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Madison hosts World Stem Cell Summit starting today

Rapidly evolving industry is creating public forum

BY MARK JOHNSON AND KATHLEEN GALLAGHER

With their field riding a wave of discovery and change, researchers, financiers and policy-makers from around the world will arrive today for the 2008 World Stem Cell Summit in Madison, the city where James Thomson started a scientific revolution almost a decade ago.

If any need confirmation of the rapidly changing landscape, it should come with this announcement planned for the summit: The two Madison companies co-founded by Thomson have merged and shifted their focus to products involving non-embryonic stem cells.

In 1998, Thomson was the first person to isolate human embryonic stem cells, launching a national debate and making Madison a major destination for stem cell research.

Last November, Thomson's team and a separate group from Japan made history and suggested a new direction for stem cells by reprogramming human skin cells back to an embryonic state. The new cells are known as induced pluripotent stem cells, or iPS cells.

Ever since the reprogramming breakthrough, researchers have published a stream of papers using the new technique to rescue mice with sickle cell anemia and to create human cell lines from people with a host of different diseases. The cell lines hold the promise of allowing scientists to gain a new window into the disease process and a powerful new tool for testing drugs. Longer term, the new technology may allow doctors to use patients' own cells to treat genetic and other ailments.

Thomson's merged company, Cellular Dynamics International, is "moving rapidly" toward marketing human skin cells it reprograms into heart and blood cells that drug developers can use to test whether their compounds will be safe for humans, said Chris Kendrick-Parker, CDI's chief commercial officer.

"I think Wisconsin is going to be one of the epicenters of the pluripotent stem cell revolution," said Bob Palay, CDI's chairman and chief executive officer. Palay was also founder and chairman of NimbleGen Systems Inc., which was acquired last year by Roche Holding AG for \$272.5 million.

Against this backdrop, Madison will host about 1,000 key players for the three-day summit, which kicks off today with events aimed at bringing the science of stem cells into the public arena.

"In many ways the summit is coming home to where it all began," Gov. Jim Doyle said.

Madison is also hosting the Safety Pharmaceutical Society's annual meeting Monday through Thursday at Monona Terrace Community and Convention Center. The society expects several hundred scientists, pharmaceutical industry representatives and others involved in drug development to attend.

The stem cell summit's "Lab on the Lake" today will allow visitors to watch videos of tiny beating heart cells, learn how scientists count cells and even peer through a microscope at Thomson's discovery: human embryonic stem cells.

The event was designed as a "public celebration of stem cells," according to Bernard Siegel, executive director of the Genetics Policy Institute, which promotes stem cell research and which organized the fourth annual summit.

"It's really meant so that people can get engaged in the subject matter, get their questions answered and become part of this broad consumer movement," he said.

"We want people to understand stem cell research and regenerative medicine," said Timothy Kamp, co-director of UW's Stem Cell and Regenerative Medicine Center and a co-founder of CDI. "We feel it is transformative. It's going to transform the way medicine is practiced in the coming decades."

Madison companies

Along with Thomson's CDI, companies in Madison such as Stratatech, Stemina, Primorigen and CellCura are working in the emerging area of regenerative medicine that focuses on repairing or replacing diseased tissues and organs.

Stratatech, a UW-Madison spinoff company, isn't using stem cells. But it has developed a human skin cell line it can culture into skin substitutes for healing wounds.

"To my knowledge, you don't see this concentration of regenerative medicine or pluripotent stem cell companies in such a tight geographical concentration anywhere else in the world," said Andy DeTienne, licensing manager for stem cells at the Wisconsin Alumni Research Foundation, which patents the work of Thomson and other UW-Madison researchers.

The summit continues Monday and Tuesday at the Alliant Energy Center with a range of sessions covering everything from progress on specific diseases to the new reprogramming technology, and legal, ethical and regulatory issues.

Not a typical meeting

"This isn't a typical scientific meeting where there will be headline breakthroughs," Kamp said. "This is more of a meeting to get the latest, greatest information out there - to understand where the field is.

"And it's not easy to understand where the field is right now. It's changing very quickly."

Expected highlights include a panel discussion Monday on "How Stem Cell Research Is Transforming Health Care," and a keynote speech by Thomson, "A New Vision for Creating Patient-Specific Cells."

Doyle is scheduled to speak Monday night, and on Tuesday former Gov. Tommy Thompson is scheduled to take part in a discussion focusing on how industry, universities and government can develop stem cell businesses and therapies.

Other sessions showcase stem cell research on a variety of different ailments, including neurological disorders, cardiovascular disease, blindness and eye diseases, cancer, diabetes and spinal cord injuries. Some will include patients, doctors and advocates, and the news here may be sobering. Despite considerable progress, clinical trials for some ailments are probably years, if not decades, away.

"It's hard for people who don't work in the scientific community to understand how difficult this work is," said Mark Magnuson, director of Vanderbilt University's Center for Stem Cell Biology. "This is going to take a while, but it has opened up a door and taken us down a path from which there is no return."