

25th Anniversary Celebration of the
**Edmonton Protocol
and the Future of
Islet Replacement
Therapies**

JUNE 4–5, 2025



REMARKS FROM THE DIRECTOR

Alberta Diabetes Institute

I would like to extend a very warm welcome to this momentous two day event commemorating the 25th anniversary of the Edmonton Protocol. Today, we reflect on a quarter-century of innovation, dedication, and profound impact on the lives of individuals living with type 1 diabetes across Canada and around the globe.

The success of the Edmonton Protocol is a testament to the power of collaborative effort. We owe an immense debt of gratitude to the brilliant minds and tireless efforts of our researchers and clinicians, whose unwavering commitment to pushing the boundaries of medical science made this breakthrough possible. Their dedication transformed an ambitious vision into a tangible reality. We also extend our sincere thanks to the funding bodies* whose crucial support fueled this pioneering work, and to the provincial government and Alberta Health Services, whose strategic vision and robust infrastructure provided the essential environment for such groundbreaking research to flourish.

However, the deepest gratitude must be reserved for those without whom this transformative treatment would simply not have been possible: the courageous participants with type 1 diabetes who volunteered for these early trials, placing their trust in us and contributing directly to scientific advancement. And, with profound humility, we honor the incredible generosity of the organ donors and their families. Their selfless act of giving the gift of life has paved the way for countless individuals to experience a life free from the daily burden of insulin injections. Their legacy lives on in every success story of the Edmonton Protocol.

Twenty-five years ago, the Edmonton Protocol laid a foundational stone, making the notion of a life free from the need for insulin treatment tangible. It demonstrated that cell therapy for diabetes was not just a dream, but an achievable goal. As we celebrate this significant milestone, we also look forward with immense hope and excitement. We are now on the cusp of a new era, where stem cell-derived islet cell therapies are rapidly advancing and are truly on the threshold of clinical application. What began as a treatment for the few is now poised to become a reality for the many, offering renewed hope and a brighter future for countless individuals worldwide.

Finally, our sincere thanks go to the Gairdner Foundation and all of our sponsors for their invaluable support in making this commemorative event possible. Your commitment helps us celebrate our past achievements and inspire our future endeavors.

Thank you.

Peter Senior

Director of the Alberta Diabetes Institute

Dr. Charles A. Allard Chair in Diabetes Research

* Alberta Diabetes Foundation, Breakthrough T1D, CIHR, Diabetes Canada, DRIFCan and many others

HISTORY OF THE EDMONTON PROTOCOL

The University of Alberta has a century-long legacy of achievement in the field of diabetes that includes alumni James Collip's pivotal role in the purification and clinical application of insulin in 1922 to the first clinical islet transplantation in Canada led by Ray Rajotte in 1989. In 2000, the publication of the Edmonton Protocol led by James Shapiro provided proof of concept for a treatment for diabetes beyond insulin replacement. This novel approach using a steroid-free anti-rejection regimen achieved what was thought to be impossible: insulin independence for extended periods of time and long term improvement in patient's ability to manage their condition. This provided a dramatic improvement in the quality of life for people with difficult-to-manage diabetes that was life-threatening on a daily basis. It also helped establish the Alberta Diabetes Institute, now a world leader in diabetes research.

There is still work to be done, and scientists at the Alberta Diabetes Institute and around the world are striving to overcome the remaining obstacles for optimizing islet cell replacement therapy. This includes the need for life-long immunosuppression to induce transplant tolerance, and a limited supply of pancreatic islets for transplantation. With rapid advances in our understanding of stem cell biology and the immune system, we seem to be at an inflection point where cell therapy is poised to become a therapeutic reality.

Thank you for joining us as we celebrate the 25th anniversary of a major medical breakthrough and look ahead with some of the world's leading scientists as they share their insight on the future of islet cell replacement therapy and the quest for a cure for diabetes.

EVENT OUTLINE

JUNE 4, 2025

Registration | 4:00 p.m. – 4:30 p.m.

Opening Remarks | 4:30 p.m. – 4:50 p.m.

Keynote Speaker | 4:50 p.m. – 5:20 p.m.



Bernhard Hering

Professor and Vice Chair of Translational Medicine in the Department of Surgery, Executive Director of the Schulze Diabetes Institute and Director of Islet Transplantation at the University of Minnesota

Dr. Hering is renowned for his expertise in cell replacement therapies for diabetes. He has been a leader in clinical islet transplantation, his work on porcine islets as a scalable cell source has reinvigorated the field of islet xenotransplantation, and his contributions to antigen-specific transplant tolerance have been considered important. As a co-founder of Diabetes Free, Inc., Dr. Hering seeks to translate progress in islet transplant tolerance into tangible benefits for patients burdened by diabetes.

Q&A with expert panel | 5:20 p.m. – 5:50 p.m.

Members: James Shapiro, Ray Rajotte and Bernhard Hering

Moderator: Peter Senior

Networking | 5:50 p.m. – 6:30 p.m.

JUNE 5, 2025

Registration | 8:00 a.m. – 8:30 a.m.**Keynote Speaker** | 8:30 a.m. – 9:30 a.m.**Bernhard Hering**

Professor and Vice Chair of Translational Medicine in the Department of Surgery, Executive Director of the Schulze Diabetes Institute and Director of Islet Transplantation at the University of Minnesota

Dr. Hering is renowned for his expertise in cell replacement therapies for diabetes. He has been a leader in clinical islet transplantation, his work on porcine islets as a scalable cell source has reinvigorated the field of islet xenotransplantation, and his contributions to antigen-specific transplant tolerance have been considered important. As a co-founder of Diabetes Free, Inc., Dr. Hering seeks to translate progress in islet transplant tolerance into tangible benefits for patients burdened by diabetes.

Break | 9:30 a.m. – 9:45 a.m.**Session 1 Beta Cell Replacement Therapy** | 9:45 a.m. – 11:15 a.m.**Chair: Zosia Prus-Czarnecka (MSc Candidate)****Gregory Korbitt**

9:45 – 10:15 a.m.

Professor in the Department of Surgery, Scientific Director of the Alberta Cell Therapy Manufacturing Facility and Director of the Alberta Diabetes Institute's Histology Core Lab

Dr. Korbitt's research aims to create a more accessible source of insulin-producing tissue for type 1 diabetes transplantation. He focuses on xenogeneic islets (neonatal porcine islets) and stem cell-derived insulin-producing beta cells. Key questions in his lab include developing a clinically applicable transplant site and creating an immuno-protective environment to prevent islet cell rejection.

**Sonja Schrepfer**

10:15 – 10:45 a.m.

Scientific Founder and Senior Vice President at Sana Biotechnology Inc, Research Scientist in the Departments of Surgery and Regenerative Medicine of Cedars-Sinai Medical Center

Work by Dr. Sonja Schrepfer is at the forefront of stem immunobiology and paves the way for treatment of a wide range of diseases — from supporting functional recovery of failing myocardium to the derivation of other cell types to treat diabetes, blindness, cancer, lung, neurodegenerative, and related diseases. Her work demonstrates that protecting transplanted cells from immune rejection is the key to unlocking the potential of regenerative medicine.

**James Shapiro**

10:45 – 11:15 a.m.

Director of the Liver Transplant Program, Alberta Health Services. Director of the Clinical Islet Transplant Program, Professor in the Department of Surgery, Medicine and Surgical Oncology at the University of Alberta

Dr. James Shapiro pioneered the Edmonton Protocol that has led to treatment and insulin reversal in over 2000 patients worldwide. Current research focuses on inducible pluripotent stem cell derived beta cell regeneration.

Break | 11:15 a.m. - 11:30 a.m.

Session 2 Autoimmunity and Inflammation | 11:30 a.m. – 1:00 p.m.

Chair: Nerea Cuesta Gomez (Post-Doctoral Fellow)

**Sue Tsai**

11:30 – 12:00 p.m.

Professor in the Department of Medical Microbiology and Immunology at the University of Alberta

Dr. Tsai is an early investigator at the University of Alberta since 2019. Her research focuses on the interface between metabolism and the immune system, investigating mechanisms of immune (dys)regulation in insulin-dependent and independent diabetes. The overarching aim is to advance the mechanistic understanding of how metabolic signaling regulates immune cell function and to apply this knowledge to develop immunotherapies.

**Minna Woo**

12:00 – 12:30 p.m.

Director of the Banting and Best Diabetes Centre and Professor in the Departments of Medicine, Pharmacology & Toxicology and Immunology at the University of Toronto. Ajmera Family Chair in Molecular Diabetes Research at the Toronto General Hospital Research Institute

Dr. Woo is a clinician scientist and past Chief of the Division of Endocrinology and Metabolism and continues as staff endocrinologist at the Toronto General Hospital, University Health Network. Her research focuses on molecular mechanisms that determine the pathogenesis of diabetes and related diseases.

**Pere Santamaria**

12:30 – 1:00 p.m.

Professor in the Department of Microbiology, Immunology and Infectious Diseases, and UCalgary Research Excellence Chair at the Cumming School of Medicine at the University of Calgary, Canada

Dr. Santamaria's research focuses on the immunogenetics and immunopathogenesis of autoimmune diseases, especially type 1 diabetes, aiming to identify therapeutic targets. His early work explored genetic factors and T-cell tolerance, which led to a breakthrough in nanomedicine-based therapy. This approach activates disease-specific regulatory T and B cell networks that suppress autoimmune diseases without weakening overall immunity.

Lunch | 1:00 p.m. – 1:45 p.m.

Session 3 Islet Cell Biology | 1:45 p.m. – 2:15 p.m.

Chair: Theodore Dos Santos (PhD Candidate)

**Rebecca Hull-Meichle**

1:45 – 2:15 p.m.

Canada Excellence Research Chair in the Islet Microenvironment, Professor in the Department of Cell Biology at the University of Alberta

Dr. Hull-Meichle's research is focused on understanding how and why people develop diabetes, by investigating mechanisms leading to loss of insulin release from the pancreatic β cell. In particular, her group studies the microenvironment or "neighbourhood" in which the β cells live and how changes in this microenvironment contribute to diabetes development.

**Vira Kravets**

2:15 – 2:45 p.m.

Assistant Professor at Department of Bioengineering, School of Engineering & (jointly) Department of Pediatrics, School of Medicine of University of California San Diego

Dr. Vira Kravets earned her M.S. in Physics, specializing in “Photonics,” from Kyiv National University and a Ph.D. in Physics in Colorado, USA, focusing on plasmonic nanomaterials for bioimaging and biosensing. As a Postdoctoral Fellow at the University of Colorado’s Anschutz Medical Campus, she used optics, spectroscopy, and computational modeling to study pancreatic tissue from healthy and diabetic donors. She discovered a “first-responder” cell population that drives the islets’ response to glucose.

**Patrick MacDonald**

2:45 – 3:15 p.m.

Tier 1 Canada Research Chair in Islet Biology, Professor in the Department of Pharmacology at the University of Alberta

Dr. MacDonald earned his PhD in Physiology from the University of Toronto. His research focuses on insulin-producing pancreatic islets, particularly the relationship between cellular signaling, gene expression, and membrane function. In 2011, he founded the ADI IsletCore biobanking program, now the largest of its kind, and in 2020 he co-founded the Canadian Islet Research and Training Network.

Wrap up session | 3:15 p.m. – 4:00 p.m.



ACKNOWLEDGMENTS

Thanks to the support of our sponsors:



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Thank you to everyone who attended and helped make this event so special. Your presence and continued support are truly valued. As part of the Edmonton Protocol, you've contributed to a legacy of innovation, hope and life-changing impact for people living with diabetes.

To learn more, continue the journey with us, or leave a testimonial about the Edmonton Protocol, visit adi.ualberta.ca



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