

# LifeLines

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### Stem Cells in the Media: From Promise to Success

**Rebecca Marton**

*Rebecca is a recent graduate of The University of Notre Dame where she majored in biological sciences. She spent the summer traveling in Eastern Europe and teaching in a science-based camp for underprivileged youth in Lawrence, MA. In the fall, she will begin her Ph.D. in Stem Cell Biology and Regenerative Medicine at Stanford University and ultimately plans to pursue a career in academic research.*

Those of us that are familiar with the field of stem cell biology are notably excited about the potential of stem cells to change the way we practice medicine today, and improve human health in significant and far-reaching ways. However, before my experience as a Student Ambassador, I like many others, was talking about stem cells while still using the caveats, "promise" and "potential" when describing the science.

Now after my experience as a member of the Student Ambassador program at the Second Adult Stem Cell Conference at The Vatican in Rome, my perception of stem cell biology has shifted. Not only is stem cell therapy an interesting subject offering the possibility of future usefulness, but these very therapies (even the ones that may seem like science fiction), are on their way to becoming viable medical treatments today.

Despite the many achievements in stem cell biology, the media still emphasizes the potential of stem cell research instead of its actual accomplishments. A shift in focus away from the "p" words (promise, possibility, and potential) to focus on the successes of stem cell biology will better represent the current state of stem cell research and inspire future progress. Hard data, clinical trial successes and patient success stories will all help change the



Rebecca Marton, University of Notre Dame

way that the public thinks about adult stem cell research and development.

My passion for stem cell biology developed from my fascination with the study of life. I had always enjoyed learning about how the human body works, and as a result of my studies, I knew generally about the concept of populations of cells residing in adult tissues that retain the ability to replicate and replace cells in response to injury and aging. While I had the notion that these processes could be harnessed to improve human health, these types of applications seemed futuristic and unattainable. Therefore, I wasn't sure about what I would hear differently when I

attended the Second Adult Stem Cell Conference last year.

With these expectations, one can imagine my surprise when I attended the Conference and began to hear testimonials from patients whose lives had already been changed by treatments derived from adult stem cells! I witnessed case after case in which the knowledge gained in the field had been successfully applied to help those for whom more traditional forms of medicine had been unsuccessful. My experience as a Student Ambassador changed my view of stem cell biology from conceptual and futuristic, to a thriving, tangible science that was making a true impact on





Dr. Robin L. Smith

# Welcome

I hope you are enjoying your summer and hopefully some well-deserved vacation time. The Stem for Life Foundation remains busy working on some exciting projects that we hope to kick off over the next few months. In the meantime, you can catch up on everything adult stem cells in this issue of *Life Lines*. For our latest Student Ambassador Update, I am pleased that this issue features Rebecca Marton, a recent Notre Dame graduate and a rising Ph.D. student at Stanford University pursuing stem cell biology and regenerative medicine. Rebecca shares some great insight on how we can try and better the media's coverage of adult stem cell biology by presenting more hard data, listening to patient stories and continuing to demonstrate that adult stem cell therapies are here today and already making a difference in people's lives. We also are pleased to showcase our Adult Stem Cell World News Highlights—a good cross-section of exciting news and research results from the past few months that demonstrates, like Rebecca suggests, that our field is making great strides. Lastly we present a few good summer reading options for you to take on your vacation to continue learning more about adult stem cells.

Thank you again for your interest in our cause. ■



Dr. Robin L. Smith  
President and Trustee

## Adult Stem Cell World News Highlights

**SFLF is pleased to share some recent developments happening around the world in the field of regenerative medicine.**

**Researchers at Massachusetts Eye and Ear Infirmary** have identified a way to enhance regrowth of human corneal tissue to restore vision, using a molecule known as ABCB5 that acts as a marker for hard-to-find limbal stem cells. The research, published in *Nature*, is also one of the first known examples of constructing a tissue from an adult-derived human stem cell. This work comes from a collaboration between the Massachusetts Eye and Ear/Schepens Eye Research Institute (Mass. Eye and Ear), Boston Children's Hospital, Brigham and Women's Hospital and the VA Boston Healthcare System, **and provides promise to burn victims, victims of chemical injury and others with damaging eye diseases.**

(Source: Massachusetts Eye & Ear news release 07/02/14)

**A new study conducted by the Goethe-University in Frankfurt Germany, with Justus-Liebig University (Giessen, Germany), Harvard Medical School and Mass. Eye and Ear** shows that spiral ganglion stem cells in the inner ear are capable of self-renewal. Spiral ganglion cells are essential for hearing, and their loss is the most-common reason behind hearing problems. The team conducted studies on mice models and found that the inner ear stem cells can be grown in a lab, and can be induced to differentiate into mature spiral ganglion cells, neurons and even glial cells, **which could pave the way for newer treatments for people suffering from hearing loss.** The study is published in the journal *BioResearch Open Access*.

(Source: natureworldnews.com 06/21/14)

**UCLA researchers have identified a link between stem cell regulation and the development of lung cancer.** Their study

explains how factors that regulate the growth of adult stem cells that repair tissue in the lungs can lead to the formation of precancerous lesions. Findings from the three-year study **could eventually lead to new personalized treatments for lung cancer**, which is responsible for an estimated 29% of U.S. cancer deaths, making it the deadliest form of the disease.

The study was published online in the journal *Stem Cell*.

(Source: UCLA news release 06/19/14)

**Johns Hopkins researchers say they have created** a three-dimensional complement of human retinal tissue which includes functioning photoreceptor cells capable of responding to light, the first step in the process of converting it into visual images. The achievement, described as "a miniature human retina in a dish" emerged from experiments with human induced pluripotent stem cells (iPS). The work was reported online in *Nature Communications*, **and holds the potential to advance vision-saving research and may ultimately lead to technologies that restore vision for people with retinal diseases.**

(Source: Johns Hopkins School of Medicine news release 06/10/14)

**Scientists from Queensland University of Technology** in Australia are working on turning bone marrow stem cells into neural stem cells, capable of repairing the damage caused by strokes, head injuries and degenerative diseases such as Parkinson's. The research, published in *Developmental Biology*, offers hope that damaged brain cells could be replaced by other adult stem cells, long deemed impossible because most brain cells do not divide and replicate. The researchers note that treatments based on such an approach are still years away, but **are excited in the short-term to offer proof that simple manipulations can influence stem cells.**

(Source: TheAustralian.com 06/02/14)

**The Irish Medicines Board has granted license to the Centre for Cell Manufacturing** Ireland at NU Galway to manufacture culture expanded adult stem cells for human use in clinical trials. The Galway stem cell research site is the first of its kind in Ireland and one of only six licensed in Europe. **The new facility will play a crucial part in ensuring adult stem cell research in the country will remain internationally competitive by securing funding from EU sources**, in turn representing a valuable opportunity to stimulate job and economic growth in Ireland's medtech sector and making Ireland a good location for adult stem cell research and clinical trials.

(Source: BioResearchOnline.com 05/12/14)

Adult Stem Cell World News Highlights - Continued from page 2

**Researchers at the University of Southampton are working to create** tailored micro-environments to foster stem cell regeneration by using clay gels both to explore the biological signals necessary to successfully control stem cell behavior for regeneration and also to provide stem cells with signals to stimulate

Rebecca Marton - Continued from page 1

human health and wellness. For example, I vividly remember the story of a patient with multiple sclerosis whose condition was drastically improved as the result of stem cell therapy. This patient's story and so many others inspired me to continue an inquest at home into the improvements that stem cell biology is currently making in healthcare.

In my investigations, I was surprised to learn that there were more than 1,400 clinical trials relating to stem cells currently being conducted in the U.S. according to ClinicalTrials.gov, the National Institutes of Health's database. The treatments under study address ailments as varied as diabetes and spinal cord injury. Encouragingly, some therapies are already in use, including the transplantation of hematopoietic stem cells to treat blood cancers. Researchers are continuously investigating new conditions that can be improved through the application of stem cell biology, and time will only tell the full extent to which this work can be applied to improve the human condition.

It is no surprise to see that much of the media attention surrounding stem cell biology focuses on the future potential of the field, and their "promise," "possibilities," and "potential." Surely there is truth in these headlines in that there is still much progress left to be made. In fact the very nature of scientific inquest is that one opened door leads to ten more doors that have yet to be unlocked. However, the use of the terms

regeneration in the body. The approach will first be applied to regenerate bone lost to cancer or hip replacement failure with **potential to be applied to harness stem cells for the treatment of a whole host of different scenarios, from burn victims to those suffering with diabetes or Parkinson's.**

(Source: University of Southampton news release 05/01/14) ■

"potential" or "promise" can at some point become detrimental. These words imply that stem cell research is not at a level yet that can really influence people's lives. As was so clearly demonstrated at the Second International Adult Stem Cell Conference, this is far from being the case.

Future media efforts aimed towards promoting stem cell research would benefit from a greater focus on the accomplishments of stem cell research rather than on just the future possibilities of the field. Research is already improving human health, and these advancements deserve to be recognized. The best way to stimulate the future investment of time and energy is to emphasize that which has already been achieved through previous efforts. The successes highlighted at the Conference changed my view of stem cell biology from an interesting, yet distant topic, to a viable therapeutic strategy being used to treat actual disease. The recognition of these practical successes will continue to encourage future progress in the field. ■

## Recommended Summer Reading

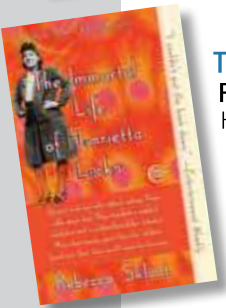
Want to learn more about adult stem cells and cellular therapy? SFLF recommends these reads for your summer vacation.



### The Healing Cell

**Dr. Robin L. Smith, Dr. Max Gomez, and Monsignor Tomasz Trafny**

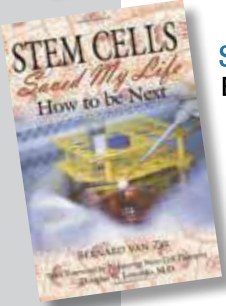
Read *The Healing Cell: How The Greatest Revolution in Medical History is Changing your Life* by co-authors, Dr. Smith (Chairman and President, SFLF), Dr. Gomez (Trustee, SFLF), and Monsignor Trafny (Executive Director, STQ Project). Learn how the adult stem cells found inside our bodies—our healing cells—can potentially be used to repair damaged hearts and organs, restore sight, kill cancer, cure diabetes, heal burns and stop the march of degenerative diseases.



### The Immortal Life of Henrietta Lacks

**Rebecca Skloot**

Her name was Henrietta Lacks, but scientists know her as HeLa. She was a poor black tobacco farmer whose cells—taken without her knowledge in 1951—became one of the most important tools in medicine, vital for developing the polio vaccine, cloning, gene mapping, and more. Henrietta's cells have been bought and sold by the billions, yet she remains virtually unknown, and her family can't afford health insurance. This phenomenal *New York Times* bestseller tells a riveting story of the collision between ethics, race, and medicine; of scientific discovery and faith healing; and of a daughter consumed with questions about the mother she never knew.



### Stem Cells Saved My Life: How to be Next

**Bernard van Zyl**

In 2000, van Zyl suffered cardiac arrest; his heart literally stopped until doctors shocked his chest. After receiving bypass surgery, an angioplasty, and entering a cardiac rehabilitation program, van Zyl's heart was still deteriorating. Turned down by two heart transplant centers, van Zyl's only hope lay in a new FDA-approved clinical trial for adult stem cell therapies. One of 24 patients selected, van Zyl entered the aggressive treatment group in 2004, where adult stem cells were harvested from his own body and injected directly into his failing heart. The results were astonishing. *Adult Stem Cell Saved My Life: How to be Next* offers a plethora of information on the latest adult stem cell treatments for over a dozen diseases and conditions. The book also features a foreword by Dr. Douglas W. Losordo, a member of SFLF's Scientific Advisory Board.



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We invite you to join our dedicated and exceptional association of scientists, physicians, advocates, educators, philanthropists, public servants, and clergy as we stride forward in unlocking the healing powers that are already inside our own bodies.

### To learn more:

Call 212.584.4176 or visit [www.stemforlife.org](http://www.stemforlife.org)

### To make a contribution:

Visit [www.stemforlife.org/donate](http://www.stemforlife.org/donate)

or send a check to:

The Stem for Life Foundation  
420 Lexington Avenue, Suite 350  
New York, NY 10170

### To learn more about becoming a Student Ambassador:

Email [studentambassadorprogram@stemforlife.org](mailto:studentambassadorprogram@stemforlife.org)

The mission of The Stem for Life Foundation is to raise public awareness about adult stem cells and their therapeutic promise and to support the advancement of adult stem cell research and development.



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Information concerning the Stem For Life Foundation, including financial or charitable purposes, can be obtained by contacting us at 420 Lexington Avenue, Suite 450, New York, NY 10170 (212-584-4176). In addition, the following state notices are required in those states in which the Stem For Life Foundation has registered. Registration does not imply endorsement, approval, or recommendation by any state. Florida: Reg. No. CH37168. A COPY OF THE OFFICIAL REGISTRATION AND FINANCIAL INFORMATION MAY BE OBTAINED FROM THE DIVISION OF CONSUMER SERVICES BY CALLING TOLL-FREE, WITHIN THE STATE, 1-800-HELP-FLA. REGISTRATION DOES NOT IMPLY ENDORSEMENT, APPROVAL, OR RECOMMENDATION BY THE STATE. Georgia: The following information will be sent upon request: (1) A full and fair description of the charitable program for which the solicitation campaign is being carried out and, if different, a full and fair description of the programs and activities of the charitable organization on whose behalf the solicitation is being carried out; and (2) A financial statement or summary which shall be consistent with the financial statement required to be filed with the Secretary of State pursuant to Code Section 43-17-5. Maryland: For the cost of copies and postage, documentation and financial information submitted to the Secretary of State is available from the Secretary of State, Charitable Division, State House, Annapolis, MD 21401. Mississippi: The official registration and financial information may be obtained from the Mississippi Secretary of State's office by calling 1-888-236-6167. Colorado: Colorado residents may obtain copies of registration and financial documents from the Secretary of State's office at website <http://www.sos.state.co.us/> or by phone (303-894-2200 ext. 6487). Michigan: MICS No. 48066. New Jersey: INFORMATION FILED WITH THE ATTORNEY GENERAL CONCERNING THIS CHARITABLE SOLICITATION AND THE PERCENTAGE OF CONTRIBUTIONS RECEIVED BY THE CHARITY DURING THE LAST REPORTING PERIOD THAT WERE DEDICATED TO THE CHARITABLE PURPOSE MAY BE OBTAINED FROM THE ATTORNEY GENERAL OF THE STATE OF NEW JERSEY BY CALLING 973-504-6215 AND IS AVAILABLE ON THE INTERNET AT <http://www.state.nj.us/lps/ca/charity/chardir.htm>. REGISTRATION WITH THE ATTORNEY GENERAL DOES NOT IMPLY ENDORSEMENT. New York: Upon request, a copy of the latest annual report can be obtained from the organization or from the Office of the Attorney General by writing to the Charities Bureau at 120 Broadway, New York, NY 10271. North Carolina: Financial information about us and a copy of our license are available from the State Solicitation Licensing Branch at 1-888-830-4989. Pennsylvania: The official registration and financial information of Stem for Life Foundation may be obtained from the Pennsylvania Department of State by calling toll free within Pennsylvania 800-732-0999. Registration does not imply endorsement. Virginia: A financial statement for the most recent fiscal year is available upon request from the State Division of Consumer Affairs, P.O. Box 1163, Richmond, VA 23218; 1-804-786-1343. Washington: You may obtain additional financial disclosure information by contacting the Secretary of State at 1-800-332-GIVE. West Virginia: West Virginia residents may obtain a summary of the registration and financial documents from the Secretary of State, State Capitol, Bldg. 1, Room 157-K, 1900 Kanawha Blvd. East, Charleston, WV 25305.

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