

Biosketch

Andrew R Pepper, PhD

Post-Doctoral Fellow, Immunobiology & Islet Transplantation Research
Clinical Islet Transplant Program

Date of Birth: 30 July 1984, Milton ON

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Accomplishments and Interests:

Academic: My intrigue with the field of transplantation and translational medicine began while obtaining my undergraduate degree in Microbiology and Immunology, at the University of Western Ontario (2007 Graduate). I quickly understood the need for future experimentation, as this field was still in its relative infancy. While completing my final undergraduate year, I was privileged to obtain a research project in Dr. David White's laboratory, testing novel methods to predict which insulin producing islet preparations would reverse diabetes. I was fortunate that the successes resulting from this undergraduate experience led to a graduate position under the supervision of Dr. White, where I successfully completed my PhD in the summer of 2012, titled: "Elucidating the function of transplanted islets of Langerhans and predicting their ability to reverse diabetes". The finding within my PhD experiments resulted in four first author publications and was honored to receive several departmental (Dr. M. Daria Haust and Dr. Cameron Wallace), provincial (Ontario Graduate Scholarship) and national (MITACS -Accelerate Ph.D fellowship) awards, affording me the additional resources necessary to thrive in my studies. As a post-doctoral fellow in Dr. James Shapiro's laboratory within the Alberta Diabetes Institute, I have found myself in a world-class research environment that has allowed my scientific career to mature rapidly. Since, joining the lab in the summer of 2012 I have been able to publish 11 papers in peer-reviewed journals, as well as contribute to two book chapters. Recently, the results from my first project within the lab, development of a prevascularized subcutaneous transplant site was recently accepted into *Nature Biotechnology*.

Research: My interest in translational medicine for T1DM, involving true bench-top to bedside strategies, led me to a scientist role at Sernova Corp. In parallel to

my graduate studies; an opportunity granted by receiving an industry sponsored PhD fellowship (MITACS-Accelerate program). This role presented me with multiple collaborative leadership experiences involving the Cell Pouch™ technology in T1DM. Specifically, I led porcine islet auto- and allotransplantation projects using the Cell Pouch™ as an alternative transplant site. I was fortunate to also formulate a patent pertaining to the ability to predict which islet preparations have the capacity to reverse diabetes prior to transplant. In addition, while at Sernova, I was an integral member of collaborative academic studies in conjunction with the University of Illinois at Chicago and the University of Minnesota. Moreover, while working in this industry setting, I was exposed to several industry partnership studies, collaborating with Living Cell Technologies (LCT) and Janssen Biotech, Inc. The success of these pivotal preclinical studies led to the current ongoing clinical trial (NCT01652911), led by Dr. Shapiro. Concurrent to this position, I was a member of the human islet transplantation program at London Health Science Centre, providing me with first hand clinical experience. These experiences paved the way for my future success as a post-doctoral fellow in Dr. Shapiro's laboratory. Recently, I was admitted to the Canadian National Transplant Research Program (CNTRP) as an academic trainee. Most notably, my application was ranked the highest among applicants across 116-nationwide institutions participating in the program. In June, I attended the CNTRP's first annual Scientific Meeting, which focused on sharing scientific discoveries within the program, as well as foster collaborations among program trainees and mentors. Undoubtedly, these experiences have been instrumental in further enhancing my research skills, which are paramount in my current and future career aspirations.

Leadership: I actively pursued volunteer experiences within the communities I lived in. While an undergraduate student, I volunteered as a large animal veterinary assistant, where I gained valuable experience in animal handling and surgery, which have proven vital to my graduate and post-doctoral training. Furthermore, I was a volunteer within the London Health Science Center in the Guiding, Perioperative Care and Intensive Care Units. This front line health care perspective afforded me the desire to pursue translational medicine research, as I was witness to the positive impact novel therapies could have on patient outcomes, and the need for future scientific discovery. Most recently, I have become involved in outreach programs as an Organizing Member of StemCellTalks and enrolled as a volunteer for Let's Talk Science. I also spearheaded several community involvements within Edmonton's Sports and Social Clubs as Team Captain for softball, volleyball and curling teams. In addition, as newly certified scuba diver, I am a member of the Alberta Underwater Council where I participate in annual lake cleanups, most recently in Sylvan Lake, AB (Sept 2014). I have been most fortunate to mentor the summer and graduate students within our laboratory by transferring the lessons I have learned through my academic, industrial, and volunteer experiences.

Based on my diverse experiences to date, I wish to someday become an important component and eventual leader in the field of translational medicine,

aiming to advance treatments for T1DM patients. Furthermore, I wish to pay forward the guidance that I have been fortunate to receive, to future generations of young scientific minds whom collectively will undoubtedly make inroads in the treatment and attenuation of this disease. I would be deeply humbled to someday become even a small stone in the foundation of work that ultimately enlighten us to the definitive treatment, potential underline causation and cure of T1DM.

Bio From StemCell Talks:

Dr. Andrew Pepper is a post-doctoral fellow in Dr. James Shapiro's laboratory at the University of Alberta as a member of the Clinical Islet Transplantation Program. He attended the University of Western Ontario in London, Ontario where he earned a bachelor's degree in medical science with an honours specialization in microbiology & immunology and a doctoral degree in pathology, focusing on the field of islet transplantation.

During his graduate studies, Andrew became a member of the Clinical Islet Transplantation Program at London Health Science Centre where he gained experience in human organ procurement and clinical islet isolations. In parallel, he worked as a research scientist in the biotechnology sector with Sernova Corp. Here he aided in the preclinical development of the Cell Pouch™ technology for therapeutic cellular transplantation. These pivotal preclinical studies led to the current phase I/II safety and efficacy clinical evaluation of this technology, led by Dr. Shapiro at the University of Alberta.

Andrew's scientific passion and enthusiasm is directed towards the formulation of novel modalities to increase the efficacy of beta cell replacement strategies, including: insulin producing stem cell, islet transplantation and immune modulation. He is optimistic that this treatment strategy will evolve into a viable and sustainable treatment option for all patients with insulin-dependent diabetes, not just selected patient populations, in the near future.