Dear Colleague,

Happy New Year! We trust that you had a restful festive season.

Our January newsletter has been compiled to inform you on what is happening in the stem cell industry, exciting developments that have taken place as well as update you on what has been happening at Netcells Biosciences.

**Umbilical Cord Tissue: Mesenchymal Stem Cells**

One of the main goals of regenerative medicine is to achieve the potential to use stem cells in cell-based therapies. Umbilical cord tissue is a source of mesenchymal stem cells (MSC’s) that is easily obtained, both technically and ethically, and is therefore the subject of many cell-based therapy trials.

**First in West: MSC from Umbilical Cord Tissue for Graft-vs-Host Disease**

Graft-versus-Host Disease (GvHD) is a complication that can follow a stem cell transplant from an unrelated donor. When steroids do not sufficiently suppress GvHD, patients often succumb to its effects.

PBKM, the leader of the EU family cord blood bank network Famicord Group, also maintains a bank of cord blood and tissue donations. From their public bank, cord tissue MSC were used as salvage therapy for 10 GvHD patients who did not respond to steroids.

In this phase 1 trial, 60% of the GvHD patients had a significant improvement that allowed them to reduce immunosuppressive drugs, while 20% of the patients were completely cleared of GvHD symptoms.

References

Cord Tissue used to treat Duchenne’s Muscular Dystrophy

Duchenne muscular dystrophy (DMD) is a rapidly progressive form of muscular dystrophy that occurs primarily in boys. The disorder is caused by a mutation in the dystrophin gene, the largest gene located on the human X chromosome, which codes for the protein dystrophin, an important structural component within muscle tissue that provides structural stability to the cell membrane. It results in a progressive loss of muscle function and weakness, which begins in the lower limbs and leads to progressively worsening disability. Death usually occurs by age 25, typically from lung disorders. There is no known cure.

For the first time in the US, the FDA approved treatment for a single patient with Duchenne’s using umbilical cord tissue stem cells. The treatment was granted on Compassionate use for a 28 year male patient in September 2014. The patient will receive intramuscular injections of umbilical cord tissue mesenchymal stem cells every 6 months over a period of 3 years.

The reason for attempting this treatment in the US is that the patient has already received similar treatment in Panama with encouraging results.

To read more visit:
http://www.prweb.com/releases/2014/08/prweb12133587.htm

Successful repair of severed spinal cord using olfactory nerve cells

Spinal cord repair is always a hot topic in the stem cell world. Many trials have been attempted to regenerate the damaged spinal cord tissue using stem cells from various sources.

A success story finally comes from a joint operation between University College of London and Wroclaw University Hospital, Poland. A 38 year old man, who was stabbed in the back and sustained a partial spinal cord resection, was left a paraplegic. 2 years ago, cells from one of his olfactory bulbs were cultured for two weeks before being transplanted through 100 micro-injections around the scar site. Neurons have regrown through the scar tissue enabling him to start walking again (aided) and have some return of bladder and bowel function.

The reason that olfactory bulbs were used successfully is that the olfactory ensheathing glia (OEG’s) maintain their capacity to promote new neurones into adulthood.

Olfactory neurones require replacement every six to eight weeks and it is the OEG’s that keep forming paths for new receptor neurons to transmit their messages.

As the mammalian central nervous system does not regenerate axons, it was this capacity for regrowth that inspired spinal researchers. The idea is that if OEGs are transplanted into the spinal cord at the point of injury, damaged axons will start to restore themselves. And it seems this premise was correct.

To read more visit:
Saviour Twins

Thalassemia has a prevalence of about 40% in South East Asia. Bone marrow transplantation is the only way to fully treat and cure the disease. Umbilical cord blood stem cells can be used for this purpose. For the transplant to be successful, HLA matched donor stem cells need to be sourced. Many a time, HLA donors cannot be found in International Registries. In response to this need, infertility specialists in Thailand are assisting parents to conceive a child that is an HLA matched sibling to an older child with Thalassemia and the newborn’s cord blood stem cells can be used for a bone marrow transplant in the affected older sibling.

Preimplantation Genetic Diagnosis (PGD) with HLA matching to screen embryos before pregnancy, enables the parents to conceive a child who is both healthy as well as a perfect transplant match for their affected child. Using PGD with HLA matching of embryos, 23 of 35 mothers fell pregnant. 9 babies have been born to date and cord blood for each baby has been stored. 5 transplants have been done so far in siblings affected by beta-thalassemia and all 5 have been shown to be cured of thalassemia.

To read more visit:
http://parentsguidecordblood.org/newsletters.php#thalassemia-PGD

New Cord Blood Trials at Duke University

A team at Duke University in Durham, North Carolina announced in June 2014 that they were set to launch a $40 million clinical trial to explore stem cells from the umbilical cord blood as a treatment for autism. The five-year trial also plans to test stem cell therapy for stroke and cerebral palsy.

The lead investigators on the trials are Joanne Kurtzberg, head of Duke’s Robertson Cell and Translational Therapy program, and Geraldine Dawson, Director of the Duke Centre for Autism and Brain Development.

Over a five-year span the trials plan to treat 390 children and adults with Autism, 100 children with cerebral palsy and 90 adult stroke patients.

“These trials could change the playing field of cord blood banking. They have the potential to increase both consumer demand for family storage and provide new indications for use of donated cord blood”.

To read more about the Clinical Trials, visit:
Watch this TED talk on the future of stem cell medicine

Susan Solomon, the co-founder of the New York Stem Cell Foundation (NYSCF) explains that ‘there are some really extraordinary things that we are doing with stem cells that are completely changing the way we model disease, our ability to understand why we get sick and even develop drugs.’

Link: https://www.youtube.com/watch?v=CY_Oj59WILD

My Netcells Experience

What has your experience with Netcells been like? To ensure that we are constantly offering the best possible service to both you and your patients we would like you to share your experience with us. Mail catherine.brazier@netcells.co.za

Best Regards

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