

# Innovations

## CREATIVE IDEAS FROM GROWING COMPANIES

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## Gift from the Sea

Mark Underwood (above left, with Michael Beaman) . . . “You have to be daring.” Below, a possible source of Alzheimer’s therapy.



### Bioscience firm using protein from jellyfish to develop therapy

BY PHILL TREWYN  
ptrewyn@bizjournals.com

A Richfield biotech company started in June is developing a therapeutic drug for neurodegenerative diseases using a protein commonly produced in jellyfish.

Michael Beaman and Mark Underwood formed QRG Bioscience as a subsidiary of Quincy Resource Group, a packaging and fulfillment company in Richfield with annual

sales of \$18 million to \$20 million.

Beaman, president of QRG Bioscience and owner of Quincy Resource Group, said starting a biotech company made sense when considering the market potential for the company’s product and its potential impact on medicine.

**“You have to be willing to try something that hasn’t been tried before.”**

QRG Bioscience is the result of a relationship started when Underwood was a client of Beaman’s.

**Mark Underwood**  
QRG Bioscience

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## Crime stoppers

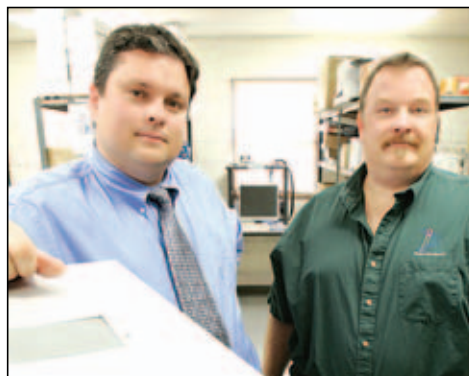
### Digital Intelligence develops technology to find, analyze evidence

BY PHILL TREWYN  
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A small Waukesha company is playing a leading role in the emerging field of computer forensics by developing some of the software and hardware most commonly used by law enforcement agencies around the world.

Digital Intelligence Inc., a 10-employee firm started by Christopher Stippich and Edward Van Every in 1999, has developed 25 different software and hardware products used for gathering criminal evidence from computers, servers and entire network systems.

“They’ve always been on the cutting edge



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Edward Van Every (right, with Christopher Stippich) . . . “If there are law enforcement agencies out there that aren’t finding electronic evidence it’s because they aren’t looking.”

of technology,” said Kurt Ziebell, a detective with the Waukesha County Sheriff’s Department who has specialized in computer forensics since 1998.

Demand for the company’s technology is leading to growth at Digital Intelligence. Stippich said 2004 revenue will be about \$4 million, a 42 percent increase over 2004.

The business, located at 1325 Pearl St. in Waukesha, is looking for larger office space in the Waukesha area.

Ziebell said he has sometimes turned to

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## BRIGHT IDEAS

### Biotech conference

The **2004 Wisconsin Biotechnology and Medical Device Association Conference** will be held from 7:30 a.m. to 6 p.m. **Oct. 26** at the Madison Marriott West in Middleton.

The event will feature a variety of sessions on investment, the biotech business, and developing and retaining a work force to support biotech and medical device industries.

For more information, send an e-mail to [wisbiomed@dewittross.com](mailto:wisbiomed@dewittross.com), or call **608-252-9393**. Information may also be found at [www.wisbiomed.org](http://www.wisbiomed.org).

### Researcher secures grants

**Kerry Kuehn**, an assistant professor of physics at **Wisconsin Lutheran College**, has received \$256,000 in grants from the **National Science Foundation** and the **U.S. Department of Energy** to develop ultrasound imaging of thermal convection in liquid metals, which involves the transfer of heat through fluid motion.

Kuehn’s research will study thermal convection in liquid alloys and opaque gels, which could lead to a better understanding of convection inside the earth. The research also has applications to the design of nuclear power plants as liquid metals are used to cool nuclear reactors.

— *Phill Trewyn*

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**FRED (Forensic Recovery of Evidence Device)** is able to help gather computer information for analysis.

## JELLYFISH: Bioscience firm developing drug to treat neurodegenerative diseases

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"We wanted to get into the biotech field because it's a growing industry," Beaman said. "We also want to be a part of something important."

Underwood is the driving force behind QRG Bioscience.

As an undergraduate student at the University of Wisconsin-Milwaukee, Underwood began development of a therapeutic compound for neurodegenerative diseases while majoring in psychology with an emphasis on neurosciences.

Of particular interest to Underwood was the impact of calcium deficiencies in people with neurodegenerative diseases. As people age, the ability of a person's brain cells to control calcium levels deteriorates. Too much calcium can lead to the destruction of neurons in the brain, which can exacerbate the development of diseases such as Alzheimer's, Underwood said.

### RESEARCH LED TO JELLYFISH

Underwood said that his research of a protein called aequorin, which is found in jellyfish, determined the compound can be used to control levels of calcium in brain cells.

"We're looking to create sort of a calcium sponge that can hold calcium levels in place and prevent the killing of neurons," Underwood said.

As a result, the development of neurodegenerative diseases could be controlled, negating the impact of such illnesses in patients, he added.

Aequorin was discovered in the 1960s by Osamu Shimomura, a Princeton University researcher studying jellyfish called *Aequoria Victoria*. Subsequent research in the scientific community revealed the protein is attracted

to calcium ions, which is useful in the study of nerves. Aequorin is used regularly in biotech research, but has never been developed into a therapeutic drug, Underwood said.

In 1996, Underwood intended to continue his graduate studies at UWM, but saw that opportunity evaporate when William Wehrenberg, a professor and neuroendocrinologist, left the university to pursue other academic interests. Wehrenberg would have provided an avenue for financial and academic support of Underwood's research.

**"We also want to be a part of something important."**

**Michael Beaman**  
Quincy Resource Group

As a result, Underwood took a job as a lab technician for Pak Technologies, a Milwaukee contract packaging company for the food and chemical industries that is a client of Quincy Resource Group.

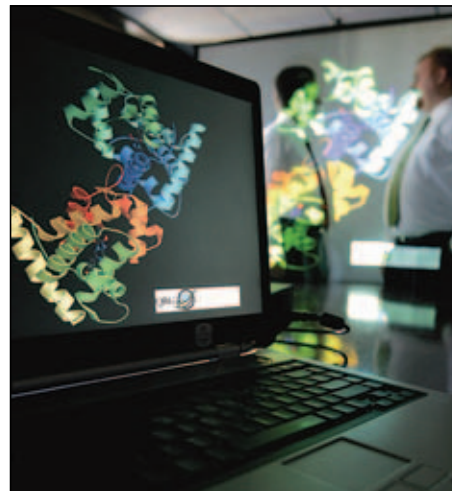
"I was forced to find a job in the real world," he said.

Underwood worked at Pak Technologies for eight years, rising to the position of director of business development, leading to his relationship with Beaman, and ultimately, a decision to start QRG Bioscience.

Underwood ended up leaving Pak Technologies in June to devote all his time to QRB Bioscience.

"You have to be daring," Underwood said. "You have to be willing to try something that hasn't been tried before."

Quincy Resource Group is providing nearly \$500,000 in startup funding as well as administration for QRG Bioscience. In November, QRG Bioscience will be taking up about



A computer image of aequorin, the protein found in jellyfish.

1,500 square feet of space at University Research Park in Madison.

Underwood, vice president of product development, said the entrepreneurial and academic environment in Madison is conducive to biotech startups.

"This is the kind of company that we think is important," said Mark Bugher, director of University Research Park.

Underwood said the company will maintain a Milwaukee-area presence in Richfield and has retained as a scientific adviser James Moyer, an assistant professor in the Department of Psychology at the University of Wisconsin-Milwaukee.

Moyer's specialty is studying the impact of calcium deficiencies in aging, which matches the research behind QRG Bioscience's drug development.

"We have common interests," Moyer said. "It's a logical fit."

A patent application was filed in June for

the therapeutic compound that Underwood started developing when he was an undergrad at UWM. The compound will continue to be developed through Moyer's research.

QRG Bioscience intends to work with the Waisman Center, a research center at UW-Madison specializing in developmental and neurodegenerative diseases, to develop a manufacturing process for the therapeutic compound.

### PROMISING RESEARCH

John Keach, director of business development at the Waisman Center, said his organization will focus on creating a manufacturing method that is cost efficient and meets U.S. Food & Drug Administration standards.

"It's promising," Keach said of the compound's market potential.

Since it takes two tons of jellyfish to produce 125 milligrams of aequorin, the Waisman Center will develop a process for growing the protein in bacteria, which will be quicker and lead to greater quantities.

Underwood said the timeline for developing a new pharmaceutical can be 15 to 20 years.

However, with research on aequorin already done in the scientific community and some preliminary development of the compound already completed, Underwood and Beaman believe QRG Bioscience could have a product ready for clinical trials within six years.

QRG Bioscience is not yet actively looking for outside investors in the company, but may begin that process as the drug's development ramps up, Beaman said.

The company likely will seek federal grant funding.

"Our business model is to get this done and be able to help people," Beaman said.

## DIGITAL INTELLIGENCE: Waukesha firm's technology helps solve crimes

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Stippich and Van Every for help on cases. Computer forensics involves the collection and analysis of information stored in computers, servers, mobile devices or any other device that stores data. The information may be in the form of pictures, e-mails, written documents or Web sites, Stippich said.

The company's client base includes local law enforcement agencies, the FBI, the U.S. military and other federal intelligence organizations.

"Our equipment is on the battlefield in Iraq being used for information analysis," Van Every said.

### INTEREST BEFORE 9/11

Even before the terrorist attacks on Sept. 11, 2001, the company had product orders "on the table" from the New York Police Department, Federal Emergency Management Administration and the U.S. Postal Inspection Service, Van Every said.

Digital Intelligence is particularly known among computer forensic experts for its "Forensic Recovery of Evidence Device," otherwise known as FRED. The device, developed in 1999, is able to connect to a computer

or computer network and gather information for analysis. Collected information can include pictures, e-mails, financial records and written documents that could be used as evidence in criminal cases.

"Everyone in forensics knows what FRED is; it's very popular," said Dave Stenhouse, vice president and director of operations for Computer Forensics Inc., a Seattle firm that provides computer forensic services to law firms and corporations and uses some of Digital Intelligence's products.

Digital Intelligence has developed six different versions of FRED along with six other pieces of hardware. The company also has six different software packages, Van Every said.

The different versions of FRED vary in size and their ability to store information.

In addition to developing forensics technology, the company provides computer forensics training and litigation support in cases involving electronic evidence.

Stippich said a broad range of criminal cases — including murder, missing persons, intellectual property theft and embezzlement — can include computer forensics work in investigations.

Stippich cited the Audrey Seiler case in Madison in April as one example of how the

technology created by Digital Intelligence can help break a case. Seiler, a UW-Madison student, staged her own disappearance.

Computer forensic work indicated Seiler used a personal computer to get information on extended weather forecasts and Madison parks, suggesting she had planned her disappearance.

One of the company's latest developments, rolled out in February, is an updated version of a product called Firefly, which connects to a computer and withdraws information without altering the computer's hard drive, Stippich said.

The Firefly device eliminates the risk of destroying evidence on a computer's hard drive during an investigation, Stippich said. Information on a hard drive can easily be changed just by turning on the machine or by typing on the keyboard, he said.

Stippich, a native of Waukesha, and Van Every, of Long Island, N.Y., started Digital Intelligence using about \$20,000 in personal funding. Stippich was working at the National White Collar Crime Center, Richmond, Va., in the mid-1990s when he hired Van Every, whose expertise is in network administration and software development.

Stippich started his career in forensics as a

drug chemist in 1990 at the state crime lab in Madison. He eventually entered a training program in computer forensics and in 1992 helped start the crime lab's computer forensics program, which was one of the first in the country.

In 1996, Stippich joined the computer forensics lab at the National White Collar Crime Center, where he ended up hiring Van Every.

Van Every said that when he joined the White Collar Crime Center there was a significant gap in the software and hardware needed to conduct effective computer forensics work.

Van Every left the White Collar Crime Center in 2000 and Stippich followed in 2001 to devote all of their time to Digital Intelligence, first working out of their homes and then moving to their present location in 2002.

He said the computer forensics field has evolved over the past decade because of advances in technology and because law enforcement organizations are putting a greater emphasis on the practice.

"Nine or 10 years ago, investigators would walk past a computer and not think of it as a potential source of information," Stippich said.