

A Molecular Assay for Ecotoxicological Endpoints

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Since the public has become more concerned about human exposure to toxic chemicals, new methods to detect these compounds have become more important. Detection of chemical contaminants in the environment and in water treatment systems is critically important to reducing our exposure. In order to detect these contaminants, model organisms can be used as a sensor to quickly and easily measure contaminant concentrations. Our lab has been developing a new model organism *Parhyale hawaiiensis*. With established culture methods, short gestation time, large neonate batches, and a sequenced genome, *P. hawaiiensis* is a useful organism for ecotoxicology-based research. The upregulation of glutathione S-transferase (GST) can be assessed as a marker for detoxification and has been identified across multiple species. However, the definitive presence of GST in *P. hawaiiensis* has not been established. By comparing a putative sequence from *P. hawaiiensis* to other known GST sequences, a probably GST was detected and then primers were designed for QPCR. Both DNA and RNA were extracted and optimization of PCR for the housekeeping gene (18S) was performed. Future work will involve optimization of PCR and then QPCR conditions for GST sequences and then exposure of neonates to chemicals known to upregulate GST to establish this organism as a molecular assay for toxicological endpoints.