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◆ <b>Hutchinson cancer center scientists get \$16.7M to research stem cells</b>	Two scientists at the Fred Hutchinson Cancer Research Center in Seattle have been awarded \$16.7 million for stem cell research projects. <a href="#">&lt;Read More&gt;</a>

## 1. Scientists Grow Jaw bone from stem cells

10 October, 2009

**The jaw was created from bone marrow stem cells, aptly enough. The world has Columbia University to thank for this achievement. The jaw represents a possible range of treatments of serious, debilitating medical conditions with customized responses.**

Scientists have created part of the jaw joint in the lab using human adult stem cells.

They say it is the first time a complex, anatomically-sized bone has been accurately created in this way. It is hoped the technique could be used not only to treat disorders of the specific joint, but more widely to correct problems with other bones too.

The Columbia University study appears in Proceedings of the National Academy of Sciences.

The bone which has been created in the lab is known as the temporomandibular joint (TMJ).

Problems with the joint can be the result of birth defects, arthritis or injury.

Although they are widespread, treatment can be difficult.

The joint has a complex structure which makes it difficult to repair by using grafts from bones elsewhere in the body.

The latest study used human stem cells taken from bone marrow.

These were seeded into a tissue scaffold, formed into the precise shape of the human jaw bone by using digital images from a patient.

The cells were then cultured using a specially-designed bioreactor which was able to infuse the growing tissue with exactly the level of nutrients found during natural bone development.

Lead researcher Dr Gordana Vunjak-Novakovic said: "The availability of personalised bone grafts engineered from the patient's own stem cells would revolutionise the way we currently treat these defects".

Dr Vunjak-Novakovic said the new technique could also be applied to other bones in the head and neck, including skull bones and cheek bones, which are similarly difficult to graft.

The option to engineer anatomically pieces of human bone in this way could potentially transform the ability to carry out reconstruction work, for instance following serious injury or cancer treatment.

She said: "We thought the jawbone would be the most rigorous test of our technique; if you can make this, you can make any shape."

She stressed that the joint created in the lab was bone only, and did not include other tissue, such as cartilage. However, the Columbia team is working on a new method for engineering hybrid grafts including bone and cartilage.

Another major challenge for scientists will be to find a way to engineer bone with a blood supply that can be easily connected to the blood supply of the host.

Professor Anthony Hollander, a tissue engineering expert from the University of Bristol who helped produce an artificial windpipe last year, said there was still a lot of work to be done before the new bone could be used on patients.

But he said: "One of the major problems facing scientists in this field is how to engineer a piece of bone with the right dimensions - that is critical for some of these bone defects.

"This is a lovely piece of tissue engineering which has produced bone with a high degree of accuracy in terms of shape."

*Source: BBC News*

## **2. Stem Cell Global Symposium, 2009 on Nov 7 in Delhi 13<sup>th</sup> October, 2009**

Stem Cell Global Foundation- a social welfare organization that aims to integrate all stem cell solution on a single platform is organizing Stem Cell Global Symposium (SCGS-2009) on November 07, 2009 at MRIU campus, Sector 43, Delhi-Surajkund Road, Faridabad, India. There will be a conference as well as exhibition running in parallel.

This would be the first of its kind in Northern part of India, where both developers side and users side of stem cell technology will meet and will understand & explore beneficial opportunities for each other.

Where, Panel of no. of developers may together come out with some new development to this vast field of stem cell technology. Where, a patient can compliment doctor's stem cell lecture by sharing his/her experience of stem cell therapy.

Stem Cell Global Symposium 2009, will meet the Delegates invited from all over the Globe. The pool of delegates attending the Symposium is Doctors, Gynecologists, Regulatory People, Researchers, Company Representatives representing National as well as International markets, Government officials dealing with stem Cells and other dignitaries etc...

Stem Cell Companies, Biotech Companies, Cord Blood Banks, Stem Cell Therapy Centres with in India and abroad, Clinical Research Institutes will share their experiences about stem cells, hope of

treatment and advancing levels of treatment, side effects generally does it 'exist' or just a 'phobia'. Such messages will be delivered and spread worldwide from the desk of "Stem Cell Symposium – 2009".

To spread the information about the Stem Cell Technology, that is the talk of the town these days, our Media partners like World Health TV, USA, Bentham Science Publishers Ltd. having offices in UAE, USA, Asia And many more will play a vital role and catch this event live across the globe.

Stem Cell Spectrum will also be released, a magazine by Stem Cell Global Foundation, that would be distributed to about one lac people attending the conference and stem cell associated experts.

To know more and to quench your thirst of knowledge about Stem Cell Technology, how it works, how it is 'done' or does this unheard technology really 'exists', if exists, who are the people associated with the technology, you have to become a part of this symposium.

Stem Cell Global Foundation says:-

"Stem Cell Technology has the potential to improve the Life But to gain its real worth, it needs to be known & available to the needy people."

And this symposium, SCGS-2009 is one of the effort to bring Stem cell solutions whether its therapeutic use, banking technology, research under progress, successful patient stories, innovative stem cell lab supportive material or ethical principles involved from different corners of the world on a single stage making Stem Cell Technology a Provision to its Users.

*Source: Pharmabiz.com*

### **3. Stem cell summit coming to Detroit**

**14<sup>th</sup> October, 2009**

Michigan Gov. Jennifer Granholm and Detroit Mayor Dave Bing are expected to announce the city will be the host of a convention next October on stem cell research and commercialization.

A person with knowledge of the event says the World Stem Cell Summit will bring its annual three-day event to Detroit. The person isn't authorized to comment and requested anonymity.

Granholm, Bing and representatives of University of Michigan, Michigan State University and Wayne State University plan to announce the summit Thursday afternoon.

Granholm spokeswoman Liz Boyd would not confirm any details about the announcement Wednesday. The event is expected to draw more than 1,200 business, academic and government leaders from 25 countries. This year's summit was held last month in Baltimore.

*Source: Chicago Tribune News*

### **4. Scientists get closer to making safe patient-specific stem cells**

**8<sup>th</sup> October, 2009**

Induced pluripotent stem cells – also known as iPS cells – are all the rage in the nascent field of regenerative medicine. Like embryonic stem cells, they have the potential to become any type of cell in the body and could be used to grow replacement parts, such as insulin-producing beta cells for diabetes patients or nerve cells for repairing spinal cord injuries.

Even better, they can be made by reprogramming skin or other cells from the patients who need them. That not only eliminates the need to use embryos, it ensures that the replacement tissues made from iPS cells are genetically matched to patients and won't be rejected by the body's immune system.

But there's still a big catch: In order to rewind adult cells to a pluripotent state, researchers have to turn on a set of dormant genes that have the potential to cause tumors. So do the viruses they use to activate those genes.

So researchers have been looking for ways around this problem. One approach is to snip out the genes and viruses once the reprogramming is complete. Another is to use DNA sequences called transposons in place of viruses, then delete the transposons after they're no longer needed. One group of researchers has even used genetic engineering to modify the key genes so that they can enter the skin cells without requiring viruses or transposons.

But many scientists think the safest approach is to replace the genes altogether with so-called small molecules. In a study published online today in the journal Cell Stem Cell, researchers from the Harvard Stem Cell Institute report that a single compound they dubbed RepSox can replace two of the four key reprogramming genes.

“We’re halfway home, and remarkably we got halfway home with just one chemical,” senior author Kevin Eggan, a professor in Harvard’s department of stem cell and regenerative biology, said in a statement.

Eggan’s team identified RepSox by screening 200 compounds and waiting a couple of weeks to see which of them did the best job of transforming mouse cells into iPS cells in combination with three of the four reprogramming genes. The researchers were surprised to find that their compound not only replaced the gene Sox2 (hence the name RepSox), but also made the gene c-Myc obsolete.

Now the group will turn its attention to finding other small molecules that could replace the remaining genes – Oct4 and Klf4 – as well, “opening a route to purely chemical programming,” they write.

*Source: Los Angeles News*

## **5. Stem Cell Surgery Grows New Cheekbones**

**10<sup>th</sup> October, 2009**

The surgery used cadaver bone and the boy's own stem cells to grow new facial bones.

Brad Guilkey, 15, suffers from a rare kind of genetic disorder, wherein the bones and other tissues are prevented to develop in the face. Besides the severe facial disfigurements, the condition also causes Brad's ability to play sports to be limited, like other boys of his age. Without the bones in the face he could crush his eyeballs by just a blow from the basketball.

Doctors at the Cincinnati Children's Hospital Medical Center performed an experimental treatment on Brad, implanting cadaver bone in his face and injecting his own stem cells into it, during an eight-hour surgical procedure.

This surgery was conducted in May and since then Brad has grown solid bone in his face facilitated by the stem cells triggering the cadaver bone back to life. Dr. Jesse Taylor of the Cincinnati Children's Hospital Medical Centre, is extremely taken aback with the breathtaking success of the experimental stem cell surgery.

Brad's parents consider it nothing less than a miracle.

*Source: TopNew.US*

## **6. Hutchinson cancer center scientists get \$16.7M to research stem cells**

**8<sup>th</sup> October, 2009**

Dr. Irwin Bernstein and Beverly Torok-Storb received the federal funding from the National Heart, Lung and Blood Institute. Their award is part of a \$170 million effort divided among 18 scientific teams.

Torok-Storb will work with Dr. Mortimer Poncz of Children's Hospital of Philadelphia to develop molecular and cell-based therapies for a range of blood diseases, using an \$8.2 million grant.

Bernstein will work with Edward Morrisey of the **University of Pennsylvania** to study how biochemical reactions inside cells affect cell development, using an \$8.5 million grant

*Source: Puget Sound Business Journal*