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ProductInformation

AZELAOYL PAF

Product Number **A 6850**
Storage Temperature –20 °C

Synonyms: azelaoyl platelet activating factor, 1-O-hexadecyl-2-O-(9-carboxyactanoyl)-sn-glyceryl-3-phosphocholine; 1-O-hexadecyl-2-azelaoyl-sn-glycero-3-phosphocholine; azelaoyl phosphatidylcholine; azPC

Product Description

Azelaoyl PAF is an alkyl phosphatidylcholine and is a component of the lipid pool within oxidized low-density lipoprotein (oxLDL) particles. Azelaoyl PAF is a low molecular weight phospholipid that acts as a high affinity ligand and agonist for PPARγ (peroxisome proliferator-activated receptor-γ).[1] PPARγ is a nuclear transcription factor that regulates metabolic and cell differentiation genes. It has been shown to promote adipogenesis by inducing the differentiation of preadipocytes.[1] It is also involved in regulating the transcription of genes that control insulin action.[2] Activation of PPARγ has also been shown to promote foam cell formation, an event that occurs in atherosclerotic lesions when macrophages differentiate and accumulate oxLDL.[3] Macrophages internalize oxLDL via the scavenger receptor CD36; CD36 expression is further induced by PPARγ activation.[4]

Azelaoyl PAF binds to the thiazoladinedione-binding site of PPARγ and is as potent as the synthetic PPARγ agonist, rosiglitazone, which is used as an insulin sensitizer to treat type II diabetes. Azelaoyl PAF is more potent in activating PPARγ than 9-hydroxyoctadeca-9Z,11E-dienoic acid (9-HODE), 13-HODE, and 15-deoxy-$\Delta^{12,14}$-prostaglandin J_2.[1]

Reagents

Azelaoyl PAF is supplied as a solution in ethanol.

Preparation Instructions

The solvent may be changed by evaporating the ethanol under a gentle stream of nitrogen and immediately adding either DMSO or dimethyl formamide that has been purged with an inert gas. Solubility of azelaoyl PAF in these solvents is at least 8 mg/ml. Azelaoyl PAF is also soluble in aqueous buffers, such as phosphate buffered saline (PBS), pH 7.2, at 10 mg/ml.

Further dilution of the organic stock solution can be prepared in aqueous buffer prior to use.

Storage/Stability

Azelaoyl PAF is stable as supplied in ethanol for one year when stored at –20 °C. When the solvent is changed to DMSO or dimethyl formamide, azelaoyl PAF is stable for six months at –20 °C. If the solvent is changed to an organic-free aqueous buffer, azelaoyl PAF should be used within the day. Likewise, dilution in aqueous buffers, regardless of solvent, should be made just prior to use.

References

1. Davies, SS., et al., Oxidized alkyl phospholipids are specific, high affinity peroxisome proliferator-activated receptor-γ ligands and agonists. J. Biol. Chem., **19**, 16015-16023 (2001).
2. Lenhard, JM., PPARγ/RXR as a molecular target for diabetes. Receptors Channels, **7**, 249-258 (2001).
3. Tontonoz, P. et al., PPARγ promotes monocyte/macrophage differentiation and uptake of oxidized LDL. Cell, 93, 241-252 (1998).
4. Nicholson, AC., et al., Role of CD36, the macrophage class B scavenger receptor, in atherosclerosis. Ann. NY Acad. Sci., 947, 224-228 (2001).

DMG 05/02