



## WOMEN IN CELL & GENE THERAPY

Full scale cell & gene therapy industrialisation is so close we can smell it. The sector is buzzing with innovation, sound business structure and plenty of interest from external stakeholders. From our perspective, it's absolutely fascinating to watch.

In the coming years, medicine will change dramatically. Major cell & gene therapy treatments will become the mainstay of doctor's surgeries and hospitals. Healthcare leaders will be forced to consider a diverse portfolio of treatments for unmet medical needs.

But we have a problem. Do a quick search on LinkedIn; you'll see that some of the major cell therapy developers are bolstering their workforce. Juno have advertised over 30 new roles in 10 days, GSK, Mesoblast and Pfizer are also recruiting for a wide range of science-based roles. A ball-park count shows there could be over 1000 industrial cell & gene therapy roles being recruited for at the time of writing this.

Research has shown time and again that diversity makes great business sense. Best-selling author Daniel Goleman advocates, the traits for successful leadership are knowledge and emotional intelligence, characteristics that transcend gender lines. Yet women continue to make up 4% of leadership roles. The disparity has been a subject of conversation at Davos this year and solutions are being discussed to attract talented females to this exciting and growing STEM industry.

When we think of female science leaders, historical figures like Marie Curie and Rosalind Franklin tend to spring to mind. The emergence of cell therapy has created an opportunity for a new wave of to pave the future. It's the teams that think differently, embrace diversity and encourage new ideas that will propel themselves to the front of the pack.

A fair gender balance within cell therapy firstly gives an inevitable increased pool of talent and therefore access to more innovation and progression. Secondly, a truly equal balance of male and female characteristics has been proven to make businesses, industries and even whole countries thrive.

It's for these reasons we celebrate the exceptional women in our sector ensuring one day their stories will become 'the norm'.

Thank you to Stacey Johnson of CCRM, Claudia Zylberberg of Akron Biotech and Susan Nichols of Invetech for their help in curating:

### **'The Most Influential Women in Cell & Gene Therapy'**

## 1. Sandra Glucksmann – Editas

Each year, The World Economic Forum recognizes 25 early stage companies from across the globe, which are involved in the design, development and deployment of new technologies, and are poised to have a significant impact on business and society. Editas Medicine was awarded a seat in the class of 2015 for their groundbreaking work in gene editing.

COO, Sandra Glucksmann has been with the company since its inception, overseeing over \$200m in capital raising from Bill Gates, Google Ventures, Juno and F-Prime, and has often been at the core of cutting edge science throughout her 23 year journey through the genomic revolution.



Earlier in her career, Alexandra spent 13 years at Millennium Pharmaceuticals which she joined in 1993 as one of its first scientists. She serves on the Board of Directors of Taconic Farms and is a member of the Advisory Council of the Harvard Partners Center for Personalized Genetic Medicine. She is also Chair of the Board of Women in the Enterprise of Science and Technology (WEST), a unique organization that provides a supportive environment for mid-career women in these vital sectors, allowing them a unique opportunity to acquire the skills necessary to become business leaders in their fields.

## 2. Yael Margolin – Gamida Cell

Dr. Margolin has served on the Board of Directors of Gamida Cell since 2000. Gamida Cell's lead product, NiCord, is an allogeneic treatment for patients with high risk hematological malignancies, such as leukemia and lymphoma and sickle cell disease. It's planned to commence a Phase III trial in mid-2016.



Prior to her employment as president & CEO, Dr. Margolin spent six years as vice president of Denali Ventures LLC, where she specialized in investments in pharmaceutical and biotechnology companies. This experience came in handy when Novartis bought a 15% stake in Gamida Cell, in a deal that could reach \$600 million if Novartis exercises a buyout option next year.

Dr. Margolin also worked for seven years at Teva Pharmaceuticals, where she was responsible for new product initiatives, evaluation of investment opportunities for the R&D division, and multiple drug development programs. Dr. Margolin holds a Ph.D. in Biochemistry from the Weizmann Institute of Science and was a post-doctoral associate at the Yale University School of Medicine.

## 3. Claudia Zylberberg – Akron

Acron Biotech are a provider of raw materials to the cell therapy sector, some would say the company is supplying pickaxes in the regenerative medicine gold rush. Claudia Zylberberg, Founder and CEO, has been instrumental in educating the community on the impact raw materials play on the total cost of commercialized cell therapy products.

She was one of the first women to work with SCWIST (Society for Canadian Women in Science and Technology), mentoring immigrant women in Vancouver who wanted to work in science.

Dr. Zylberberg holds several patents, and has been actively involved in several regulatory initiatives to support the industry. She holds a number of executive and non-executive positions.



She was named Treasurer of the Alliance for Regenerative Medicine in 2015, sits on the commercialization committee of the International Society for Stem Cell Research (ISSCR), is a North America (NA) Treasurer of the International Society for Cell Therapy (ISCT), a Trustee of the National Blood Foundation (NBF), and a Board Member of BioFlorida, among others. She also maintains a popular industry blog.

In November 2015, Akron was awarded the David J. Gury Company of the Year Award at the 2015 Annual BioFlorida Conference, recognizing the team's contribution to the advancement of the life sciences in the Sunshine State.

## 4. Connie Eaves - BC Cancer Agency

During her PhD studies in the late 1960s, Dr. Connie Eaves discovered that two groups of cells contribute to the generation of antibody responses, heralding the subsequent recognition of two important types of immune cells: B and T lymphocytes. She has since contributed many seminal advances to our understanding of stem cells involved in blood formation and how they work in both health and disease.

Throughout her scientific career Connie Eaves has received numerous awards and scholarships, including election in 1993 to the Royal Society of Canada, receipt in 2003 of the NCIC Robert L. Noble Prize for Excellence in Cancer Research, the Terry Fox Medal of the BC Medical Society in 2005 and the Stem Cell Network Till and McCulloch Lectureship Award in 2006. In 2007, she was a co-recipient with Dr. Allen Eaves of the Genome BC Award for Scientific Excellence. In 2008, she was awarded the International Society for Experimental Hematology (ISEH) Metcalf Award and in 2009, the prestigious American Society of Hematology (ASH) Stratton Prize. From 1996-99 she also served an elected 3-year term as a Councilor of ASH.



## 5. Fiona Watt

Fiona Watt obtained her DPhil from the University of Oxford, and carried out her postdoctoral research at M.I.T, Cambridge, USA where she first began studying differentiation and tissue organization in mammalian epidermis.

She established her first lab at the Kennedy Institute of Rheumatology in London, and then moved to London Research Institute.

From 2006 to 2012 she was Deputy Director of the Cancer Research UK Cambridge Research Institute and Deputy Director of the Wellcome Trust Centre for Stem Cell Research, University of Cambridge. She moved to King's College London in September 2012 to take up the post of Director, Centre for Stem Cells and Regenerative Medicine.



She became the first woman president of the International Society of Stem Cell Research (ISSCR) in 2008, and has advocated on behalf of women in science.

## 6. Janet Rossant

Named last year's 2015 Canada Gairdner Wightman Awardee – and the first woman to achieve this – Dr. Janet Rossant is this year's incoming President and Scientific Director of the Gairdner Foundation. She is the inaugural President and Scientific Director of the Ontario Institute for Regenerative Medicine, an organization she co-founded.

Dr. Rossant is regularly acknowledged for her contributions to science and the stem cell biology community and was recently awarded the 2016 Henry G. Friesen International Prize in Health Research. She has also



received the 10<sup>th</sup> ISTT Prize, from the International Society for Transgenic Technologies, the Ross G. Harrison Medal (lifetime achievement award) from the International Society of Developmental Biologists, the Killam Prize for Health Sciences, the March of Dimes Prize in Developmental Biology, the Conklin Medal from the Society for Developmental Biology, and the CIHR Michael Smith Prize in Health Research, Canada's most prestigious health research award. She is a Fellow of both the Royal Societies of London and Canada, and is a foreign Associate of the US National Academy of Science.

Dr. Rossant is a Senior Scientist and Chief of Research Emeritus at the Hospital for Sick Children (SickKids) and University Professor in the Department of Molecular Genetics at the University of Toronto. She is a world-renowned expert in developmental and stem cell biology and demonstrated the origin of cells in the early embryo, research that informed the development of human pluripotent stem cells.

Dr. Rossant trained at the Universities of Oxford and Cambridge and moved to Canada in 1977.

## 7. Helen T. Martin – Adaptimmune

In 2008, Helen Martin was 1 of the 2 employees at Adaptimmune in Milton Park Oxford. Serving as the COO, she has seen a small biotech grow to become one of the forerunners in the cancer immunotherapy space. Their operations story has seen the company go under German ownership, collaborate with academia in the US to setting up their own R&D and manufacturing infrastructure with an announcement last month publicizing their state-of-the-art cGMP manufacturing facility on the Navy Yard in Philadelphia.

With a PhD in molecular immunology and an MBA from London Business School, she has 23 years of experience working within the pharma, biotech and consulting environment in disciplines across preclinical and clinical development, outsourcing, strategic planning, due diligence and business development.



Helen joined Adaptimmune from Avidex/MediGene Ltd. where she was responsible for commercial development of the soluble TCR programme in cancer and HIV therapy. Helen is a Director of Adaptimmune Limited and is responsible for all aspects of running the company.

## 8. Katherine A. High - Spark Therapeutics

During her time as a researcher at The Children's Hospital of Philadelphia, Kathy High led a team of researchers to discover new gene and cell therapies for genetic diseases and to facilitate rapid translation of preclinical discoveries into clinical application. After a long period of high profile failures, the beginning of a gene therapy resurgence was starting to show clinical success while overcoming patient safety issues.



"I remember very clearly, around 2011, I began to think to myself, 'If we don't form a company so we can all stay together, I'm going to lose these people,'" High said. It was from here she co-founded Spark Therapeutics, which soared to a \$161M IPO in January and has rarely been out of the media since.



Dr. Katherine High began her career studying the molecular basis of blood coagulation and the development of novel therapeutics for the treatment of bleeding disorders. Her pioneering bench-to-bedside studies of gene therapy for hemophilia led to a series of studies that characterized the human immune response to adeno-associated virus (AAV) vectors in a variety of target tissues. Kathy's work has evolved to encompass clinical translation of genetic therapies for multiple inherited disorders.

Kathy served a five-year term on the FDA Advisory Committee on Cell, Tissue and Gene Therapies and is a past-president of the American Society of Gene & Cell Therapy (ASGCT).

## 9. Linda Marbán – Capricor

After co-founding Capricor in 2005, Linda Marban has served as CEO since 2010. She has been instrumental in the commercialization of Capricor's intellectual property portfolio, taking the company public in 2013.

It's reported that Capricor's initial work centered on the potential for autologous cells extracted from the patient to be cultivated into a regenerative treatment for damaged hearts. However this was switched to an allogeneic stem cell program from donors to simplify the treatment process. A more commercialized approach is one of the reasons J&J penned a \$12.5 million upfront deal to get first option on the program. Commenting on this Linda said, "One of the reasons why I was motivated to work on this deal is because of the statement it makes in the field," says the CEO. "It says, OK, somebody very large and powerful is taking a look at this technology and saying there's something there, and that's the most exciting thing for me."



From 2003-2009, Dr. Marbán was with Excigen Inc. where she was responsible for business development, operations, pre-clinical research, and supervising the development of gene therapy products in a joint development agreement with Genzyme Corp. She also negotiated a joint development and sublicense agreement with Medtronic Corp utilizing Exigen's technology and supervised the building of a lab.

## 10. Kim Warren

Kim is an experienced scientist with entrepreneurial and business management experience. She is currently Head of Operations for the start-up cell and gene therapy company AVROBIO, with offices in Boston and Toronto, and Chief Technology Officer at CCRM in Toronto. Previously, she spent 8 years at Lonza, developing a services business to support GMP manufacturing of cellular therapeutics, including tissue acquisition, process development, bioassay development and related services. Kim became Director of Cell Biology R&D at Lonza (then Cambrex) in 1999, when Cambrex acquired the start-up company (Poietic Therapeutics) she had founded and run for 3 years. Kim also spent 10 years as an R&D scientist focused on hematopoiesis at both biotech and pharmaceutical companies. She has a Ph.D. in Comparative Physiology from Univ. of Maryland and postdoctoral training in Immunology at USUHS, Bethesda MD.



## 11. Linda Powers – NorthWest Biotherapeutics

Since June 2011, Linda Powers has served as the Chief Executive Officer of NorthWest Biotherapeutics. Previous to that, she served as managing director of Toucan Capital Fund II for 10 years. She also has over 15 years' experience in corporate finance and restructurings, mergers and acquisitions, joint ventures and intellectual property licensing.

Ms. Powers is a Board member of M2GEN (an affiliate of Moffitt Cancer Center), the Trudeau Institute (a specialized research institute focused on immunology), the Chinese Biopharmaceutical Association, and the Rosalind Franklin Society. She was the Chair of the Maryland Stem Cell Research Commission for the first two years of the state's stem cell funding program, and has served an additional four years on the Commission. Ms. Powers served for several years on a Steering Committee of the National Academy of Sciences, evaluating government research funding, and has been appointed to three Governors' commissions created to determine how to build the respective states' biotech and other high-tech industries.



For more than six years, Ms. Powers taught an annual internal course at the National Institutes of Health for the bench scientists and technology transfer personnel on the development and commercialization of medical products.

## 12. Molly Shoichet

Dr. Molly Shoichet holds the Tier I Canada Research Chair in Tissue Engineering and is University Professor of Chemical Engineering & Applied Chemistry, Chemistry and Biomaterials & Biomedical Engineering at the University of Toronto. She is an expert in the study of Polymers for Drug Delivery & Regeneration which are materials that promote healing in the body.



Dr. Shoichet has published over to 480 papers, patents and abstracts and has given over 310 lectures worldwide. She currently leads a laboratory of 25 researchers and has graduated 134 researchers over the past 20 years. She founded two spin-off companies from research in her laboratory.

Dr. Shoichet is the recipient of many prestigious distinctions and the only person to be a Fellow of Canada's 3 National Academies: Canadian Academy of Sciences of the Royal Society of Canada, Canadian Academy of Engineering, and Canadian Academy of Health Sciences. Dr. Shoichet won the L'Oréal-UNESCO For Women in Science Award for North America in 2015. Dr. Shoichet holds the Order of Ontario, Ontario's highest honour and is a Fellow of the American Association for the Advancement of Science. In 2013, her contributions to Canada's innovation agenda and the advancement of knowledge were recognized with the QEII Diamond Jubilee Award. In 2014, she was given the University of Toronto's highest distinction, University Professor, a distinction held by less than 2% of the faculty.

## 13. Sue Washer - AGTC

An experienced entrepreneur with a strong scientific and operational background, we're delighted that Sue Washer has joined the Phacilitate Advisory Board. Sue brings a decade of experience in pharmaceutical management and research with Abbott Labs and Eli Lilly & Company and more than 16 years of senior management experience with entrepreneurial firms in Florida including three start-ups. At AGTC, Sue has successfully secured investments of more than \$91 million from nationally recognized venture capitalists and granting agencies; negotiated and closed on a major collaboration with a top five Biotech company; lead the company to complete critical milestones; and recruited an experienced management team. Her experience as a group leader with Abbott's Diagnostic Division helped hone her skills in bringing new products and technologies from the lab bench into the market place.



Sue is the chair of Southeast BIO, is a member of the Executive Committee of BioFlorida and sits on the board of the Florida High Tech Corridor Council. She has a degree in biochemistry from Michigan State University and an MBA from the University of Florida where she was one of the first graduates from the Warrington College of Business Entrepreneurship program.

## 14. Susan L. Solomon - NYSCF

As the Co-Founder and CEO of The New York Stem Cell Foundation (NYSCF), Susan L. Solomon has been at the forefront of stem cell research since 2005. A lawyer, successful businesswoman and entrepreneur, who started NYSCF after identifying stem cells as the most promising way to address unmet patient needs. A stem cell research pioneer, Ms. Solomon led the development of The NYSCF Global Stem Cell Array, a unique software and automation technology essential to scale manufacturing and population analytics critical to precision medicine.



Privately funded, NYSCF is one of the largest independent stem cell laboratories in the world. To date, NYSCF has invested more than \$160 million in high risk/high reward “tipping point” stem cell research through its own independent laboratory and through collaborations with over 50 academic, philanthropic, and corporate institutions around the globe and has built a community of over 130 scientists around the world. In 2008 and 2011, NYSCF research was named the #1 medical breakthrough of the year by TIME magazine.

Ms. Solomon has co-authored academic papers in journals such as Nature, Cell Stem Cells, and Nature Methods. This spring, the Wall Street Journal profiled Ms. Solomon for her pioneering entrepreneurship. In June 2012, Susan gave a TED Talk on the promise of stem cells and in December of the same year, she received the Stem Cell Action Leadership Award from the Genetics Policy Institute. In September 2008, she received the Triumph Award from the Brooke Ellison Foundation for her work in establishing NYSCF.

## 15. Tory Williams

In a recent interview, Tory Williams describes how a friend’s recovery following a tragic car accident inspired her to take action in advocating stem cell research. Despite not being a scientist, her influence has had a significant impact on the perception of stem cell treatment in Alabama.

“As TJ (TJ Atchison) went through therapy, I realized this cutting-edge treatment needed a strong voice and patient advocacy to help rid it of the misconceptions surrounding it. Specifically, it needed someone who could communicate the benefits of stem cell therapy successfully in the conservative, religious South. The use of human embryonic stem cells is particularly sensitive here, but we have broken through many barriers and made tremendous strides in educating people on the power and importance of stem cell research.”



In 2010, through Tory’s campaigning, the State of Alabama passed what’s known as TJ’s Law, The TJ Atchison Spinal Cord Injury Research Act, funding stem cell research in Alabama. Tory founded the Alabama Institute of Medicine [AIM] in 2013.

## Associations for women in science and tech:

- <http://www.womeninbio.org>
- [The Initiative on Women in Science and Engineering Working Group](#)
- <http://www.westorg.org/>
- [Society for Canadian Women in Science and Technology \(SCWIST\)](#)
- Canadian Coalition of Women in Engineering, Science, Trades and Technology (CCWESTT)
- Many universities have their own Centres for Women in Science, such as this one at [Wilfrid Laurier University](#) and this one at the [University of Toronto](#).

Sign-up for updates and events for Women in Cell & Gene Therapy or email [michael@phacilitate.co.uk](mailto:michael@phacilitate.co.uk) to find out how you can get involved!

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