MINUTES OF THE REGULAR MEETING

of the

BOARD OF REGENTS OF THE UNIVERSITY OF WISCONSIN SYSTEM

Madison, Wisconsin

UW-Madison
Held in 1820 Van Hise Hall
December 6, 2007
10:00 a.m.

- President Bradley presiding -

PRESENT:	Regents Bartell, Bradley, Connolly-Keesler, Cuene, Davis, Falbo, Loftus, Pruitt, Rosenzweig, Shields, Smith, Spector, Thomas, and Walsh
UNABLE TO ATTEND:	Regents Burmaster, Crain and McPike

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PRESENTATION ON STEM CELL RESEARCH BREAKTHROUGH BY DR. JUNYING YU, UW-MADISON, AND CARL GULBRANDSEN, MANAGING DIRECTOR, WISCONSIN ALMUNI RESEARCH FOUNDATION

Mr. Gulbrandsen introduced Dr. Yu, the lead author of a recently published paper on a highly significant breakthrough in stem cell research, noting that she is a very talented young scientist who graduated at the top of her class and received her PhD in cell biology from the University of Pennsylvania.

Dr. Yu began her remarks by explaining that cells are the fundamental, structural, and functional units of living organisms. DNA is contained inside the nucleus of cells. These cells differentiate during their development to form the different bodily organs. Once developed, these cells are quite stable and have limited ability to repair themselves.

Parkinson's Disease, ALS, Heart Disease, and Diabetes all result from the death of specific kinds of cells.

Embryonic stem cells, she stated, can be manipulated to become any kind of tissue in the body, although there is controversy regarding the origin of these cells. A major challenge for embryonic stem cell-based transplantation therapy is the possibility of immune rejection. The effort was made to solve this problem through nuclear cloning, and results of this research on producing primate embryonic stem cells by somatic cell nuclear transfer were published in a recent edition of *Nature.*

Because this process is so difficult and challenging, she and others focused research on trying to develop alternative means of preventing immune rejection. In that regard, it had been found early in 2006 that human embryonic stem cells are able to reprogram human blood cells through genes in the stem cells whose expressions are enriched. Once these genes were identified, 150 of them were tested.

This research resulted in the development of induced pluripotent stem cell (iPS) lines derived from human somatic cells, a discovery published in the journal, *Science,* on November 20, 2007. What this means is that researchers can take skin cell samples from patients, reprogram them, and induce them to become any human tissue.

Human iPS cells are important, Dr. Yu explained, because:

- They allow the development of accurate in vitro disease models;
- iPS cells with diversity of genetic background can be used for drug screening;
- iPS cell technology solves the problem of immune rejection for transplantation therapies.

In addition, Dr. Yu pointed out, these cells might be used to repair damaged tissue without transplantation.

In conclusion, she acknowledged the contributions of Kim Smuga-Otto and other members of Jamie Thomson's lab; Maxim A. Vodyanik, of the Igor Slukvin lab; and Shulan Tian, Jeff Nie, and other members of the WiCell-Bioinformatics team.

In discussion following the presentation, Regent Walsh asked if these cells could have application to retinal diseases; and Dr. Yu replied that the first application would be to diseases of the blood. Mr. Gulbrandsen added that the discovery opens the door to studying a broad range of conditions, including retinal diseases.

In response to a question by Regent President Bradley, Dr. Yu said that she and other members of Dr. Thomson's team worked independently of other groups who were doing similar research. Mr. Gulbrandsen indicated that Dr. Thomson told him three months ago that his team was in a race against others to be the first to complete the research and publish this discovery.

Congratulating Dr. Yu and the team on their discovery, Regent Loftus inquired about whether patents applications were being filed and whether the discovery removed the ethical concerns that had been raised about embryonic stem cell research.

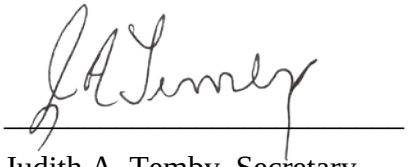
Replying that WARF has filed patent applications, as have others, Mr. Gulbrandsen said it would be some time before decisions are reached on those applications. There would be no licensing required, and researchers would be free to use the technology aggressively. An explosion of research on campus was expected as a result of the discovery, and it was hoped that commercial opportunities would arise as well.

Indicating that Wisconsin has 17 of the 21 embryonic stem cell lines in the National Stem Cell Bank, he explained that these cells remain very important for research going forward and also will act as a reference for iPS cell research.

In response to a question by Regent Spector, Mr. Gulbrandsen remarked that the prospects of working on this research with the Wisconsin Institutes of Discovery and the Morgridge Research Institute are very exciting.

The discussion concluded and the meeting was adjourned at 10:30 a.m.

Submitted by:



Judith A. Temby, Secretary

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