

Oxidant Sensor Research Grants Total Nearly \$1 Million

ADA received a \$750,000 SBIR grant from the Department of Defense (DoD) to continue research and development of an innovative oxidant sensor technology. ADA's oxidant sensor monitors and controls biofilm formation in seawater cooling systems used in submarines, surface vessels, industrial

processing plants, power plants and off-shore industrial facilities.

In addition to the \$750,000 DoD grant, in late 2006 ADA received a \$200,000 SBIR grant from NOAA to research the use of this technology to reduce invasive species transported in marine ballast water tanks.

bleach that makes it an effective disinfectant.)

Although hypohalous acids effectively kill marine organisms that invade seawater cooling systems, they are harmful to the environment if released in large concentrations. ADA's oxidant sensor accurately monitors hypohalous acid concentration, providing real-time feedback to ensure the levels fall within a narrow range that is effective, yet harmless when discharged to the surrounding environment. Prior to ADA's R&D efforts, there was no reliable method of monitoring electrolytic halogenation.

Contact Kent Henry, kenth@adatech.com or Nick Knowlton at nickk@adatech.com. □



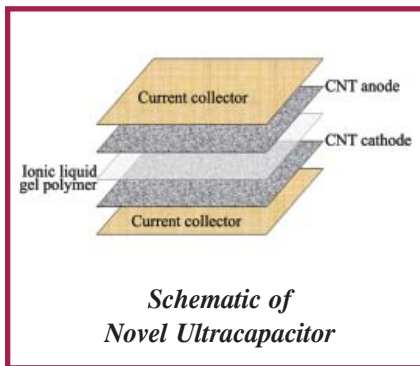
ADA's oxidant sensor monitors the electrolytic halogenation of seawater, a process that uses electricity to convert natural bromide and chloride in seawater to the hypohalous acids hypobromite and hypochlorite. (Hypochlorite is the ingredient in household

\$600K Funds Ultracapacitor Development

ADA has received two SBIR grants totaling \$600,000 to continue research on electrochemical capacitors, also known as ultracapacitors.

A \$500,000 Phase II grant from the National Science Foundation is supporting the ongoing development of advanced ultracapacitors for hybrid electric vehicles (HEVs). ADA's research focuses on the use of carbon nanotube electrodes and environmentally friendly ionic liquid electrolytes to develop high-performing, long-lasting ultracapacitors. Although ultracapacitors are uniquely suited as power assists for HEVs,

current designs have demonstrated limited performance and short life spans. Benefits of advanced vehicular ultracapacitors include improved fuel economy and reduction of harmful emissions.



A Phase I \$100,000 grant from the DOE is funding research to develop ultracapacitors for utility applications, including emergency backup power, improving system stability and lowering demand peaks that can disrupt power transmission and distribution systems. ADA's research is focused on developing high performing, safe and long-lived ultracapacitors for use in a wide range of applications.

The global ultracapacitor market is expected to exceed \$300 million by 2010.

For more information, contact Wen Lu, wenl@adatech.com. □

Cliff's Notes:



"Get the right people on the bus... (then) figure out the best path..." This quote from Jim Collins' "Good to Great" says a lot about how to be successful in business. It also reflects ADA's strategy for ongoing growth and continued success.

About two years ago, we hired three people who were known experts in areas that showed tremendous promise, but where ADA had little or no technical experience - energy storage, biotechnology and nanotechnology. Quite frankly, we did not know the detailed direction nor the path we would take, but we were confident that these were the right people to be on the ADA bus. We now know that we were right; a majority of ADA's projected growth is expected to come from these three new programs.

In this edition of Abstracts, you will read about the major strides Dr. Wen Lu's energy storage program is making. We also talk about an important aspect of ADA's biotechnology program, which is blossoming under the leadership of Dr. Xichun Zhou.

Last but not least (no pun intended!) is ADA's nanotechnology program, shepherded by Dr. Tom Campbell. Tom has defined ADA's niche in nanotech to be 'nanometrology' (i.e., rapid and inexpensive measurement of fundamental properties such as metallic: semiconductor ratio, purity, structural aspects and electronic properties of carbon nanotubes). One of the strong features of this growing program is the collaboration among ADA, National Institute of Standards and Technology (Boulder, CO) and Virginia Tech (Blacksburg, VA). Collaboration is critical to success in this area, due to the breadth of expertise required to develop and deliver products to the nanometrology marketplace. ADA's evolving nanotech program also involves new methods for separation and purification of carbon nanotubes, as well as aspects of nanocomposite materials. You'll read more about ADA's nanotech program in upcoming issues of Abstracts.

Hats-off to all ADA members for helping us retain our status as one of the Best Places to Work in Colorado.

I welcome your comments and inquiries.

Clifton H. Brown, Jr.

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ADA NAMED BEST COMPANY TO WORK FOR

For the second consecutive year, ADA has been named one of the Best Companies To Work For in Colorado.

"We are pleased and honored to once again be recognized as one of the best places to work in Colorado," said Cliff Brown, ADA president and CEO. "ADA promotes a collaborative environment where employees' contributions are valued and rewarded in many different ways. We see the importance of having a good work/life balance and are continually seeking input from our employees to ensure we have programs in place that are of benefit to our employees and to the company."

Modeled after Fortune magazine's 100 Best Companies to Work For in America, the competition is sponsored by the Society for Human Resource Management - Colorado State Council, ColoradoBiz magazine and Jobing.com. The award honors companies that show dedication to their employees' growth and quality of life and promotes the state's best employment opportunities to attract new workers. □

ADA Abstracts

ADA Abstracts is published three times a year by ADA Technologies, Inc.

Karen Steeper is the editor and Sheryl Suhr of ADA is the graphic designer.

Each issue contains news of technologies under development, plus information on grants, projects, and staff.

If you would like more information, call ADA Technologies at (800) 232-0296 or E-mail us at: abstracts@adatech.com.

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NIH Grant Funds Carbohydrate Microarray Research

ADA has been awarded a \$100,000 SBIR grant from the National Institutes of Health to further develop a novel 3-dimensional platform for fabrication of carbohydrate microarrays with a wide range of structurally diverse carbohydrate probes (mono-, oligo- and polysaccharides) without chemical modification.

Under development for the past year, ADA's patent pending

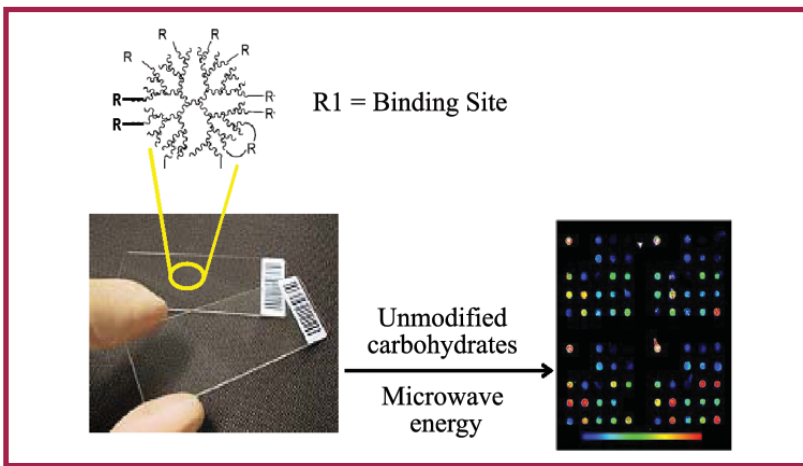
3D Carbo slides provide a convenient and cost-effective option for research scientists involved with characterizing carbohydrate-protein interactions. Numerous scientific studies, including those related to cancer research, drug and vaccine discovery, require identification of carbohydrate interactions.

In contrast to currently existing carbohydrate microarray fabrication techniques, which are tedious,

expensive and time consuming, ADA's 3D Carbo slides provide a one-step direct immobilization of intact carbohydrates for carbohydrate microarray fabrication.

"We expect ADA's 3D Carbo slides to be widely accepted by the scientific research community. The versatility and ease of the technology provides an advanced tool for scientists to quickly characterize carbohydrate interactions, saving time and money and expediting important research," said Xichun Zhou, Ph.D., ADA senior research scientist and the project's principal investigator.

Contact Xichun Zhou, xichunz@adatech.com or Craig Turchi, craig@adatech.com. □



ADA Welcomes New Employees

As ADA's new controller, Nada Austin manages the company's financial system and staff. Her responsibilities include assisting with financial forecasting, as well as tracking and analyzing rate structures and key financial indicators. Nada's professional accounting and finance experience includes work in engineering and federal contracting, energy and insurance. Contact Nada at nadaa@adatech.com.



Paul Manning, new senior software engineer in the Distributed Sensors group, designs, develops, tests and releases software to support embedded firmware products. Paul was an ADA employee for three years in the early 1990s and provided ADA with consultation services for 14 years, working on PC and embedded systems. Contact Paul at paulm@adatech.com. □

3-D Carbo™ Microarray Slides

Benefits:

- Rapid immobilization of unmodified carbohydrates on slide surface via site-specific covalent bonding.
- Eliminates procedures in organic modification of carbohydrate probes.
- One-step fabrication of carbohydrate microarrays.
- 3-D surface, high binding capacity.

Application:

An ideal platform substrate for fabrication of carbohydrate microarrays with any type of carbohydrate probes.

Pediatric Prosthesis Research Advances

A \$750,000 SBIR grant from the National Institutes of Health, National Institute of Child Health and Human Development is helping ADA refine its body-powered pediatric hand prosthesis.



“Specifically, the prosthesis is designed to provide a more realistic appearance and natural movement over existing pediatric devices and provides children with the types of grasp they require for play activities,” said Brad

Veatch, ADA principal investigator and senior research engineer.

ADA’s pediatric prosthesis includes a patent-pending thumb mechanism that allows the child to grasp balls, bats and other toys. Unlike other available upper extremity prostheses, ADA’s device does not use cables, harnesses or batteries, all of which can be irritating and cumbersome for children during play.

In addition to being mechanically efficient, ADA’s prosthesis is compact, lightweight and inexpensive to produce. Because children grow so quickly, their prostheses size requirements change



rather rapidly, which can be a financial burden on many families. Low

manufacturing costs associated with ADA’s pediatric prosthesis make it economically feasible to produce a variety of sizes at affordable prices.

The grant money will fund a trial with child volunteers and be used to make any needed adjustments to the design.

ADA is also working on development of a very low cost “socket” for use with its prosthetic hand. Availability of a compatible socket is critical for distribution outside of the U.S.

Contact Brad Veatch at bradv@adatech.com or 303-874-8274. □

Agencies, individuals and foundations interested in providing financial support for global distribution of the ADA-developed hand and socket should contact Brad Veatch at bradv@adatech.com or 303-874-8274.



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