



Microarrays for Environmental Toxicology

Largemouth and Smallmouth Bass

(Micropterus salmoides and Micropterus dolomieu)



Largemouth and smallmouth bass are higher-order predators in the food chain and may bioaccumulate hydrophobic xenobiotics. As game fish, they are economically vital to the sport fishing industry and may also be a link in human health. Thus, they are important species for evolutionary/ ecological genetics and genomic studies. Microarrays, solid support matrices that contain oligonucleotide probes, represent thousands of unique genes from an organism. RNA from these organisms translates into a “snapshot” of the genes being expressed at the time the RNA is collected. This RNA is labeled with a cyanine dye and hybridized to the probes on the microarray. The resultant gene expression patterns are biologically relevant and, when used in ecotoxicology studies, can help identify molecular and genetic mechanisms associated with exposure to environmental contaminants.



EcoArray has released a state of the art 60-mer oligonucleotide microarray to examine gene expression patterns in bass.

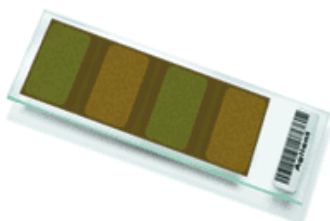
Our bass microarray was constructed by assembling over 40,000 sequences plus to identify non-overlapping, unique sequences (singlets and contigs) in both species. These data include our own proprietary sequences obtained from suppressive subtraction hybridizations and library construction plus sequence information licensed from the University of Florida. Homology searches (Blast) were performed on these sequences in order to provide annotation (gene name) and ontology (gene function) information where present. A total of 19,308 contigs were assembled. Probes, 60-bases in length, were designed using Agilent’s web-based E-Array program.

The content of our bass microarray is located on our web site and contains 19,308 sequences:

Probe design	Large mouth	Small mouth
Annotated and represented by one probe for the forward strand.	7,919	349
Annotated and represented by one reverse complement for the probe.	1,184	34
Un-annotated and represented by one sense and one antisense probe. Thus, we designed a total of 29,130 probes.	9,370	452

Annotated means that sequence matched NR or NT database at e-value<0.0001.

EcoArray’s microarrays have a unique format. Each slide contains 4 individual 44K arrays to maximize genome coverage.



Each of these annotated probes is represented twice within each 44K feature array, while the un-annotated probes are printed once. Microarrays are manufactured for EcoArray by Agilent Technologies, Inc. in a “4-pack” (4 individual 44K arrays per slide) format. Each of the arrays on the slide may be hybridized with a unique sample. Probes are synthesized *in situ* using Agilent’s inkjet based “SurePrint” technology. These arrays are manufactured on superior quality 1” x 3” (24.2 mm x 76.2 mm) treated glass slides for overall excellent



performance. This process minimizes variability across each production lot (batch to batch) and provides the highest consistency in slide-to-slide comparisons.

HOW TO PURCHASE:

These microarrays are sold in two different package configurations:

- **The Complete Package:** With the complete package, you receive not only the arrays, but also complete sample processing in our laboratory. The package includes preparation and quality checks of the RNA samples, labeling with cyanine dyes, hybridization, scanning, quantitative estimates of gene expression with Agilent's Feature Extraction software, and basic analyses with GeneSpring software. You will receive an EcoArray CD with the scanned images and metrics, raw data, analyzed data (graph, etc.), instructions on use of the databases, and customer support. Please contact EcoArray for a quote.
- **The Array Only Package:** This package is intended for researchers who are very familiar with RNA extraction, target labeling and who have access to the specialized equipment (hybridization oven and chambers, and a high resolution 5 micron platform scanner) necessary for processing arrays. Please contact EcoArray for authorization to purchase the arrays directly from Agilent.

The minimum number of arrays that must be purchased and run is 8 (one slide). EcoArray and Agilent offer academic and government discounts where applicable.

Publishing and research use agreement:

EcoArray charges a small licensing/research use agreement fee for each array, which will be billed separately. Our Research Use Agreement is pretty standard -- the only significant limitation is that researchers not use the array for commercial purposes. The research agreement permits publication under MIAME standards.

Data Sharing Program

Additional discounts are available to members of the Data Sharing Program. (See our web site for details on the Data Sharing Program.)

For more information, visit our web site at:

www.ecoarray.com

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