

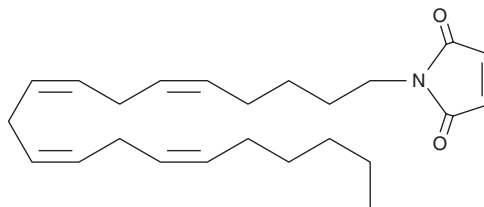
Product Information



N-Arachidonyl Maleimide

Catalog No. 10007517

Formal Name: eicosa-5Z,8Z,11Z,14Z-tetraenyl-1-pyrrole-2,5-dione
Synonym: NAM
MF: C₂₄H₃₅NO₂
FW: 369.5
Purity: ≥98%
Stability: ≥1 year at -80°C
Supplied as: A solution in ethanol



Laboratory Procedures

For long term storage, we suggest that N-Arachidonyl maleimide (NAM) be stored as supplied at -80°C. It should be stable for at least one year.

NAM is supplied as a solution in ethanol. To change the solvent, simply evaporate the ethanol under a gentle stream of nitrogen and immediately add the solvent of choice. Solvents such as DMSO and dimethyl formamide purged with an inert gas can be used. The solubility of NAM in these solvents is approximately 30 mg/ml.

NAM is sparingly soluble in aqueous buffers. If aqueous stock solutions are required for biological experiments, they can best be prepared by diluting the organic solvent into aqueous buffers or isotonic saline. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. 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 (CB₁) and peripheral cannabinoid (CB₂) receptors.¹⁻³ 2-AG is present at relatively high levels in the central nervous system and is the most abundant molecular species of monoacylglycerol found in rat brain.^{1,4} Monoacylglycerol lipase (MGL) hydrolyzes 2-AG to arachidonic acid and glycerol, thereby terminating its biological actions.⁵ NAM is a potent, irreversible inhibitor of MGL or MGL-like activity in rat cerebellar membranes, exhibiting an IC₅₀ value of 140 nM.⁶ Inhibition of MGL by the sulfhydryl-reactive maleimide group of NAM suggests a critical cysteine residue is present in the substrate-binding site of the enzyme.

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.* **274**, 2794-2801 (1999).
3. Ben-Shabat, S., Fride, E., Sheskin, T., *et al.* An entourage effect: Inactive endogenous fatty acid glycerol esters enhance 2-arachidonoyl-glycerol cannabinoid activity. *Eur. J. Pharmacol.* **353**, 23-31 (1998).
4. 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).
5. 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).
6. Saario, S.M., Salo, O.M.H., Nevalainen, T., *et al.* Characterization of the sulfhydryl-sensitive site in the enzyme responsible for hydrolysis of 2-arachidonoyl-glycerol in rat cerebellar membranes. *Chemistry & Biology* **12**, 649-656 (2005).

Related Products

2-Arachidonoyl Glycerol - Cat. No. 62160 • Monoacylglycerol Lipase Polyclonal Antibody - Cat. No. 100035 • O-Arachidonoyl Glycidol - Cat. No. 10007517

WARNING: THIS PRODUCT IS NOT FOR HUMAN OR ANIMAL DISEASE DIAGNOSIS OR THERAPEUTIC DRUG 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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