Microcystin-LR

Inhibitor of PP1 and PP2A

Microcystin-LR (MC-LR) is an heptapeptide ester hepatotoxin and tumor promoter. MC-LR is an equally potent and selective inhibitor of protein phosphatase 1 (PP1) and 2A (PP2A). PP2B is less sensitive and PP2C is not inhibited up to 4μM. It is useful for affinity-purification of PP2A. The product is not cell-permeable except in liver cells, which appear to have a functional uptake system. It is absorbed by hepatocytes *via* the multi-specific organic anion transporter. It does not induce any effects on mouse skin or human fibroblasts due to cell membranes impermeability. It, also, has no effect on protein kinases. It is less toxic than the more hydrophobic analogs MC-LF (Prod. No. ALX-350-081), -LW (Prod. No. ALX-350-080), and -LY (Prod. No. ALX-350-148). It frequently contaminates fresh-water lakes and ponds and causes livestock poisonings. Ozonation leads to complete loss of toxicity and toxins from contaminated samples. *May require a license for import, please contact us for more information.*

Cyanobacteria are photosynthetic prokaryotes mostly present in freshwater ecosystems. The increasingly frequent appearance of cyanobacteria blooms in lakes and rivers is linked to climate changes and human activities. Microcystins are a group of cyclic heptapeptide hepatotoxins produced by a number of cyanobacterial genera. The most notable of which, and namesake, is the widespread genus *Microcystis*. Structurally, all microcystins consist of the generalized structure cyclo(-D-Ala^{1}-X^{2}-D-MeAsp^{3}-Y^{4}-Adda^{5}-D-Glu^{6}-Mdha^{7}-). X and Y are variable L-amino acids, D-MeAsp is D-erythro-β-methylaspartic acid and Mdha is N-methyldehydroalanine. Adda is the cyanobacteria unique C_{20} β-amino acid 3-amino-9-methoxy-2,6,8-trimethyl-10-phenyl-deca-4,6-dienoic acid. Substitutions of the variable L-amino acids at positions 2 and 4 give rise to at least 21 known primary microcystin analogs and alterations in the other constituent amino acids result in more than 90 reported mycrocystins to date.

- Highly pure, potent, and selective inhibitor of PP1 and PP2A
- Hepatotoxin and tumor promoter
- Cited in several water quality-related research articles

Citations: 148 View Online »

Ordering Information

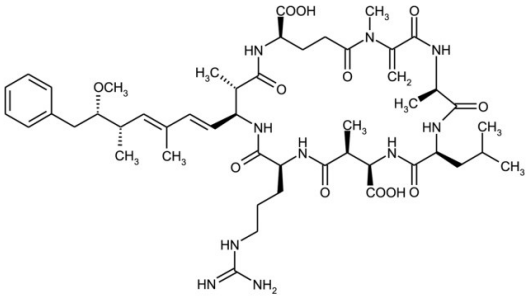
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ALX-350-012-M001	1mg

ALX-350-012-C100	100µg
ALX-350-012-C500	500µg

Manuals, SDS & CofA

View Online »


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


Enzo
Microcystin-LR
Cat. No.: ALX-350-012-M001
Lot No.: L30156
Storage: -20°C
For Research Use Only

Handling & Storage

Use/Stability	As indicated on product label or CoA when stored as recommended. Stock solutions are stable for up to 6 months when stored at -20°C. Unstable at pH > 7.7.
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	MC-LR
Appearance	Whitish film adhered to inside of the vial.
CAS	101043-37-2
Couple Target	Serine/threonine-protein phosphatase
Couple Type	Inhibitor
Formula	$C_{49}H_{74}N_{10}O_{12}$
Identity	Identity determined by MS.
MW	995.2
Purity	≥95% (HPLC)
RTECS	GT2810000
Solubility	Soluble in DMSO, ethanol (1 mg/ml), or methanol (2 mg/ml).
Source	Isolated from *Microcystis aeruginosa*.

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