[D-Asp3]microcystin-LR

[D-Asp^3]microcystin-LR is a variant of microcystin-LR isolated from *Microcystis aeruginosa*. In this analog, the D-erythro-β-methylaspartic acid (D-MeAsp) residue at position 3 is replaced with aspartic acid (Asp), hence the designation [D-Asp^3]. This microcystin contains leucine (L) at position 2 and arginine (R) at position 4. Like other microcystins, [D-Asp^3]microcystin-LR is a potent hepatotoxin.

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Cyanobacteria are photosynthetic prokaryotes commonly found in freshwater ecosystems. The increasingly frequent occurrence of cyanobacterial blooms in lakes and rivers is closely linked to climate change and human activities, particularly nutrient enrichment. Microcystins are a group of cyclic heptapeptide hepatotoxins produced by several cyanobacterial genera, most notably *Microcystis*. Structurally, all microcystins share a conserved cyclic heptapeptide core with the general structure: cyclo(-D-Ala^1-X^2-D-MeAsp^3-Y^4-Adda^5-D-Glu^6-Mdha^7-), where X and Y are variable L-amino acids. D-MeAsp refers to D-erythro-β-methylaspartic acid, and Mdha is N-methyldehydroalanine. Adda (3-amino-9-methoxy-2,6,8-trimethyl-10-phenyl-deca-4,6-dienoic acid) is a unique β-amino acid essential for the toxicity of microcystins. Substitutions at positions 2 and 4 define at least 21 primary microcystin analogs, such as microcystin-LR, while modifications at other positions - including demethylation, oxidation, or amino acid substitutions - have led to the identification of over 90 microcystin variants to date. [D-Asp^3]microcystin-LR is one such variant, in which the D-MeAsp at position 3 is replaced by aspartic acid.

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Ordering Information

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ALX-350-173-C025	25µg
ALX-350-173-C100	100µg

- Hepatotoxic

Manuals, SDS & CofA

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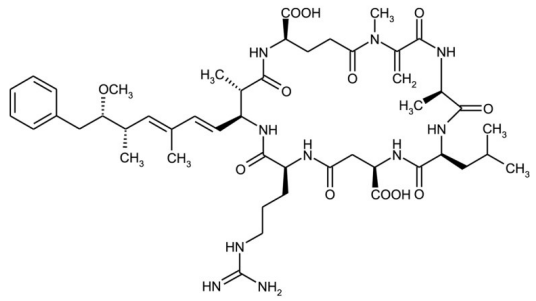
COOH
CH3
O
HN
N
NH
O
CH2
H3C
O
H3C
O
OCH3
NH
HN
CH3
CH3
CH3
H
N
H
N
O
O
COOH
O
CH3
HN
HN
NH2

Handling & Storage

Use/Stability	As indicated on product label or CoA when stored as recommended.
Handling	For maximum product recovery after thawing, centrifuge the vial before opening the cap.
Long Term Storage	-20°C
Shipping	Ambient Temperature

Regulatory Status

RUO - Research Use Only

Product Details

Alternative Name	Microcystin-LR (desmethylated), MC-LR (desmethylated)
Appearance	White to off-white powder or oily film adhered to inside of the vial.
Formula	$C_{48}H_{72}N_{10}O_{12}$
Identity	Identity determined by MS.
MW	981.1
Purity	≥95% (HPLC)
Solubility	Soluble in DMSO or 100% methanol.
Source	Isolated from *Microcystis aeruginosa*.

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