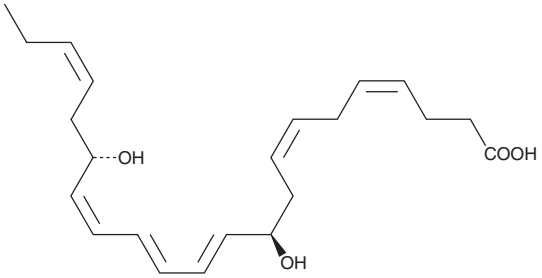
PRODUCT INFORMATION

Protectin D_1

Item No. 10010390

CAS Registry No.:	660430-03-5
Formal Name:	10R,17S-dihydroxy-4Z,7Z,11E,13E,15Z,19Z-docosahexaenoic acid
Synonyms:	Neuroprotectin D_1, Neuroprotectin D_1/Protectin D_1, NPD_1, PD_1
MF:	$C_{22}H_{32}O_4$
FW:	360.5
Purity:	≥98%
UV/Vis.:	λ_{max}: 272, 283 nm
Supplied as:	A solution in ethanol
Storage:	-80°C
Stability:	≥1 year



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

Protectin D_1 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 protectin D_1 in these solvents is approximately 50 mg/ml.

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 protectin D_1 is needed, it can be prepared by evaporating the ethanol and directly dissolving the neat oil in aqueous buffers. The solubility of protectin D_1 in PBS, pH 7.2, is approximately 0.1 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

Protectin D_1 is a specialized pro-resolving mediator (SPM) synthesized from docosahexaenoic acid (DHA; Item No. 90310).[1] DHA is oxidized to 16S,17S-epoxy-protectin, which is converted to protectin D_1 enzymatically. Protectin D_1 increases phagocytosis of apoptotic polymorphonuclear leukocytes (PMNs) by macrophages in a non-phlogistic manner and is generated *in vitro* during macrophage-apoptotic interactions.[2] It enhances phagocytosis in mice after 24 hours, but not at the initiation or peak of inflammation. It also decreases PMN infiltration in a zymosan-induced mouse model of inflammation when administered at a dose of 300 ng per animal. Protectin D_1 (200 µg, i.v.) inhibits increases in neutrophil counts in bronchoalveolar fluid (BALF) and lung myeloperoxidase activity in a mouse model of pulmonary injury and inflammation induced by intratracheal LPS instillation.[3] It also decreases pulmonary edema and promotes neutrophil apoptosis in BALF.

References

1. Rodriguez, A.R. and Spur, B.W. *Tetrahedron Lett.* **56(42)**, 5811-5815 (2015).
2. Schwab, J.M., Chiang, N., Arita, M., *et al. Nature* **447(7146)**, 869-874 (2007).
3. Li, X., Li, C., Liang, W., *et al. Chin. Med. J. (Engl.)* **127(5)**, 810-814 (2014).

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