

Microcystin-YR

Inhibitor of PP1 and PP2A

Microcystin-YR (MC-YR) is an analog of microcystin-LR (Prod. No. ALX-350-012) with Tyr substituted in place of Leu. As for all microcystins, the conjugated double bonds in the Adda moiety cause a characteristic absorption maximum at 238nm. The Tyr residue in position 2 of microcystin-YR confers an absorption maximum at 232nm. MC-YR is a potent inhibitor of eukaryotic protein phosphatases 1 and 2A and a useful reference compound for environmental analysis. The hydroxyl group of the Tyr residue may prove useful for linking MC-YR via conjugation to other chemicals. MC-YR inhibits the synthesis of proteases such as cathepsin D and L, and arginine aminopeptidase.

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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-Ala¹-X²-D-MeAsp³-Y⁴-Adda⁵-D-Glu⁶-Mdha⁷-). 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 C₂₀ 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 microcystins to date.

- Potent inhibitor of PP1 and PP2A
- Useful reference for environmental analyses
- Cited in several water quality-related research articles

Citations: 56

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Ordering Information

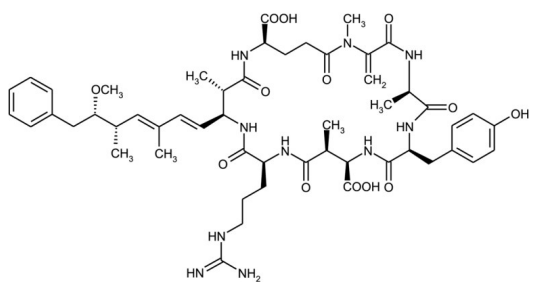
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ALX-350-044-M001	1mg
ALX-350-044-C025	25µg

ALX-350-044-C100	100µg
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Manuals, SDS & CofA

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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	MC-YR
Appearance	Whitish film adhered to inside of the vial.
CAS	101064-48-6
Couple Target	Serine/threonine-protein phosphatase
Couple Type	Inhibitor
Formula	$C_{52}H_{72}N_{10}O_{13}$
Identity	Identity determined by MS.
MW	1045.2
Purity	≥95% (HPLC)
Solubility	Soluble in DMSO, 100% ethanol, or 100% methanol.
Source	Isolated from <i>Microcystis aeruginosa</i> .

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ENZO LIFE SCIENCES,
INC.
Phone: 800.942.0430
[info-
usa@enzolifesciences.com](mailto:info-usa@enzolifesciences.com)

European Sales Office
ENZO LIFE SCIENCES
(ELS) AG
Phone: +41 61 926 8989
[info-
eu@enzolifesciences.com](mailto:info-eu@enzolifesciences.com)

Belgium, The Netherlands
& Luxembourg
Phone: +32 3 466 0420
[info-
be@enzolifesciences.com](mailto:info-be@enzolifesciences.com)

France
Phone: +33 472 440 655
[info-
fr@enzolifesciences.com](mailto:info-fr@enzolifesciences.com)

Germany
Phone: +49 7621 5500 526
[info-
de@enzolifesciences.com](mailto:info-de@enzolifesciences.com)

UK & Ireland
Phone (UK customers):
0845 601 1488
Phone: +44 1392 825900
[info-
uk@enzolifesciences.com](mailto:info-uk@enzolifesciences.com)