

Product Information



Arachidonoyl-1-thio-Glycerol

Catalog No. 10007904

Formal Name:	5Z,8Z,11Z,14Z-eicosatetraenyl, 1-thio glycerol
Synonym:	1-S-Arachidonoyl-1-mercapto- 2,3-propanediol
MF:	C ₂₃ H ₃₈ O ₃ S
FW:	394.6
Purity:	≥98%
Stability:	≥6 months at -80°C
Supplied as:	A solution in acetonitrile



Laboratory Procedures

For long term storage, we suggest that arachidonoyl-1-thio-glycerol be stored as supplied at -80°C. It will be stable for at least six months.

Arachidonoyl-1-thio-glycerol 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 arachidonoyl-1-thio-glycerol in ethanol is approximately 30 mg/ml, 10 mg/ml in DMSO, and 20 mg/ml in DMF.

Arachidonoyl-1-thio-glycerol is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, the acetonitrile solution of arachidonoyl-1-thio-glycerol should be diluted with the aqueous buffer of choice. Arachidonoyl-1-thio-glycerol has a solubility of 0.25 mg/ml in a 1:2 solution of ethanol:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

2-Arachidonoyl glycerol (2-AG) is an endogenous agonist of the central cannabinoid receptor (CB₁) receptor.^{1,2} It is present at relatively high levels in the central nervous system and is the most abundant molecular species of monoacylglycerol found in rat brain.^{2,3} Monoacylglycerol lipase (MGL) hydrolyzes 2-AG to arachidonic acid and glycerol, thereby terminating its biological actions.⁴ Arachidonoyl-1-thio-glycerol is a thioester substrate analog of 2-AG that can be utilized for the measurement of MGL activity.⁵ Hydrolysis of the thioester bond by MGL generates a free thiol that reacts rapidly with the chromogenic reagent DTNB (Ellman's reagent) resulting a yellow product with an absorbance maximum at 412 nm.

References

1. 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.* **274**, 2794-2801 (1999).
2. Stella, N., Schweitzer, P., and Piomelli, D. A second endogenous cannabinoid that modulates long-term potentiation. *Nature* **388**, 773-778 (1997).
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. Dinh, T.P., Carpenter, D., Leslie, F.M., *et al.* Brain monoglyceride lipase participating in endocannabinoid inactivation. *Proc. Natl. Acad. Sci. USA* **99**(16), 10819-10824 (2002).
5. Cox, J.W. and Horrocks, L.A. Preparation of thioester substrates and development of continuous spectrophotometric assays for phospholipase A₁ and monoacylglycerol lipase. *J. Lipid Res.* **22**, 496-505 (1981).

Related Products

N-Arachidonoyl-3-hydroxy-γ-Aminobutyric Acid - Cat. No. 10158 • 1-Arachidonoyl Glycerol - Cat. No. 62150 • 2-Arachidonoyl Glycerol - Cat. No. 62160
• N-Arachidonoyl L-Serine - Cat. No. 10005455

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

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