

# Fast Forward

Thomas W Still of the Wisconsin Technology Council discusses what one of the world's leading bioclusters can offer major biopharma players

## BIOPHARMA GEOGRAPHY

Which American state is home to production or research offices for the following life sciences companies – GE Healthcare, Roche, Covance, Genzyme, Monsanto, Invitrogen, EMD Bioscience, Bruker AXS and Sigma-Aldrich? You may have answered California, Massachusetts or New York, but the correct answer is in fact Wisconsin. The same 45th parallel that passes near Bucharest, Belgrade, Milan and Lyon crosses the heart of Wisconsin, a Midwestern state bordered by Chicago on the south, Minneapolis-St Paul on the west and two of the world's largest fresh-water lakes on the north and east.

While researchers and biopharma executives across Europe are familiar with the American life sciences industry in coastal cities such as Boston, San Francisco and San Diego, they're unlikely to be aware that Wisconsin – and the rest of the 400-mile corridor that includes Chicago and Minneapolis-St Paul – is a 'third coast' when it comes to academic R&D, talent and corporate investment.

From the development of vitamin D, B and A therapies in the early 1900s to a succession of stem cell research breakthroughs in the last decade, Wisconsin has a long tradition of supporting the research, development and commercialisation of innovation and ideas that have changed the world.

Wisconsin offers comprehensive resources for biotechnology and medical device businesses seeking to expand in the state, for investors looking for a return on their investment, and for people seeking fulfilling employment in the life sciences. As a result, it has attracted some of the biggest names in the biopharma world, such as GE Healthcare, Covance and Roche.

Given the presence of major companies, it should be no surprise that the biosciences are a \$8 billion industry in Wisconsin. It includes more than 400 companies and 28,000 workers in medical, industrial and environmental biotechnology, bioinformatics, medical devices, healthcare and value-added agriculture. Leading biotech and med-tech sectors are:

- Electronic health records
- Bioinformatics
- Vitamin D, B and A research
- Stem cells, tissue engineering and regenerative medicine
- Cancer research and therapeutics
- Magnetic resonance imaging
- Genomics and personalised medicine
- DNA and RNA research
- Diagnostics
- Influenza research
- Zoonotics
- Proteomics

While many of Wisconsin's life science companies are relatively young, its commitment to research is longstanding. Wisconsin lies at the core of the 'I-Q Corridor'. The 'I' not only stands for interstate, but also ideas, innovation, intellectual property and

investment. The 'Q' represents quality of life, education and workforce, to name but a few.

To the south lies Chicago and Illinois, which alone could constitute the world's 12th largest economy. To the west is Minnesota, the US's second-largest producer of medical devices. Within the Wisconsin portion of the corridor are three life science centres of excellence – Madison, Milwaukee and Marshfield.

## MADISON

The University of Wisconsin-Madison (UW-Madison) is one of the most prolific research universities in the world, ranking second among US universities in total research expenditures (\$902 million in 2006, according to the National Science Foundation). It's one of the few campuses in the US with all five biology-related schools or colleges: medicine, pharmacy, veterinary medicine, agriculture, and letters and science. UW-Madison has more than 800 biosciences faculties across these units and 10,000 ongoing research projects. The UW-Madison ranks second in the US in doctoral degrees granted, fifth in new patents and first (tied with Harvard University) in the number of graduates who are CEOs of S&P 500 Index companies.

The Wisconsin Alumni Research Foundation (WARF) together with its affiliate WiSys has licensed more than 3,000 technologies from campus discoveries across the University of Wisconsin System in its 80-plus years of existence. The WiCell Research Institute – another WARF venture and the caretaker of the National Stem Cell Bank – supports embryonic stem cell research. Geron is among the leading holders of WARF licenses.

The Wisconsin Institutes for Discovery will become the only interdisciplinary centre of its kind outside California and Massachusetts when it opens in 2010. Under construction on the Madison campus, this \$150 million centre will incorporate specialists in biochemistry, nanotechnology, computer engineering, bioinformatics and more.

A \$134 million HealthStar Interdisciplinary Research Complex is currently being built near the University of Wisconsin Hospital and Clinics in Madison. It will be dedicated to innovation and rapid transfer of medical science discoveries into clinical applications.

The Madison-based Great Lakes Bioenergy Research Center is a \$135 million federal research centre, the opening of which was announced in 2007 – it is also one of only three supported by the US Department of Energy. Its focus is next-generation biofuels – particularly those developed from wood and grasses.

The Waisman Center on the Madison campus is dedicated to the advancement of knowledge about human development, developmental disabilities and neurodegenerative diseases throughout the human lifespan. The Center is one of nine national facilities that include a Mental Retardation Developmental Disabilities Research Center and a University Center for Excellence in Developmental Disabilities.

The University of Wisconsin Biotechnology Center, located on the UW-Madison campus, provides research, education

and information services to the life sciences community. The University Research Park is home to 114 companies, including scores of life science firms. Many start-up companies utilising UW-Madison and WARF-licensed technologies locate in this Park.

### MILWAUKEE

Wisconsin's largest metro area also contributes greatly to Wisconsin's life science research capabilities. The Medical College of Wisconsin ranks in the top third of all US medical schools in life science research funding and houses one of the largest bioinformatics research centers in the country.

The Blood Research Institute, a division of the Blood Center of Wisconsin, is the third-largest biomedical research institution in the state. Internationally acclaimed, the Blood Center is one of only four in the world with a significant blood research programme. It receives more funding from the National Institutes of Health than any other blood centre in the US.

The University of Wisconsin-Milwaukee has a growing research programme that includes basic and applied research in chemistry, biological science, engineering and freshwater science. Marquette University has advanced research programmes in biomedical engineering/functional imaging and bioinformatics, while the Milwaukee School of Engineering offers a full array of advanced engineering programmes. The Milwaukee County Research Park, including the Technology Innovation Center for business incubation, is home to many start-up firms spun out of southeast Wisconsin research institutions.

### MARSHFIELD AND BEYOND

Spread throughout most of western and northern Wisconsin, the Marshfield Clinic system consists of more than 41 locations throughout Wisconsin, making it one of the largest comprehensive medical systems in the US. The clinic system includes nearly 800 physicians in 84 medical specialties and subspecialties.

Marshfield Clinic Research Foundation, established in 1959, is one of the largest private not-for-profit medical research foundations in the US. There is currently a total of 450 clinical trials and clinical research being carried out in human genetics, personalised medicine; epidemiology; rural health and safety; biomedical informatics research; and zoonotics. The clinic is also home to the largest population-based biobank in the US.

Other UW System campuses, private colleges and technical colleges are sources of graduate students in the biological sciences as well as laboratory technicians. For example, UW-La Crosse is part of the multi-state La Crosse Medical Health Science Consortium, which has clinical ties to the Mayo Clinic in nearby Rochester, Minnesota.

### A STRONG NETWORK OF PARTNERS AND SUPPORTERS

Wisconsin has the resources to meet the needs of life science professionals, whether they are starting a company or a career. There are various bodies providing these services and support, outlined below.

The Wisconsin Department of Commerce

This has early stage investment tax credits, technology assistance grants, technology bridge grants, technology matching grants and technology venture fund loans available to encourage entrepreneurial growth.

### About the author



Tom Still is President of the Wisconsin Technology Council and the Wisconsin Innovation Network. He is the former Associate Editor of the Wisconsin State Journal in Madison. Tom has served on the Governor's Economic Growth Council, the Wisconsin

Security Research Consortium, the UW-Extension Board of Visitors, the UW-Madison College of Engineering Industrial Advisory Board and other civic and business groups. He moderated the Wisconsin Economic Summits and writes a syndicated column that appears regularly in around 24 publications. He is a lecturer in the UW-Madison College of Agricultural and Life Sciences.

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### The Wisconsin Technology Council

This is the non-profit, non-partisan science and technology adviser to the Governor and the legislature, and the leading catalyst for technology-based economic development in Wisconsin. It manages the statewide Governor's Business Plan Contest, the Wisconsin Innovation Network, the Wisconsin Security Research Consortium, several major conferences and the Wisconsin Angel Network.

### The Wisconsin Angel Network

This is a public-private initiative created with bipartisan support from the Governor the legislature. The Network provides services and support to angel networks and early-stage investors, including deal flow, administration, education and networking events. In 2007, WAN charted nearly \$148 million in private equity investment in Wisconsin.

### The Wisconsin Entrepreneurs' Network

This network provides integrated statewide support to entrepreneurs in all industries and developmental stages. It features 50 access points across the state and offers entrepreneurial assistance.

The Wisconsin Biotechnology and Medical Device Association  
Founded in 1987, this association is a statewide coalition of business, science, education and government leaders dedicated to promoting the growth of the life science industry in Wisconsin.

### A VIBRANT LIFE SCIENCES CLUSTER

From academic researchers who attracted \$1.1 billion in competitive grants, to the growing presence of major pharmaceutical and biotech companies, to an infrastructure that supports a growing industry, Wisconsin is on the world map in the life sciences, and has much to offer the sector.

These resources help to explain why *FierceBiotech*, a leading life science industry bulletin, named Wisconsin one of the five places in the world best-positioned to be a hotbed of biotech innovation. It's why the US National Institute of Health chose Wisconsin as the location for the one and only National Stem Cell Bank. Key industry events are also now flooding into the new hub at Wisconsin, such as the World Stem Cell Summit, to be held in September 2008. Follow the 45th parallel west across the Atlantic Ocean and discover Wisconsin, America's 'third coast' for the life sciences.