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Nanoscale electrodes derived from the block copolymer polystyrene-b-poly (methyl methacrylate) for the electrochemical detection of Beta-methylamino-L-alanine in water.

Some cyanobacteria are well known for their ability to produce toxins, which have been responsible for neurotoxicity, hepatoxicity and cancerogenic effects in humans. Among these, Beta-methylamino-alanine (BMAA) is a potent cyanotoxin that has been linked with neurodegenerative diseases. Long-term exposure to this toxin is believed to lead to Alzheimer's and Parkinson's disease. The largest threat of cyanotoxins to public health comes from contaminated water. Thus, the detection of BMMA in aquatic environments is of vital importance. Our research focuses on the development of electrochemical biosensors that can detect BMAA in water samples. For this, we are interested in selecting a BMAA-specific aptamer, which will be used as ligand against the cyanotoxin in the electrochemical sensor, due to its high sensibility and specificity.