

LifeCell – Daily News Update

October 7, 2009

Key Industry News:

Publication	prnewswire.com
Headline	<u>Cryo-Cell International's Stem Cell Research and Development Helps the Fight Against Breast Cancer</u>
Gist of the article	<p>Cryo-Cell International, a global leader in stem cell innovation, is proud to be making progress in the fight against breast cancer through research and development using stem cells from menstrual blood. In honor of National Breast Cancer Awareness Month, Cryo-Cell is supporting Susan G. Komen for the Cure® through C'elle®, the company's service which enables women to collect and cryopreserve stem cells from their menstrual blood.</p> <p>Cryo-Cell is currently in a research partnership with the National Institutes of Health (NIH) Clinical Center, where research is underway to better understand the C'elle stem cells and their potential benefit for the treatment of breast cancer. Stem cells from menstrual blood are proven to be a rich source of stem cells which proliferate rapidly and have the ability to become many different types of cells. Since launching its proprietary service nearly two years ago, the company continues to expand research and development initiatives in order to accelerate the potential diagnostic and therapeutic benefits of these unique stem cells.</p> <p>According to the American Cancer Society, there are 2.5 million breast cancer patients and survivors today, and an estimated one in eight women will be stricken with this disease at some point in her life. As a part of Cryo-Cell's commitment to finding treatments for breast cancer and to celebrate the promise of C'elle stem cells, the company is donating \$25 to Susan G. Komen for the Cure for every enrollment in the C'elle service, and \$50 for every enrollment in its Protect Baby Protect Mom(SM) package throughout the month of October.</p> <p>"We at Cryo-Cell continue to dedicate significant resources toward the fight against breast cancer, and emerging science is very promising," said Cryo-Cell CEO Mercedes Walton. "Through our partnership with the National Institutes of Health, it is exciting to have such an integral role in research to understand how C'elle stem cells might help to treat breast cancer. I continue to be inspired by all of the strong and courageous women out there who fight this disease, so it's an honor to support Susan G. Komen for the Cure," she added.</p> <p>Susan G. Komen for the Cure is the world's largest grassroots network of breast cancer survivors and activists and has invested more than \$1 billion</p>

	<p>since inception in 1982.</p> <p>A pioneer in the non-controversial stem cell arena with its U-Cord® service for collection and cryopreservation of cord blood stem cells, Cryo-Cell has served nearly 185,000 clients worldwide. Stem cells from umbilical cord blood treat more than 75 diseases today, including sickle cell disease, several types of acute and chronic leukemias, Non-Hodgkin's lymphoma, and Hodgkin's disease. Emerging science shows great promise for potential treatments including spinal cord injury, heart disease, breast cancer, stroke, diabetes, Parkinson's disease, Alzheimer's disease and many more.</p>
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Publication	sciencedaily.com
Headline	<u>How Hematopoietic Stem Cell Development Is Regulated</u>
Gist of the article	<p>During cell division, whether hematopoietic stem cells (HSCs) will develop into new stem cells (self-renewal) or differentiate into other blood cells depends on a chemical process called DNA methylation. These were the findings of researchers at the laboratory of Dr. Frank Rosenbauer of the Max Delbrück Center for Molecular Medicine (MDC) Berlin-Buch in cooperation with the laboratory of Professor Sten Eirik W. Jacobsen (Lund University, Sweden and the University of Oxford, England). Furthermore, the researchers showed that DNA methylation also plays a crucial role for cancer stem cells.</p> <p>A group of three enzymes, the DNA methyltransferases (Dnmt) regulates the addition of methyl groups to the DNA (DNA methylation). One of these enzymes – Dnmt1 – is responsible for the maintenance of the marks with the methyl groups, the DNA methylation pattern, because the distribution of the methyl groups on the DNA decides which genes are transcribed and which are blocked. Researchers speak in this context of epigenetic information, in contrast to genetic information.</p> <p>However, it was unclear until now whether DNA methylation plays a special role in the control of hematopoietic stem cell characteristics. From the HSCs all of the blood cells of the body are formed. Since blood cells have only a limited lifetime, the body must form new blood cells over and over again. The pool for this is generated by the HSCs.</p> <p>In order to discover what function DNA methylation has for HSCs, the two doctoral students Ann-Marie Bröske and Lena Vockentanz of the MDC research laboratory of Dr. Rosenbauer switched off the enzyme Dnmt1 in the mice. As a result, the animals were not viable because the hematopoietic stem cell function was completely disturbed.</p> <p>By contrast, when the two researchers arranged that the HSCs formed just a little Dnmt1, the animals survived, but the HSCs lost their potential for self-renewal. Moreover, the HSCs were restricted in their formation of B cells and T cells (blood cells of the lymphatic system and important cells of the immune system).</p>

	<p>However, the HSCs were able to form red blood cells, which are important for oxygen transport and belong to the blood cells of the myeloerythroid system. In other words, the DNA methylation level regulates which blood cell lineages develop or not from a hematopoietic stem cell.</p> <p>Cancer stem cells</p> <p>Methylation processes also play a role in numerous cancer diseases. As the MDC researchers were able to show, the DNA methylation by the enzyme Dnmt1 also controls the development of leukemic stem cells. If the DNA methylation level is low, cancer stem cell renewal is restricted. Moreover, the formation of leukemic cells of B-cell lineage (acute B-cell leukemia – ALL) is blocked.</p> <p>The question is whether diseased stem cells can be switched off, possibly through a blockade of the enzyme Dnmt1. Dr. Rosenbauer and his research team want to make a more detailed investigation of this question in a further project.</p>
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Publication	wesh.com
Headline	<u>Stem Cells Help Girl With Deadly Disease</u>
Gist of the article	<p>An 8-year-old girl has returned to Central Florida from China, where she received stem-cell treatments to battle a deadly disease.</p> <p>Sierra Factor, of Titusville, has spinal muscular atrophy. It's a disease that's expected to take her life before her 30th birthday.</p> <p>Sierra said her trip to China was for much more than sightseeing. One of her favorite sights was finding a Pizza Hut.</p> <p>In a video recorded by her mother, Shay Akery, Sierra received the stem cells. The treatment, when combined with the cost of the trip, cost \$50,000, and it's not available in the United States.</p> <p>"These kids are from here -- we're from here -- why can't this be done here to help our kids?" Akery said.</p> <p>The family said they see many signs they believe show the treatment is helping Sierra. The real test will be if it strengthens her lungs, potentially adding years to her life.</p>

Publication	sciencecentric.com
Headline	<u>Enhanced stem cells promote tissue regeneration</u>
Gist of the article	<p>MIT engineers have boosted stem cells' ability to regenerate vascular tissue (such as blood vessels) by equipping them with genes that produce extra growth factors (naturally occurring compounds that stimulate tissue growth). In a study in mice, the researchers found that the stem cells successfully generated blood vessels near the site of an injury, allowing damaged tissue to survive.</p>

Stem cells hold great potential as a way to promote tissue regeneration. However, this approach has been limited because stem cells don't produce enough growth factors after transplantation. The researchers' new super-charged stem cells could be used to treat an infarction (death of tissue caused by blockage of the blood supply, by a clot or another obstruction), or to induce blood supply for engineered tissues.

After removing stem cells from mouse bone marrow, the researchers used specially developed nanoparticles to deliver the gene for the growth factor VEGF (vascular endothelial growth factor). The stem cells were then implanted into damaged tissue areas. These nanoparticles, which the MIT team has also tested to deliver cancer treatments, are believed to be safer than the viruses often used for gene delivery.

Though the results are promising, the technique needs more improvements before any human trials can begin, says Daniel Anderson, a senior author of the paper.