

Newest Startups Focus on Pharmaceuticals and Foundry Technologies

Faculty members from two campuses are joining the ranks of entrepreneurs by forming startup companies to advance their discoveries. Dr. David Lewis, Professor of Chemistry, UW-Eau Claire, is a co-founder of **McDel-Topology LLC**, which was formed to develop superior anticoagulants. Dr. Lewis brings expertise in drug metabolism and synthetic chemistry to develop safer warfarin, the anticoagulant drug that causes many fatalities due to detrimental side effects.



Dr. David Lewis, UW-Eau Claire,
Co-Founder, McDel-Topology LLC
Photo courtesy of UW-Eau Claire

A Wisconsin Small Company Advancement Program (WiSCAP) grant is supporting further development of the technology at UW-Eau Claire to optimize the warfarin variant for fewer patient side effects. In addition, other variants may be useful as next generation rodenticides improve over traditional warfarin by acting more quickly and more potently.

Dan McGuire, a professor at UW-Whitewater, formed **Foundry Solutions, LLC** in April, 2011. Foundry Solutions is based on investment casting research currently underway with anticipated new patent filings. Foundry Solutions research aims to accelerate the

production of ceramic shells and therefore reduce the time for fabrication of parts. The ceramic shells produced through investment casting are used to manufacture metal parts used in many industries (ranging from auto manufacturing and medical devices to aerospace).



Dan McGuire, UW-Whitewater,
Founder, Foundry Solutions, LLC.
Photo courtesy of Dan McGuire

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WSTS 2011 Spurs Connections and Fuels Focused R&D Leading to Job Creation

Over 150 researchers, clinicians, entrepreneurs, industry representatives, investors and public officials from around the state came together to network and form partnerships for research and technology development at the Fourth Annual Wisconsin Science & Technology Symposium held at UW-Whitewater on July 28-29, 2011.

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Newest Startups (cont.)

Dan McGuire has a history of leading innovations in this industry with two issued patents and one patent application in progress with co-inventor Professor Eric Hellstrom. Recently, WiSys licensed one of the patents for commercialization. McGuire states that WiSys was “instrumental” in the formation of Foundry Solutions, providing a grant to allow for the development of the technology. Foundry Solutions, LLC is located at the Whitewater Innovation Center in Whitewater, WI.

Foundry Solutions, LLC and McDel-Topology, LLC join five existing startup companies based on WiSys patents or technologies: Tomorrow River Biotechnology, LLC (UW-Stevens Point); Shamrock Energy Corporation (UW-Oshkosh), Mycophyte Discoveries, LLC (UW-La Crosse), Xolve, LLC (UW-Platteville) and NovaScan, LLC (UW-Milwaukee).

Novascan, LLC was recently honored by LifeScience Alley as one of the top three New Technology Showcase winners.

The company will present on its FastPath hand held surgical probe at the LifeScience Alley Tenth Annual Conference & Expo 2011 on December 7. Visit www.lifesciencealleyconference.com for more details.

The new technology was also featured in a recent news story on WISN - visit www.wisn.com/health/29606001/detail.html

If you have an interest in these technologies or starting a company based on your own technology, please contact us at (608) 263-2500 or visit www.wisys.org. Additionally, an entrepreneurship E-learning tool is being developed in partnership with WiSys, UW-Madison Office of Corporate Relations, UW-Whitewater and Precision Information, LLC. To receive a login to preview or use the tool, contact Jon Cook (jcook@wisys.org; 608-316-4036). (See *Entrepreneurship E-Learning Tool Launched*, page 3).

- by Ashley Klein, WARF Intern

WiSys Seeks New Research & Development Ideas

WiSys has three approaches to technology development at the UW System: patenting and licensing, facilitating research and development and building collaborations.

We work with you to find resources and expertise in order for you to take the next steps in developing your idea. Examples of WiSys activities include: organizing meetings and workshops, making connections with other researchers through our extensive network, and providing feedback on grant opportunities.

If you have an idea for a research project, a new or improved product or technology, or a potential collaboration, please contact any WiSys team member for a confidential discussion. You can also securely complete and submit an Invention Disclosure Report (IDR) online by visiting www.wisys.org/researchers/index.jsp and selecting the Invention Disclosure Form (IDR) tab.

Grant Opportunities Offer Support for R&D Programs

In addition to patenting and licensing, WiSys facilitates dynamic R&D programs that train students and generate new discoveries. For additional information and application materials visit www.wisys.org/grants/index.jsp or contact WiSys at 608-316-4032. Note that preproposal deadlines are approaching for the ARG & ARG-WiTAG programs.

ARG: The Applied Research Grant is a one-year grant available through UW System to UW faculty from any discipline and any campus. ARG is directed towards projects that will impact the state economy with IP potential. Provided by UW System. IP is assigned to WiSys, WARF or UWM Research Foundation based on campus location.

Funding: 1 year, up to \$50K

Deadlines for Application:

Preproposal (voluntary)*—November 11, 2011

Proposal—January 13, 2012

*The preproposal process is designed to assist faculty in submitting a stronger full proposal.

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WSTS 2011 Spurs Connections, Fuels Focused R&D (cont.)

Jointly organized by WiSys Technology Foundation and UW-Whitewater and supported by 11 sponsors, WSTS 2011 featured over 20 scientific presentations focusing on breakthrough developments in areas including biomedical devices, therapeutics, alternative fuels and polymer/composites.



Scientific Poster Session, WSTS 2011.

Photo courtesy of Gregg Theune, UW-Whitewater.

Additional highlights included an entrepreneurship tool kickoff, student poster presentation and welcome addresses by Paul Jadin, CEO of the Wisconsin Economic Development Corporation (formerly Wisconsin Department of Commerce), Scott Baumbach, Secretary of the Wisconsin Department of Workforce Development, and David Ward, President of Northstar Economics.

The opening speakers noted the need to further tap into the resources housed within the comprehensive campuses in order to successfully create jobs, spur the economy and develop technologies that will positively impact Wisconsin like established businesses such as Harley Davidson, Trek, and Johnson Controls.

Building on the WSTS theme of "Today's Research for Tomorrow's Jobs," WiSys Managing Director Maliyakal John briefed attendees on the progress of the Wisconsin Small Company Advancement Program (WiSCAP), which has advanced research, educated students and stimulated economic growth by pairing small Wisconsin based companies with experts at the

UW comprehensive campuses to jointly develop new technologies.

Great emphasis was placed on encouraging collaboration between researchers working within the UW comprehensive campuses and with representatives from private industry. "These types of partnerships, a key focus of WiSys, contribute directly to the economic growth of Wisconsin," stated Maliyakal John.

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Entrepreneurship E-Learning Tool Launched

A new online entrepreneurship learning tool was launched at WSTS 2011, and WiSys is actively seeking to enroll UW faculty, students and staff in the first five courses, which comprise about 10 hours of material. The tool is available to all UW system students, faculty and staff to use individually or in a classroom setting.

Current topics include confidentiality, intellectual property, market research and licensing.

The tool aims to educate potential entrepreneurs on fundamental issues in starting or managing a high-tech business based on proprietary technologies.

In addition, the content is designed to be valuable to those who may become employed in technology companies or become inventors on a technology patent and may consider starting a business.

The entrepreneurship E-Learning tool is being developed in partnership with WiSys, UW-Madison Office of Corporate Relations, UW-Whitewater and Precision Information, LLC.

This is learn-at-your-own-pace online education. To receive a login to preview or use the tool, contact Jon Cook (jcook@wisys.org; 608-316-4036).

WSTS 2011 Spurs Connections, Fuels Focused R&D (cont.)

A generous grant from the UW System provided a WSTS scholarship covering registration fees and housing costs for 50 students. This experience gave these students a chance to extend their skills and knowledge of the scientific community and technology development process. The majority of these students presented their research in the scientific poster session. Charlotte Stanford, a Biomedical Sciences and Biotechnology student at UW-River Falls, stated, "There were many new aspects to learn (at WSTS) that were valuable to deciding future education and different ways to take my research."

Paul Summerside, Chief Medical Officer at BayCare Clinic, spoke to participants on Day 2 of the Symposium and encouraged collaboration to fuel scientific research and discovery in Wisconsin through initiatives such as the Wisconsin Medical Entrepreneurship Foundation (WisMEF). WisMEF, founded by Aurora Health Care, BayCare Clinic, Marshfield Clinic Applied Sciences and WiSys, leverages unique skills and resources available at Wisconsin's leading clinical institutions with the technical expertise of UW System comprehensive campuses to develop cutting-edge medical technologies. Summerside applauded the positive collaborative atmosphere among researchers at the symposium and said this atmosphere is the best way to move research and technology forward.

Closing speaker, Stephen Kolison Jr., Associate Vice President for Academic, Faculty, and Global Programs for the University of Wisconsin System Administration, stated that science and technology will lead the way in the future, and that Wisconsin has made the advancement of technology and business growth a priority. He noted that this focus on advancing technology and collaborations must continue in the future.

Overall, WSTS celebrated the advancements the UW comprehensive campuses have made in

technology innovation and job creation. With continued collaboration between researchers and industry the UW System comprehensive campuses will continue to play a vital role in advancing the Wisconsin economy.

The next Wisconsin Science & Technology Symposium, organized by WiSys and Marshfield Clinic, will take place at Marshfield Clinic (Marshfield, WI) in July, 2012.

- by Jonathan Cook, WiSys Associate

Grant Opportunities Offer Support for R&D Programs (cont.)

ARG-WiTAG: The combined ARG and WiSys Technology Advancement Grant (WiTAG) is available to researchers in science and technology at the comprehensive campuses. Funds awarded for applied research and likelihood of future IP. IP must be assigned to WiSys. Provided by UW System and WiSys.

Funding: Up to 3 years, up to \$50K/yr.

Deadlines for Application:

Preproposal (voluntary)* —November 11, 2011

Proposal—January 13, 2012

WiTAG: WiSys Technology Advancement Grant, funded by WiSys, targets developing technologies with market potential that need applied research. IP must be assigned to WiSys. Provided by WiSys.

Deadline For Application:

Year Round Review**

PDF: The Prototype Development Fund is available to inventors who have disclosed discoveries to WiSys and are interested in developing a functional prototype. Provided by UW System.

Funding: Up to \$15K

Deadline For Application:

Year Round Review**

* The preproposal process is designed to assist faculty in submitting a stronger full proposal.

**Available until funds are depleted.

QUESTIONS & COMMENTS

To provide feedback or obtain copies of current or past issues of the WiSys Newsletter, please contact Lisa Murray at 608.316.4032 or lmurray@wisys.org.

WiSys Gains New Team Member

Jon Cook joined the WiSys team on August 1st as an associate. Jon is responsible for managing a portion of the Wisconsin Medical Entrepreneurship



Foundation program; conducting marketing and market research for WiSys and clinical partner technologies, leading the development of Phase II of the online Entrepreneurship Tool, and assisting in drafting grant applications. Jon most recently has been

working as a WiSys intern on a variety of projects.

Jon has past professional experience in business communications and has a B.S. in Life Sciences Communication from UW-Madison.

New Location for WiSys Offices

WiSys has moved its offices to UW Research Park on Madison's west side, effective October 17, 2011. Please note the new address and contact information for the WiSys team members below (e-mail addresses remain the same):

WiSys Technology Foundation
401 Charmany Drive, Suite 205
Madison, WI 53719

Mike Cenci, Associate:
608.316.4034; mcenci@wisys.org

Jon Cook, Associate:
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Allyson Hauser, Senior Associate:
608.316.4035; ahauser@wisys.org

Maliyakal John, Managing Director:
608.316.4033; maliyakal@wisys.org

Lisa Murray, Executive Assistant:
608.316.4032; lmurray@wisys.org

Advancing Medical Innovation, Patient Care and Entrepreneurship through the Wisconsin Medical Entrepreneurship Foundation

The Wisconsin Medical Entrepreneurship Foundation is a network to leverage ideas, unique skills and resources available at Wisconsin's leading clinical institutions with the technical expertise of UW System comprehensive

campuses to develop cutting-edge medical technologies for business opportunities, student advancement and patient care.

The network is seeking ideas for medical devices, software or other healthcare inventions from clinicians within the three founding member clinical organizations, Aurora Health Care, BayCare Health Systems (represented by BayCare Clinic) and Marshfield Clinic, as well as from UW System comprehensive faculty and students (represented by founding member WiSys). Promising technologies may benefit from connections within the partner organizations and/or funding to assist in the development.

Medical professionals may contact their respective grant, research or technology transfer representatives to disclose inventions:

- Aurora Health Care: Dr. Randall Lambrecht, Vice President for Research and Academic Relations (randall.lambrecht@aurora.org).
- BayCare Health Systems: Dr. Paul Summerside, Chief Medical Officer (Psummerside@baycare.net).
- Marshfield Clinic: Marsha Barwick, Assistant Director, Applied Sciences Division (barwick.marsha@marshfieldclinic.org)

Faculty and students from UW System comprehensive campuses may contact WiSys Technology Foundation to disclose inventions: Maliyakal John, Managing Director (Maliyakal@wisys.org)

All ideas will be considered. Medical ideas of specific interest include:

- Software to improve hospital/patient care management
- Medical devices and medical packaging
- Rehabilitation devices – orthopedic or other diagnostic devices
- Mobility assistance devices
- Pharmaceuticals/nutraceuticals

Once ideas have been submitted, they will be evaluated for market potential, optimal design and patentability. For the most promising ideas, the network will work to find resources for prototype development through the University of Wisconsin System and/or other collaborators.

For more information, please contact Jon Cook (608.316.4036; jcook@wisys.org), Allyson Hauser (608.316.4035; ahauser@wisys.org) or visit www.wisys.org/grants/index.jsp.

Discoveries and The People Making Them: Drs. James Lane and Michael Waxman, UW-Superior

From a young age James Lane had a passion for experimentation that spanned from his mother's kitchen utensils to a chemistry set, which eventually led to a career in science and technology. Michael Waxman followed in his father's footsteps and became fascinated by math, chemistry and physics.

Drs. Lane and Waxman enjoy satisfying scientific and teaching pursuits in the quiet, scenic campus of UW-Superior. They love the opportunities to work closely with undergraduates in the classroom and laboratory, and have been collaborating on various projects at UW-Superior for over a decade.



UW-Superior scientists Dr. James Lane (second from right) and Dr. Michael Waxman (second from left) discuss a bio-fuel sample with chemistry students Adam Jersett (far right) and Tim Bergstrom (far left), both of Superior, WI.

Photo courtesy of UW-Superior

With a growing need to reduce dependence on foreign oil and decrease our carbon footprint, Lane and Waxman seek to produce a low-cost biofuel that uses locally grown feedstock and can withstand lower temperatures. A typical biodiesel solidifies at temperatures around 30°F, and thus can't be used in northern states like Wisconsin during colder months. To combat this issue, Lane and Waxman started looking at numerous local plants with better low-temperature properties. They found a few promising species, including highbush cranberry that resisted freezing at -40°F. In addition, growing these crops locally could reduce overall production costs for biodiesel as current feedstocks account for approximately 80% of this cost.

Lane and Waxman are also working on a related project that involves using microwave reactors to

produce biodiesel from cheaper feedstocks. This novel process can tolerate lower-grade oil with a higher free fatty acid (FFA) content to create a clean glycerol product without creating excess waste. Current acid-catalyzed transesterification processes require a longer reaction time and the FFA compounds often interfere with the base catalyst to form soaps. More base is often added to recover the loss, but this increases the production costs. In this process water is also formed during the reaction of the FFA compounds and the base, which creates emulsion that interferes with the separation and purification process. Conversely, the microwave transesterification can tolerate a higher FFA content opening the door to more alternative feedstocks.

When asked what drew him to this project, Lane stated, "The need for renewable energy sources and technologies is more strongly felt each year. This project helps to address that need and, at the same time, engages undergraduates in research with a clear application." Waxman echoed Lane's reasoning behind his involvement in this project. Furthermore, as a professor of general chemistry, chemistry and environment, physical chemistry and physics, Waxman says he hopes his students will "learn to consistently use their brains, not just their memory, in tackling a challenging chemical problem and cross the disciplinary boundaries in the process."

When not in the lab or teaching, James Lane enjoys spending time with his wife and two children and spending time outdoors skiing, cycling and kayaking. Michael Waxman also enjoys attending the various activities of his 12-year-old son as well as reading and listening to classical music.

The University of Wisconsin-Superior is an energetic, comprehensive university that engages its 2,880 students through more than 30 undergraduate fields of study and seven graduate programs. Students benefit from one-on-one contact with professors, innovative academic programs, numerous research and performance opportunities, and first-rate facilities.

- by Ashley Klein, WARF Intern

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