



EcoArray

In 1996, Congress mandated that the EPA develop testing for endocrine disrupting compounds (EDCs) in water. One result of this mandate was formation of a large-scale screening program to develop and standardize tests for monitoring all pesticide chemicals and other substances that may be found in drinking water.

EcoArray, a firm specializing in toxicogenomic microarrays, has a unique approach to this challenge. The company has developed a methodology to measure the impact of EDCs at the genetic level in several fish species using gene chip technology, a procedure that is faster and more precise than traditional testing methods. In so doing, EcoArray is bringing the advantages of an established technology (microarrays have been used in human disease testing for about 10 years) to new markets. Microarrays deliver huge quantities of data at very low cost and are capable of answering questions current testing methods cannot answer.

Since its inception in 2002, EcoArray has been funded by several grants and is finishing an important collaboration with the EPA that developed the first microarray the EPA is using for research. Collaboration with the Woodrow Wilson Institute resulted in an industry project in nanoparticles in 2005, and this has led to a project to test nanoparticles in consumer products with a major American manufacturer. EcoArray is well on its way to becoming the dominant player in the biochip segment of the genomics market.

Technology

EcoArray's microarray products address the increased demand for ways to screen compounds entering the environment and to assess and monitor water quality. Small-format arrays in several species address specific conditions and compounds, while EcoArray's recently introduced 22,000-gene array in fathead minnow meets the need for an array for research, analytical activity, testing and evaluation in the most common fresh water species used in the US.

EcoArray's technology is comprised of three parts: obtaining genetic information, constructing gene chips, and developing information databases. In constructing the gene chips, EcoArray employs microarray technology, which involves a large number of genes being spotted onto a solid support matrix, allowing direct comparison of genetic fingerprints from different samples. The company's gene arrays are more precise, more informative, and cheaper than existing chemical analysis methods.

Market Potential

EcoArray's target markets are at the intersection of genomics with several existing markets, each of which is currently experiencing rapid and substantial growth. According to Medical and Healthcare Marketplace Guide 2002 estimates:

- ◆ Genomics market sales at \$2.8 billion in 2003, growing at 15%
- ◆ The microarray chip market segment represented \$580 million in 2003, with 76% growth from 1998
- ◆ The environmental testing market diagnostic products segment represented \$174 million in 2001 with a 12% growth rate; the environmental testing services segment (consulting, laboratory analysis, etc.) is larger still
- ◆ In-vitro diagnostic products brought in sales of \$24 billion in 2001 with an 11% growth rate

Another opportunity is the \$230 million (and growing) combinatorial chemistry products market. EcoArray's pollutant-screening services can be contracted out to target industries that use combinatorial chemistry to produce "designer molecules." These services can save customers substantial time and money by identifying possible environmental toxicity early on.

Strategy

By providing a link between the environment and human disease through fish genes, EcoArray intends to be the bioarray maker of choice in the field of environmental toxicology. EcoArray's first products are the 22,000-gene fathead minnow chip, a largemouth bass chip, and a sheepshead minnow chip in development. The original fathead minnow chip was developed by EcoArray and the EPA as part of a cooperative research agreement (CRADA). The Bass and Sheepshead minnow arrays are being developed under grants from the NIH (NIEHS). EcoArray will expand production through vertical and horizontal integration, and by incorporating EPA-compiled data. EcoArray's focus over the next two years will be expanding the database of microarray results to effectively cover the range of compounds of concern in water testing. One milestone is to integrate EcoArray's fish data into the National Center for Toxicogenomics (NCT) database for use in human toxicology studies and the issuing of standards for water testing.

Management Team

President – John Rogers

Mr. Rogers is a business executive with 30+ years experience in general management and finance. In 1997, he co-founded AquaGene, Inc., a biotechnology company using transgenic fish to produce human therapeutic proteins. Prior to AquaGene, he was Vice President Finance and Treasurer of Zytec Corporation (NASDAQ: ZTEC), an electronics manufacturer that has since been acquired by Emerson Electric. Mr. Rogers took Zytec public, negotiated for acquisition of two foreign subsidiaries, and was part of the team that won the Malcolm Baldrige National Quality award in award in 1991. Mr. Rogers is past Chairman of BioFlorida and an advisor to the Keck Graduate Institute (Claremont, CA). He received his AB from Dartmouth College and an MBA in finance from New York University's Stern School of Business.

Vice President Research and Development – Patrick Larkin, Ph.D.

Dr. Larkin received his Ph.D. in Neuroscience from the University of Florida in 2000. He received a Neurobiological Sciences Fellowship (1999-2000) and was a Department of Neuroscience Medical Guild competition finalist. He conducted post-doctoral research at the University of Florida, where he helped develop and validate the largemouth bass gene chips as well as gene chips in sheepshead minnows. He has co-authored 9 peer-reviewed papers in this area of research in the last three years and is co-inventor on the patent application EcoArray is licensing from the University.

Founder and Chief Scientific Advisor – Nancy Denslow

Dr. Denslow is an Associate Professor in the Department of Physiological Sciences and Center for Environmental and Human Toxicology at the University of Florida. She received her Ph.D. in Biochemistry and Molecular Biology from the University of Florida. She is known for her work detailing the molecular effects in fish from exposure to environmental estrogens. Her work has resulted in over 80 peer reviewed publications.

Research Scientist – Barbara Carter

Ms. Carter is experienced in lab management, laboratory animal management and laboratory processes relating to molecular biology. A career Navy officer, she is now a Captain in the Navy Reserve.

Contact Information

EcoArray, Inc.
12085 Research Drive
Alachua, FL 32615

John B. Rogers, President
www.ecoarray.com
(386) 418-1425
(386) 462-0875 Fax

For more information about this UF start-up company or other spin-off opportunities from the University of Florida, contact our UF TechConnect Coordinator:

Chris Brown, EDA University Center Coordinator
cbrown11@rgp.ufl.edu
(352) 846-1840

September 2006

