REGENERATIVE CELLS IN EVERYONE, FOR EVERYONE

By Peter Hollands PHD (CANTAB)

INTRODUCTION

Doctors and scientists love long complicated terminology and best of all complex abbreviations. I am no exception to this rule as my training at Cambridge University was very much in the 'traditional' style. Despite this, I have been an academic in Universities in Cambridge and London where I quite often had to explain very complex ideas to students who had little or no understanding of the subject. More recently, I have started to write a series of 10 books in a series called 'Medicine Demystified' with Bentham Books. These books are for the general reader and already include 'The Regeneration Promise' (about stem cell technology and Regenerative Medicine) and The Fertility Promise (about test-tube babies known technically as in vitro fertilisation or IVF). The third will be published in early 2023 and explains every aspect of the Menopause for the general reader.

STEM CELLS

Stem cells are often mentioned in the general media and these reports are often wrong or at best confused. Journalists tend to 'dramatize' events to increase readership, this is not helpful when discussing a subject as important as stem cells. It is estimated that a human body contains 37 trillion cells and that of these there are approximately 50,000 to 200,000 stem cells. This makes stem cells relatively rare in the body but totally essential to our everyday existence.

Stem cells repair and regenerate cells and tissues in our bodies on a daily basis. If your stem cells go wrong in any way, then severe and even fatal illnesses can result. Our healthy daily lives are totally dependent on stem cells. Perhaps the best studied stem cell is the stem cell found in the bone marrow of all of us which produces all of the cells in the blood on a daily basis. Another good example are the stem cells in the skin. These stem cells repair day to day 'wear and tear' of the skin and can really be seen in action when they 'magically' heal wounds to the skin. A scar may result from big wounds, but the repair process of the skin is nevertheless extremely impressive. It is interesting to note that the aging of skin is simply because of the aging of the skin stem cells.

REGENERATIVE MEDICINE

This ability of stem cells to repair tissue and replace cells is the basis of what has become known as Regenerative Medicine. I am, in fact, a Professor of Regenerative Medicine so I specialise in this kind of use of stem cells. In Regenerative Medicine stem cells are used to treat various diseases requiring repair and regeneration of cells and tissues. The oldest example of Regenerative Medicine is the use of bone marrow stem cells to treat blood disorders such as leukaemia. This is tried and tested and bone marrow stem cell transplantation for blood disorders is now in routine clinical practice across the World. Other diseases may be treated by using a wide range of different stem cells types which have been found in the body. There are even some 'man-made' stem cells (e.g. Induced pluripotent stem cells iPSC and Embryonic Stem Cells ESC) which at first glance have great potential but are held back by the cost of their production and worries about safety in clinical use.

VERY SMALL EMBRYONIC LIKE-STEM CELLS (VSEL STEM CELLS)

I am sorry for the abbreviation used above but as you can see these stem cells have a complex name and writing it out every time is a little impractical! There are four main things to know about VSEL stem cells, they are:

1. Very small, approximately 2-4 millionths of a metre in diameter. This means that VSEL stem cells can easily get access to every part of the body which other stem cells are simply too large to do. There are other stem cells in therapeutic use and clinical trial, but these are so physically large that when administered intravenously (directly into a vein) most of them get stuck in the lungs. These large stem cells never make it to the area of the body in need of repair but some people suggest that the large stem cells might produce beneficial growth factors when 'stuck' in the lungs. Such large stem cells may be injected directly into the place where they are needed e.g. a joint in someone suffering from joint damage or disease. This is proving to be a good route for the delivery of stem cells in joint disease. A good example of these large stem cells are Mesenchymal Stem Cells (MSC) which are much larger than the smallest blood vessels in the lung and therefore unsuitable for intravenous use.
2. VSEL stem cells are 'embryonic-like'. This does not mean that they are embryonic stem cells (ESC) which as mentioned above are expensive and potentially dangerous to use on humans. It simply means that VSEL stem cells carry some cell surface molecules which are similar to embryonic stem cells (ESC). The key message here is that VSEL stem cells are not embryonic stem cells.
3. VSEL stem cells can make every tissue type in the body. This means that VSEL stem cells can, in theory, be used to treat any disease in the body.
4. 4. VSEL stem cells are found in every tissue of the body. They are found in great quantities and quality independently of the age of the person, meaning that everyone's body carry these cells throughout their lifetime. One of the main places where these cells are present is in the blood which flows through the veins of everyone, It is therefore very easy to obtain some VSEL stem cells by taking a simple blood sample. This is very different to other stem cell types which have complex and often painful collection procedures. Most of these other stem cells are allogeneic, a medical word to describe that they come from a different person i.e. they are donated. These are not your own stem cells!

Some people suggest that the VSEL stem cells in the blood are biologically inactive and therefore not very effective in Regenerative Medicine. Others suggest that VSEL stem cells may become 'activated' by natural processes, such as fasting, exposure to very low temperatures, immune challenges and traumatic physical events.
The real question has been in how to activate VSEL stem cells cells safely and effectively. This leads me nicely to the next section.

S.O.N.G. LASER ACTIVATION OF VSEL STEM CELLS

The S.O.N.G. Laser is a highly specialised medical laser developed by Dr. Todd Ovokaitys and his team in Carlsbad, California, USA. The S.O.N.G. Laser is totally harmless and is potentially very important in stem cell technology. We have already carried out considerable basic and clinical research on the S.O.N.G. Laser using it on VSEL stem cells obtained from human blood. The laser 'activates' the VSEL stem cells in such a way as that when the S.O.N.G. Laser treated VSEL stem cells are returned to the patient they are biologically active and great benefits have been shown to some patients. The interesting thing is that the VSEL stem cells are obtained from the patient through a simple blood draw, treated with the S.O.N.G. Laser, and then returned to the same patient. This means that we are all carrying around stem cells which can be used to treat a very wide range of diseases in the patient him/herself independent of his/her age or sex. The activation process of VSEL stem cells by the S.O.N.G. Laser is extremely complex and our current theory uses Quantum Physics which I am very happy to talk about but perhaps not here!

The two main principles to understand about the S.O.N.G. Laser are:

1. The S.O.N.G. Laser is a safe and effective method of activating VSEL stem cell taken from the blood.
2. The S.O.N.G. Laser may be capable of 'guiding' VSEL stem cells cells to the site of treatment, this is known as 'homing'.

The most impressive clinical results to date using S.O.N.G. Laser activated VSEL stem cells have been in:
• End-stage heart failure (patients on a heart transplant list taken off that list after S.O.N.G. Laser VSEL stem cell treatment).
• Neurological disease (Alzheimer's Disease, Dementia, stroke).
• Neurological trauma (e.g. spinal cord injury and traumatic injury to the brain)
• Type 2 Diabetes.

The list of diseases which respond very well to S.O.N.G. Laser treated VSEL stem cells is constantly growing, and the results become more and more conclusive. Other possible uses of S.O.N.G. Laser activated VSEL stem cells are:
• Longevity or healthy aging. This is when S.O.N.G. Laser activated VSEL stem cells may be able to lower your biological age. The mechanism of action here is yet to be understood but it may be that S.O.N.G. Laser activated VSEL stem cells modulate age related changes to our DNA.
• Fertility, S.O.N.G. Laser activated stem cell may be helpful in both male and female infertility
• It is possible that soft tissue regeneration, including cartilage, ligaments and tendons may be possible using S.O.N.G. Laser activated VSEL stem cell therapy. This may be helpful to the elderly as well for athletes who may have suffered joint or soft tissue injuries.
• Some people suggest the stem cell therapy may result in skin repair or rejuvenation. Much more work is needed to confirm this claim.

Regenerative Medicine is moving very rapidly to becoming clinically accepted for a range of conditions and S.O.N.G. Laser activated VSEL stem cells are leading the way. I have worked in Regenerative Medicine for over 40 years, and I firmly believe that S.O.N.G. Laser activated VSEL stem cells are the realistic, cost-effective, safe and effective future of Regenerative Medicine.

ABOUT THE WRITER, PROFESSOR PETER HOLLANDS PHD (CANTAB)

Peter trained at Cambridge University under the supervision of the co-inventor of IVF and Nobel Laureate Professor Sir Bob Edwards FRS. His PhD was in stem cell technology with a focus on the transplantation of stem cells from the developing mouse fetus. His post-doctoral position was as a Senior Embryologist at Bourn Hall Clinic which was the first IVF clinic in the world. Peter has been the Scientific Director of Cells for Life in Toronto and Smart Cells in the UK and was HTA Designated Individual for Smart Cells. He has carried out research and clinical practice in stem cell technology and IVF and has written numerous papers and book chapters on stem cell technology and IVF. He has been an invited speaker to many international conferences including personal invitations to speak twice at the Vatican, the UK House of Lords and The Canadian Parliament. Peter alsohas experience in creating new stem cell technology and IVF laboratories and the related accreditation and regulatory aspects of stem cell and IVF laboratories. Peter was the Group Chief Scientific Officer of the worldwide stem cell services company WideCells Group PLC and Quality Manager for the Fertility and Gynaecology Academy in London. He now works as a freelance Consultant Clinical Scientist working on projects in Assisted Reproduction and Regenerative Medicine. Peter has written a book on stem cell technology for the general public called 'The Regeneration Promise' which was published in December 2020. This is the first of a series of books on medical science. His second book 'The Fertility Promise' was published in 2021 and is an explanation of IVF and assisted reproduction for the general reader.
Peter was awarded a Visiting Chair in Regenerative Medicine from Kolkata School of Tropical Medicine in November 2017. This was in recognition of his collaborative work in stem cell technology in Kolkata, India.

SUGGESTED READING

The Regeneration Promise Book.

In **Xtend Optimal Health** we are proud to offer S.O.N.G. Laser Activated VSEL stem cells as part of our regenerative protocols along with many other procedures to aid patients obtain optimal health. If you are interested, or need further information, then please ask one of our medical coordinators or set up an appointment.