

PRODUCT INFORMATION



Protectin D1-d₅

Item No. 21625

Formal Name: 10R,17S-dihydroxydocosa-4Z,7Z,11E,13E,15Z,19Z-hexaenoic-21,21,22,22,22-d₅ acid

Synonym: Neuroprotectin D1-d₅, NPD1-d₅, PD1-d₅

MF: C₂₂H₂₇D₅O₄

FW: 365.5

Chemical Purity: ≥98% (Protectin D1)

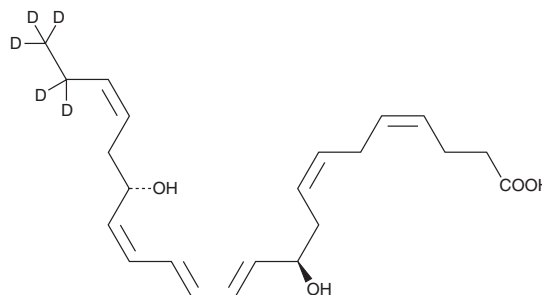
Deuterium Incorporation: ≥99% deuterated forms (d₁-d₅); ≤1% d₀

UV/Vis.: λ_{max}: 263, 272, 283 nm

Supplied as: A 50 µg/ml 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 D1-d₅ is intended for use as an internal standard for the quantification of protectin D1 (Item No. 10010390) by GC- or LC-MS. The accuracy of the sample weight in this vial is between 5% over and 2% under the amount shown on the vial. If better precision is required, the deuterated standard should be quantitated against a more precisely weighed unlabeled standard by constructing a standard curve of peak intensity ratios (deuterated *versus* unlabeled).

Description

Protectin D1 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 D1 enzymatically. Protectin D1 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 D1 (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. Total synthesis of pro-resolving and tissue-regenerative protectin sulfido-conjugates. *Tetrahedron Lett.* **56**(42), 5811-5815 (2015).
2. Schwab, J.M., Chiang, N., Arita, M., *et al.* Resolvin E1 and protectin D1 activate inflammation-resolution programmes. *Nature* **447**(7146), 869-874 (2007).
3. Li, X., Li, C., Liang, W., *et al.* Protectin D1 promotes resolution of inflammation in a murine model of lipopolysaccharide-induced acute lung injury via enhancing neutrophil apoptosis. *Chin. Med. J. (Engl.)* **127**(5), 810-814 (2014).

WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the [complete](#) Safety Data Sheet, which has been sent via email to your institution.

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