



# The BIO Bulletin

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## The BioBulletin, August 2010

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## **Highlighting Minnesota life science innovators**

A year and a half ago, BBAM released [Destination 2025](#) a compilation of strategic recommendations aimed at catalyzing the development of Minnesota's life science industries. Highlighted in this month's newsletter are life science innovators who are making significant contributions to the fulfillment of Destination 2025 recommendations. From a smart phone application that detects coronary artery disease, to state of the art motorcycles with reduced carbon emissions, and chocolate with cancer-preventing antioxidants - say hello to Minnesota's life sciences.

In the medical technology industries cluster, Destination 2025 encourages the utilization of the already strong industry resources to build out areas in the industry like biologics and biopharmaceuticals, and diagnostics and monitoring.

[AUM Cardiovascular](#)



Marie Johnson, founder from Farmington, Minnesota-based AUM Cardiovascular, has developed a smart phone application, CADence, which detects coronary artery disease. Johnson, who lost her husband eight years ago to the disease, is dedicated to improving cardiac disease preventative care.

"If I save one life, the past seven years have been worth it," Johnson said.

A small hand-held sensor, placed over the heart, detects abnormal heart sounds (docks murmur) associated with narrowing (stenosis) of the left anterior descending coronary artery (LAD). The information is then processed and relayed to a smart phone, and a rendering is created of the heart. The ease and cost-effectiveness of the device allows doctors to reliably identify LAD blockage. The device is not intended to replace the existing diagnostic measures like the EKG stress test and angiogram. The intent of the technology is to reliably determine if one of the more invasive and costly diagnostic procedures needs to be conducted.

The technology is currently being prototyped, and will soon go to clinical trial. The projected launch for the technology is in 2013. Johnson is excited and optimistic about the launch, claiming that Minnesota is the place to be when it comes to medical devices.

"The state has an incredible ecosystem of local businesses that provide a support network for large and small med tech companies, including intellectual property attorneys, regulatory consultants, test facilities and clinical research organizations," Johnson said.

It is projected that \$5 million will be needed to get CADence to market. This includes the cost of research and development, clinical trials, engineering, and market development. Johnson intends to use angel investment to fund the venture. She said the [angel investor tax credit](#) that was passed in the spring will be a great advantage for her company.

Johnson expects AUM Cardiovascular to benefit the state in job and wealth creation. "I have a personal goal of stimulating the economy in Minnesota and creating jobs," she said.

Find out more at <http://www.aumcardiovascular.com>

In the agriculture and biomass industries cluster, Destination 2025 encourages the development of clean, green and renewable products and services.  
[Chopper College](#)

When Tommy ("Clutch") Creal was 10 years old he ripped apart his off-roader and taught himself how to put it back together. Now, several years later he is instructing three-day intensive boot camps and teaching others how to piece together motorcycles. As a subset

of Chopper College, Creal has created the School of Green Technology that teaches students how to build motorcycles using renewable fuel sources.



Creal has also taken on a couple of “green” side projects. He is building two state of the art ethanol-powered choppers for the [LifeScience Alley Conference and Expo](#) on December 8, 2010, one of which will be auctioned off at the end of the day.

In January, Creal will head to Africa with five of his ethanol powered bikes. The bikes will be used to deliver medication to rural tribes. Creal is working in conjunction with the [International Renewable Energy Technology](#)

[Institute \(IRETI\)](#) at Minnesota State University Mankato to test and refine the ethanol-powered bikes. Creal’s father, Tom Creal Sr., said ethanol powered bikes are not the perfect solution, but an improvement from the use of fossil fuels.

Chopper College moved from Illinois to Minnesota a few years ago because of support from the Minnesota community. Creal Sr. said there was a general encouragement and enthusiasm from the state for Chopper College’s green initiatives. Chopper College also found strategic partners in the state. Creal has formed relationships with [BBAM](#), [LifeScience Alley](#), [IRETI](#) and the [Minneapolis Community and Technical College \(MCTC\)](#).

Looking into the future, Creal and his team will continue to explore fossil fuel alternatives to power their bikes- algae and hydrogen fuel cell bikes are among those in development. Creal will also continue to focus on the educational aspect of his business.

“There is a great educational environment in Minnesota,” Creal Sr. said. “People want to learn.”

Find out more at <http://www.choppercollege2020.com>.

In the food industry Destination 2025 encourages the state to use its vast agricultural resources to capitalize on a growing market demand for health-enhancing food with disease prevention attributes.

[Intelligent Nutrients](#)

In the sixties, after marrying a Minnesota native, Austrian-born Horst Rechelbacher moved to Minnesota. He has since founded many small businesses in the state including Horst & Friends, Aveda Corporation, and his most current venture Intelligent Nutrients.



“Intelligent Nutrients makes consumer based products from organically grown sources that contribute to health care and longevity of humans, animals and ultimately to our planet,” Rechelbacher said.

Included in Intelligent Nutrients’ product line are [nutraceutical](#) and [functional food](#) products. Intelligent Nutrients’ Intellimune products have concentrated antioxidant profiles that reduce the signs of aging and aid in disease prevention (namely cancer and Alzheimer’s).

Rechelbacher has a farm in Osceola, Wisconsin where he grows plant ingredients for Intelligent Nutrients products. The farm and Intelligent Nutrients’ corporate headquarters, located in Minneapolis, are powered by renewable energy, including wind energy purchased from southern Minnesota.

“Building a new economy is based on safe, alternative energy resources like algae, wind, solar and geothermal resources that are nontoxic to people, animals and available for generations to come.”

Find out more at <http://www.intelligentnutrients.com>.

Not only do the products these companies stand behind have the ability to make a significant impact on human life and the environment, but the companies themselves and the various components involved in their businesses have the potential to create a tremendous number of jobs and wealth in the state- catalyzing Minnesota into a global leadership position and thriving marketplace for bioscience innovation. Together these initiatives make a well-rounded picture of the expansive potential Minnesota has in the life sciences.

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## **Agreement between BBAM and CLS lights way to opportunity**

On May 19, 2010, BBAM signed a memorandum of agreement with Canada’s national synchrotron facility, the Canadian Light Source (CLS). The agreement aims to make the CLS more available to BBAM stakeholders, providing them with the opportunity to take advantage of an amazing resource that is only a two-hour flight north.

Located at the heart of the thriving bioscience community in Saskatoon, Saskatchewan, the CLS has earned a reputation as a world leader in applying synchrotron techniques to questions related to environmental compliance and remediation, biotechnology, agriculture, plant and animal sciences, and health research. Since opening its doors in 2004, researchers from academic and government institutions from around the world, and a growing number of industrial clients have made use of the unique analytical capabilities available at Canada’s national synchrotron facility.

The capabilities of the CLS are a benefit for any researcher wanting to investigate chemical reactions, develop new drugs and vaccines, map the distributions of chemicals in minerals, plants or soils, image soft tissues in animals, study ultrathin coatings, or manufacture tiny biomedical implants, to name just a few applications.

The CLS generates intense beams of X-rays, ultraviolet and infrared light that enable researchers to probe the nature and structure of matter at the molecular level – effectively seeing the chemistry of the sample being studied. This makes it possible to conduct in situ analyses of chemical states of elements at trace concentrations, in samples as small as a fraction of a millimeter in size, in a way that is non-destructive and usually does not require extensive preparation.

Synchrotron infrared spectromicroscopy is used in the areas of plant and animal science for mapping the distributions of macromolecules in tissues, while X-ray spectromicroscopy can map the distribution of elements in seeds, stalks and plant fibres – or measure defects in carbon nanotubes or coatings on coronary stents.

Synchrotron X-ray diffraction is the tool of choice for conducting cutting edge research in proteomics and rational drug design. As a tool in genomics research, synchrotron light can be used to characterize target proteins for use in pharmaceuticals, nutraceuticals, natural pesticides and crop development.

Synchrotron X-ray absorption spectroscopy is recognized as a leading tool for identifying the chemical state and toxicological properties of heavy metals and other contaminants, to help clients solve problems dealing with environmental remediation and regulatory compliance. The mandate of the CLS includes fostering active industrial participation and partnerships for commercial research. A team of industrial researchers offers a range of scientific services in full or partial service packages, including assisting with experimental design, conducting analyses and reporting results with clear intellectual property and confidentiality policies – all on time lines that are responsive to industry's needs.

The CLS is proud to be partnering with BBAM and looks forward to exploring the opportunities that will grow from the partnership. From biotechnology and pharmaceuticals, mining, the environment and health, to value-added agriculture, manufacturing, and oil and gas, the CLS is a unique and invaluable tool for industrial R&D. Find out more at [www.lightsource.ca](http://www.lightsource.ca).

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## **Minnesota breaks new ground at Innovations in Diabetes Summit**

Early in 2009, leaders in Minnesota's life science community began to call us with the assertion that one of the best kept secrets in Minnesota was its prowess in diabetes. We

researched the claims and learned that from test tube to patient, Minnesota and this region has considerable and often unmatched strengths in the full diabetes continuum – type I, type II, and related issues of obesity. BBAM saw an opportunity to collaborate with the diabetes community to expand its efforts and publicize the region as a thriving cluster.

[LifeScience Alley](#) and BBAM developed the July 14<sup>th</sup> Innovations in Diabetes Summit in order to shine a light on the talent and resources in the state, build and strengthen the diabetes community, and highlight unmet needs in order to drive innovation in the scientific research and therapeutic development. This first event hosted by the International Diabetes Center at Park Nicollet surprised the organizers and drew a crowd of over 150 leaders in the community. The opening co-keynote address from Doctors Frank Cerra (University of Minnesota) and Robert Rizza (Mayo Clinic) was a fitting start to the day as the Genomics Partnership is leading an impressive initiative to make unprecedented strides in moving toward a diabetes cure. The caliber of the speakers and the depth and breadth of the expertise made the event a success.

“Minnesota’s community of diabetes capabilities is one of the best in the world,” said Dale Wahlstrom, CEO of BBAM. “Bringing this community together to discuss and engage is just the beginning. It’s critical that we use this momentum in continuing to coordinate our efforts in making Minnesota a diabetes center of excellence.”

We knew of Minnesota’s historic strengths in diabetes as evidenced by pioneering islet cell transplants, hosting a large number of diabetes clinical trials, home to several companies producing diabetes therapies and monitoring systems, and gaining national attention as an innovative leader in the areas of diabetes monitoring, health systems improvement, community initiatives, and health communications. However, the Summit revealed exciting strengths in several other areas.

- Dr. Rich Bergenstal, Executive Director of the International Diabetes Center at Park Nicollet, is an esteemed leader in the international diabetes community and is working on innovative ways to better treat patients, such as working with industry to streamline the readouts from diabetes meters to more quickly and accurately assess patients’ progress.
- United Health Group released a new partnership with the YMCA and retail pharmacies to help people at risk for type II diabetes to lower their risk.
- Cargill is researching functional foods and developing products based on fish oil, barley, salts, and flax that can positively impact health for certain conditions, including diabetes.

Panelists also showcased an incredible array of expertise in clinical infrastructure and patient care. The impressive research and product development was framed nicely with a patient panel that effectively gave the audience a personal look at the lives of diabetics and called for additional attention on hypoglycemia, patient education, and resources for community-led care.

This event will continue to provide value by carrying on the conversation in a quarterly working group. BBAM and [LSA](#) are working together to coordinate efforts and support the needs of the industry, the community and the Genomics Partnership's diabetes initiative. To learn more about the Summit and how BBAM is working with the diabetes industry, contact Amy Johnson at [ajohnson@biobusinessalliance.org](mailto:ajohnson@biobusinessalliance.org) or 952-746-3826.

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## **Jeremy Lenz, BBAM VP of Operations, to serve on University Enterprise Laboratories' board of directors**

Jeremy Lenz, BBAM Vice President of Operations, is joining the [University Enterprise Laboratories Inc.](#) (UEL) board of directors.

"I am honored to be invited to serve on the University Enterprise Laboratories' board of directors," Lenz said. "UEL is in a great position. They are implementing their mission by serving dozens of early stage companies. UEL, the organization, is profitable and almost fully leased. This is an exciting time to join the board-staying true to its mission and looking toward the next phase."

UEL is a bioscience incubator offering wet lab space to bioscience companies emerging from the University of Minnesota and elsewhere. UEL's vision is a Twin Cities in which bioscience companies become major employers. UEL has filled its current 125,000 square foot building, and now intends to expand by another 40,000 square feet.

"We're delighted to have Jeremy join the UEL board of directors," Paul Knapp, Chair of the UEL Board said. "He brings a wealth of knowledge to the organization's governance." Prior to joining BBAM, Lenz worked for the city of St. Paul and on the planning committee for the development of the UEL facility.

Lenz was the founding staff member of BBAM and currently serves as the vice president of operations. Lenz has received recognition for his outstanding business achievements. In 2006, he received the American Marshall Memorial Fellowship from the German Marshall Fund and in 2008, he received the Minneapolis/ St. Paul Business Journal's '40 under 40' award. He received his MBA from the Carlson School of Management in 2009.

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If you would like to receive The BioBulletin, please contact [Melissa Kjolsing](#).