SUMMARY
- Duplex microcystin (MC) and cylindrospermopsin (CYN) direct toxin detection assay with quantitative results
- Field portable lysis method
- Can go from bloom to cell lysis and detection in 20 minutes
- Portable, low cost system

SYSTEM FEATURES:
- Multiplexed – 6 or more (depending on assay)
- Rapid – 10 minutes assay plus 10 minutes lysis
- Quantitative – fluorescence immunoassay
- Sensitive – 0.5 ng/mL detection limit on MC
- Robust – field-ready technology
- Versatile – insensitive to debris in water sample

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MBio LIGHDECK® TECHNOLOGY
- Fluidic cartridge-based multiplexed immunoassays
- Novel planar waveguide-based illumination
- Fluorescence imaging detection
- Spatial multiplexing with microarray technology
- Quantitative output through proprietary software

RESULTS ON NATURAL WATER SAMPLES
- 45 lake water samples were collected and tested on MBio platform and with a reference ADDA ELISA
- 33 from Lake Erie
- 12 from Colorado
- MBio results are the average of 3 measurements
- All samples were frozen and thawed 3x prior to measurement
- CYN was not detected by either ELISA or MBio in these samples
- Agreement between MBio and ADDA ELISA results for MC for Colorado and Western Basin of Lake Erie near Toledo
- In Sandusky Bay, Lake Erie, MBio reports lower concentrations of MC than ADDA ELISA, possibly due to congener cross reactivity
- Agreement of tested dilutions of CYN producing cell culture on MBio and ELISA

CALIBRATION / ANALYTICAL PERFORMANCE
- Factory calibrated which lasts for at least 6 months at room temperature and 12 months refrigerated
- Allows for the easy measurement of one or a few samples without the user measuring calibration curves
- Typical LOD is 0.5 µg/L for MC and 0.7 µg/L for CYN
- Typical standard curves are calibrated below

CONGENERS
- Goal is detection of total microcystin
- Proprietary monoclonal antibodies
- Immunogen was an intact MC-LR conjugated to a carrier
- Clone selected based on cross-reactivity against other congeners
- Dilution series performed with each of the congeners
- Certified Reference Materials
- MC-LR, MC-RR, Nodularins, dM MC-LR
- Other Congeners
- MC-LA, MC-LF, MC-YR, MC-LW

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