Scientists Guide Human Skin Cells to Embryonic State

In a paper published Nov. 22, 2007, in the online edition of the journal Science, a team of University of Wisconsin-Madison researchers reported the genetic reprogramming of human skin cells to create cells indistinguishable from embryonic stem cells.

The new study was conducted in the laboratory of James Thomson, PhD, professor of anatomy at the UW School of Medicine and Public Health (SMPH). Thomson was the scientist who first coaxed stem cells from human embryos in 1998. The current study was led by Junying Yu, PhD, of the Genome Center of Wisconsin and the Wisconsin National Primate Research Center.

The finding is not only a critical scientific accomplishment, but potentially remakes the tumultuous political and ethical landscape of stem cell biology as human embryos may no longer be needed to obtain the blank slate stem cells capable of becoming any of the 220 types of cells in the human body.

Perfected, the new technique would bring stem cells within easy reach of many more scientists as they could be easily made in labs of moderate sophistication, and without the ethical and legal constraints that now hamper their use by scientists.

Overall Wisconsin Smoking Rate Declines

State smoking rates for adults declined from 25 percent to 21 percent from 1990 through 2006. Similar declines occurred at the national level, according to a report issued Nov. 12, 2007, by researchers at the UW Paul P. Carbone Comprehensive Cancer Center.

However, the study also found strikingly different levels of change among sub-populations or groups.

“Major segments of the population, particularly those with less than college education, continue to have very high rates of smoking,” says Karen Palmersheim, PhD, one of the study authors.

Read more

Hormone Effects on Eating, Stress Mediated by Same Brain Region

A hormone system linked to reducing food consumption appears to do so by increasing stress-related behaviors, according to a new study.

Mediated by a hormone receptor protein known as the corticotropin-releasing factor type 2 (CRF2) receptor, the system has attracted recent interest for its role in regulating food intake, say Vaishali Bakshi, PhD, and Ned Kalin, MD, of the SMPH Department of Psychiatry.

“With the increasing focus on obesity, people are interested in finding targets that can be used to develop drugs that will reduce appetite and food intake without a lot of side effects,” Bakshi says.

Read more
http://www.med.wisc.edu/news/item.php?id=2359
Center Formed to Advance Innovative Medical Imaging Technology

The Wisconsin researcher who created the “gold standard” for medical imaging of blood vessels will lead a new center to tackle the next generation of imaging: taking sharper, cleaner, four-dimensional pictures hundreds of times faster than now.

Charles Mistretta, the John Cameron Professor of Medical Physics at the SMPH, will direct the International Center for Accelerated Medical Imaging to advance and disseminate the ground-breaking medical imaging technology he and his colleagues have developed over the past several years.

Based on concepts that are radically different from the ones that have governed medical imaging for the past several decades, the technology is yielding greatly improved views of the heart, brain, blood vessels, breast and joints.

The new center will bring together researchers from around the world to expand the new technology. Some 70 UW medical physicists will form the heart of the effort.

Focused originally on magnetic resonance (MR) imaging, the technology appears to be applicable to all other imaging techniques as well—including X-ray, CT, PET and ultrasound.

“When we recognized how generalized this technology could be, we wanted to get the best minds in the world together to share ideas about it and move the science forward,” Mistretta says.

Read more

In addition to support from the NIH and other federal and state agencies for projects like those described in this newsletter, private philanthropy plays a pivotal role in funding research at the SMPH. If you are interested in how you could partner with us in advancing research at the SMPH, please contact Jill Watson at the UW Foundation at (608) 263-3173.