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Laboratory induced estradiol exposure stimulates transcriptional responses in the sea anemone *Exaiptasia pallida*

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Cnidarians do not have endocrine organs; however they are capable of responding to signaling molecules such as hormones. Endocrine disruption has been suspected in cnidarians but no direct hormone interaction has been identified. Regulatory pathways associated with hormone bio synthesis and signaling are essentially uncharacterized in cnidarians. Representational Difference Analysis (RDA) is a differential gene expression technique that can successfully be applied to cnidarians experiencing stress. The objective of this study was to isolate transcripts that were responsive to a sublethal exposure of estradiol. The sea anemone *Exaiptasia pallida* was exposed to 20 µg/l estradiol for four hours. Results identify transcripts that appear to have functional significance related to steroid exposure. Results presented also demonstrate how small labs with limited financial resources can use RDA coupled with Quantitative Real-Time PCR (qPCR) to perform transcriptional analyses in hypothesis driven experiments to identify potentially important biomarkers of stressor-specific exposures. Conclusions will discuss how human pharmaceuticals through sewage treatment effluent are representative of a class of anthropogenic stressors capable of impacting aquatic invertebrates.

Biography

Michael B Morgan completed his PhD at Georgia Institute of Technology. His Postdoctoral training included a position as a Postdoctoral fellow at Georgia Tech followed by a position as a Postdoctoral Associate at Georgia State University. He is currently an Associate Professor of Biology at Berry College. His research interests are in stress responses of aquatic invertebrates. Specifically he investigates how cnidarians respond to various types of anthropogenic stressors. His molecular expertise is in using differential gene expression techniques to detect, isolate, and characterize gene transcripts expressed from corals experiencing stress.

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