitability and merchantability, which extends beyond the description of the chemicals hereof. Cayman warrants only to the original customer that the material will meet our specifications at the time of delivery.

Cayman will carry out its delivery obligations with due care and skill. Thus, in no event will Cayman have any obligation or liability, whether in tort (including negligence) or in contract, for any direct, indirect, incidental or consequential damages, even if Cayman is informed about their possible existence.

This limitation of liability does not apply in the case of intentional acts or negligence of Cayman, its directors or its employees. Buyer's exclusive remedy and Cayman's sole liability hereunder shall be limited to a refund of the purchase price, or at Cayman's option, the replacement, at no cost to Buyer, of all material that does not meet our specifications.

Said refund or replacement is conditioned on Buyer giving written notice to Cayman within thirty (30) days after arrival of the material at its destination. Failure of Buyer to give said notice within thirty (30) days shall constitute a waiver by Buyer of all claims hereunder with respect to said material.

For further details, please refer to our Warranty and Limitation of Remedy located on our website and in our catalog.

Copyright Cayman Chemical Company, 01/04/2008

### 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