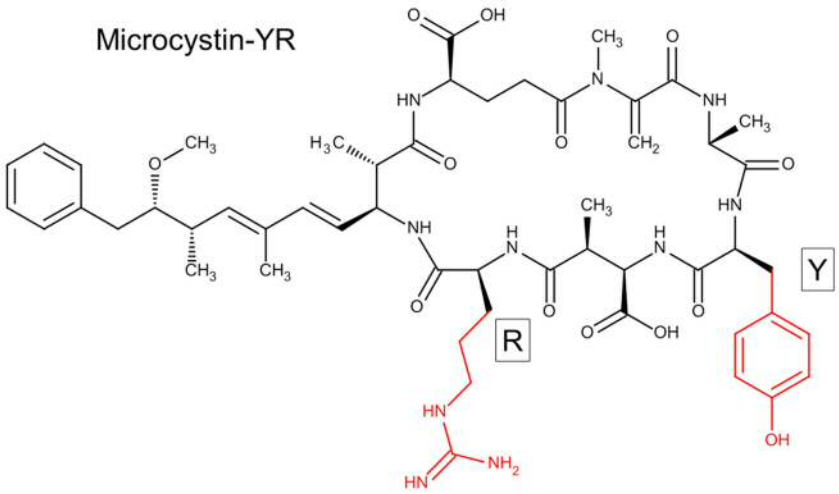
Beagle Bioproducts Inc.

Microcystin-YR

Product Specification

Formula:	$C_{52}H_{72}N_{10}O_{13}$
MW:	1045.2
CAS:	101064-48-6
Purity:	≥95% (HPLC)
Identity:	Verified with LC/MS/MS
Appearance:	Clear film adhered to inside of the vial.
Hazard:	Highly irritant, may be carcinogenic, hepatotoxic.
Stability:	≥ 1 year at -20°C



Handling

Microcystin-YR is provided as a dried film in an amber vial, at the specified mass purchased and shown on the vial. It may not be visible in the vial, and should be dissolved in methanol or ethanol, with repeated rinsing of the sides of the vial with a pipet tip to fully dissolve the product. For biological applications, dissolved toxin should be diluted in an appropriate buffer for the application, reducing the organic solvent content to a level that it will not impact the application. For HPLC or other chemical applications, it should be diluted in an appropriate solvent or mobile phase. Once dissolved in the original organic solvent, the product is stable for ≥1 year when stored at -20°C.

Background

Microcystin-YR is one of over 80 types of Microcystins, cyclic heptapeptides that have been shown to be liver toxins, and which are produced by *Microcystis aeruginosa* and other cyanobacteria. Microcystins have a unique β amino acid side chain termed "Adda," and variability at the second and fourth amino acid positions in the Adda sequence is the basis of Microcystin nomenclature (*e.g.*, LR, LW, RR, YR, etc.). Adda is required for full biological toxicity. The cytotoxicity of Microcystins relates to their inhibitory effects upon protein phosphatases. Microcystin-YR has been previously shown to inhibit protein phsophatases 1 and 2A in crude extracts, with comparable potency of Microcystin-LR (1.4 nM for –YR, 1.6 nM for –LR, Yoshizawa *et al.*, J. Cancer. Res. Clin. Oncol. [1990] 116:609-614). It has been found to be less toxic than Microcystin-LR in mouse studies with dosing via intraperitoneal injection, where YR yielded an LD_{50} of 110 compared to 43 µg/kg for Microcystin-LR (Gupta *et al.,* Toxicology [2003] 188:285-296).