

[SAVE THIS](#) | [EMAIL THIS](#) | [Close](#)[More Biotechnology news](#)

Stem cell research focus of meeting

By Terri Somers

UNION-TRIBUNE STAFF WRITER

November 8, 2008

Imagine cardiac cells, beating in a petri dish, being used to form human tissue that might be used to replace damaged heart muscle. Think about those same cells acting as a surrogate for the human heart to determine whether experimental drugs would be toxic.

It is not science fiction, but a real project that scientists are working on, using human embryonic stem cells.

Scientists from across the country discussed that and other research projects yesterday at the third annual Stem Cell Meeting on the Mesa at the Salk Institute.

The meeting brought together more than 200 scientists from academia and biotechnology, including the leaders in various areas of stem cell research, including cardiac disease, diabetes, neurodegenerative disease and cancer. Presented by the coalition of San Diego's four largest research institutes – known officially as the Sanford Consortium for Regenerative Medicine – the gathering was meant to stoke creative juices and foster collaborations.

“Another reason for the meeting is to reignite the rallying cry of scientists in the field,” said Evan Snyder, who heads the stem cell program at the Burnham Institute in Torrey Pines.

It is a field that is thought to hold the potential for curing some of society's most devastating diseases, but it also has been extremely controversial. California taxpayers supported a \$3 billion initiative to fund research that the federal government wouldn't.

The meeting gave some local scientists a chance to highlight their work. And it gave San Diego's biotechnology executives a peek at research in the pipeline, because their companies, among others, will be expected to turn that research into products.

Many people hoped those products would be therapies, essentially stem cells grown into replacement cells that could be transplanted to replace cells or tissue destroyed by disease.

While that hope has not died, scientists are learning it remains distant. Science must overcome several issues, such as immune-system rejection of transplanted cells or the risk of the cells creating tumors, said Joseph Wu, of Stanford University's School of Medicine.

Meanwhile, scientists are excited about how the cells are being used now – as human models to test drugs and get a better understanding of disease development.

Mark Mercola showed how scientists at the Burnham have been working to perfect the process of coaxing human embryonic stem cells into cardiomyocytes, the cells that make up heart muscle.

His lab, in collaboration with the San Diego company Vala Sciences, is developing tests and instruments that help measure the toxicity that experimental drugs would have on the cells.

Currently the drug toxicity isn't determined until clinical trials, after years of research and millions of dollars have been invested.

Human models help scientists weed out the problem drugs early, saving them time and money to invest in more promising molecules, Mercola said.

Harvard Stem Cell Institute's Kenneth Chien talked about his lab's approach to growing heart cells and using them to construct beating pieces of replacement tissue. One day Chien's team hopes the tissue can be transplanted to replace damaged heart muscle.

Using an old photograph of California Gov. Arnold Schwarzenegger in his acting days as Conan the Barbarian, University of California San Diego professor Larry Goldstein explained the complex and lengthy road over which the body's neurons must transmit signals to synapses in the feet and hands, and all that could go wrong in between.

Using human embryonic stem cells, scientists in Goldstein's lab are creating human models of Alzheimer's disease to determine the role of environmental and genetic damage.

It's one disease that requires a human model, Goldstein said, because mice and other animals don't get it.

“Who can tell if a mouse is demented anyway?” Goldstein said.

Through its work, Goldstein's team learned that the best models are created by coaxing skin cells from people with Alzheimer's to go backward down the development chain until they are pluripotent, meaning they are like embryonic cells in having the capacity to evolve into many cell types. These so-called induced pluripotent cells are then coaxed to develop forward again, into diseased neurons.

The meeting gave young Scripps researchers Inbar Friedrich Ben-Nun and Suzanne Peterson leads on teams and projects with which they might want to collaborate.


Even more seasoned scientists, such as Scripps neuroscientist Floyd Bloom, were jazzed about what they were seeing.

“There's a joy in watching young scientists come up with solutions to problems we didn't even recognize as a problem,” said Bloom, who is on the board of the state stem cell institute. “Seeing new ideas emerge is the most reinforcing part of being a scientist.”

■Terri Somers: (619) 293-2028; terri.somers@uniontrib.com

Find this article at:

<http://www.signonsandiego.com/news/business/biotech/20081108-9999-1b8stem.html>

 **Click to Print**

[SAVE THIS](#) | [EMAIL THIS](#) | [Close](#)

Check the box to include the list of links referenced in the article.

◆ Copyright 2007 Union-Tribune Publishing Co. ? A Copley Newspaper Site