

LifeCell – Daily News Update

November 2, 2009

Key Industry News:

Publication	medindia.net
Headline	Acute Lung Injury may be Treated With Stem Cell Therapy
Gist of the article	<p>Adult stem cells from bone marrow can help treat acute lung injury, a new mice study by researchers at the University of Illinois at Chicago College of Medicine has shown.</p> <p>Acute lung injury (ALI) can be caused by any major inflammation or injury to the lungs and is a major cause of death in patients in hospital ICUs. There is no effective drug treatment.</p> <p>In ALI, the layer of cells that forms the lining of the blood vessels surrounding the lung's air sacs is damaged, allowing fluid to leak in and fill the sacs.</p> <p>Kishore Wary, UIC assistant professor of pharmacology and lead author of the study, said that repair of these breaks in the endothelium, or lining, is complicated by the fact that endothelial cells are long-lived.</p> <p>Turnover of new cells takes as long as two to five years, and few of the precursor cells needed for replacement circulate in the body at any given time.</p> <p>"The stem cells that might be able repair the damage caused by ALI are simply not on hand," he said.</p> <p>Wary and his colleagues were able to identify progenitor stem cells in the bone marrow of mice that could prevent and treat experimentally-induced ALI.</p> <p>These progenitor stem cells, named Flk-1 and CD34 for the proteins on their surfaces, constitute a very small percentage of the stem cell population in the bone marrow, but the researchers were able to develop a way of culturing the cells that increased their numbers and their "stickiness."</p>

Publication	news.bbc.co.uk
Headline	Stem cell 'gives my heart hope'
Gist of the article	<p>Six years ago, Dean Third was just like any other family man - then one afternoon everything changed. He suddenly collapsed. "I never thought at all that I would be struck down with something that would affect my life in the way it did," he said. Dean was diagnosed with a rare heart condition called dilated cardiomyopathy - where the muscle cells of the heart slowly die off. Over time, his heart had become enlarged and increasingly struggled to pump the blood around his body - until it hit crisis point.</p> <p>Our goal is to try to build a heart in a lab Dr Doris Taylor Dean, 39, was lucky because he was found by his wife within minutes of collapsing. Others have not been so fortunate, which is why this condition is sometimes referred to as a form of Sudden Death Syndrome.</p> <p>'Fundamentally change'</p> <p>But since his diagnosis, Dean's life has been severely restricted. He used to be in the forces, but now he is unable to walk to the end of the street without great difficulty.</p> <p>STEM CELL MILESTONES</p> <p>1960s: Research begins on stem cells taken from adult tissue</p> <p>1968: Adult stem cells used to treat immunodeficient patient</p> <p>1998: US scientists grow stem cells from human embryos and germ cells, establishing cell lines still in use today</p> <p>2001: Embryonic stem cell turned into a blood cell</p> <p>2002: UK regulator issues two licences to begin research on embryonic stem cells</p> <p>He has gone from being the main breadwinner for his four children, to having to survive on benefits. His condition is stabilised on a cocktail of drugs, but he has to constantly increase the dose to achieve the same effect - and he is nearing the upper limits.</p> <p>The only cure at the moment is a heart transplant. But there is a long waiting list, and what follows is a lifetime of taking harsh immunosuppressant drugs. To make matters worse, Dean has been told his condition was inherited.</p> <p>His cousin died from it, both his uncles suffer from it, and there is a 50% chance he has passed the condition onto each of his children.</p> <p>Now he thinks the emerging field of stem cell science might be his - and possibly his children's - hope for a future. "You can only be optimistic. You know, it might not - I'm a realist - it might not happen in my lifetime, but to think that [scientists] are doing that and</p>

it'd be for my children's lifetime and my grandchildren's lifetime, is absolutely fantastic," he said.

Why stem cell science is giving these people a fresh hope for the future

Dean says he is given hope by people like Dr Anthony Mathur, a cardiologist at the London Chest Hospital.

Dr Mathur is investigating whether injecting a patient's own stem cells - taken from their bone marrow - directly in to the weakened muscles of the heart, can lead to an increase in heart function.

The outcome of the trial, which Dr Mathur is still recruiting for, will not be known until next year, but if results with humans follow those found with animals, Dr Mathur hopes the improvement will be equivalent to having a pacemaker fitted.

"I think what is really fascinating is that in the group of people who are predicted to continue to deteriorate because they have such bad heart disease, we do see people who get better," said Dr Mathur.

'Back to life'

To learn more about stem cell science, Dean went to a laboratory in Minneapolis, USA, where Dr Doris Taylor is attempting something from the realms of science fiction.

"Our goal is to try to build a heart in a lab," said Dr Taylor.

Dean Third travelled to Minneapolis to learn more about stem cell science

To do this, she takes a heart from a dead rat and strips away all its cells using detergents - leaving behind what is called an extra cellular matrix - a scaffold on which the heart can be rebuilt.

This scaffold is then re-seeded with stem cells taken from another animal and "brought back to life" as a beating heart in a test tube.

Dr Taylor's next step is to a human scale, using scaffolds created from pigs' hearts.

"The hope is that someone comes to us, they need a heart, we find a pig scaffold, we remove all the cells, we get stem cells from them, we put the cells back in, we grow the heart, we mature it, we clean it up and it's ready for transplant," she said.

This would eliminate the need for harsh anti-rejection drugs, because the cells would match their body, she added.

For Dean, seeing stem cell science in action was "amazing" and "inspirational" - but also "humbling".

"This could be the future that could cure me and get me back to the life that I had 10 years ago," he said.

<p>Headline</p>	<p>Allan hopes for stem cell surgery</p>
<p>Gist of the article</p>	<p>Thirty-seven-year-old Allan Karim continues to hope that his dream of walking again will be fulfilled.</p> <p>He has been fund-raising for the past few years to get stem cell surgery done in China at a facility which has had success with the procedure.</p> <p>Karim, of Todd's Road, Freeport, was injured in June 1996 when the pick-up he was driving overturned at Palmiste.</p> <p>His neck was fractured and he spent several months warded at the Port-of-Spain General Hospital. An MRI was done six months after hospitalisation and he was sent to the US for a medical opinion.</p> <p>Karim was told if surgery was done within two months he had a chance of full recovery. In 1997, his family raised funds for surgery at a private hospital however, after the procedure he was still unable to walk and although he could move his arms there was no strength in his fingers.</p> <p>"I'm still unable to walk and do things on my own, simple things like going to the fridge for a glass of water or going to the bathroom to have a shower, simple things people take for granted I'm unable to do," Karim said recently. He is a recipient of a disability grant and his family also assists.</p> <p>Karim has been following the developments with stem cell research since 2000 and was given hope by reading of other persons who have tried the treatment. Karim has selected the Shen Zhen Beike Biotech Company Ltd in China for treatment. The facility describes itself as "one of the leading expert groups in China."</p> <p>Karim said the treatment will require four intravenous injections over a period. Physical therapy is also given. He has been feverishly trying to raise funds for the procedure but has fallen short of his goal. "So-far with the help of Councillor Sahadeo Boondoo we held a dinner, bazaar, raffle, Two bar-b-qs and a Radiothon, we have raised \$100,000 a further \$200,000 is needed."</p> <p>On June 17 this year he had Extracorporeal Shock Wave Lithotripsy done for kidney stone at the San Fernando General Hospital. Karim said his inability to walk may cause other health complications and he is worried. "It is obvious the longer I stay without treatment the more the body would degenerate, that's why I'm appealing to the</p>

public once again to give from their heart," he said.

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