



july 2016

june 2017

ANNUAL REPORT

BB
DC

DIABETES CENTRE

BANTING & BEST

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WHO WE ARE

The BBDC was established in 1978 as an Extra-Departmental Unit of the Faculty of Medicine, University of Toronto with the primary objective of advancing diabetes research, education, and care. We offer several studentships, fellowships, grants and other support for qualified individuals involved in diabetes research, education and care at the University of Toronto and its affiliated

institutions. In addition, we host scientific conferences and educational events for diabetes researchers and healthcare providers.

The BBDC membership is a network of over 200 faculty and health care providers involved in diabetes research, education and care from various departments at the University of Toronto and its affiliated hospitals.

VISION & MISSION

Our Vision

As Canada's leading centre of excellence for innovation in diabetes research, education, and clinical care, we will tangibly impact diabetes prevention and outcomes in Canada and globally.

Our Mission

We bring together researchers across multiple University of Toronto affiliated disciplines to:

- Develop novel treatment paths to cure diabetes or prevent its complications
- Identify innovative ways to manage diabetes and improve the lives of those living with the condition



Banting & Best Diabetes Centre
UNIVERSITY OF TORONTO



DIRECTOR'S REPORT

Gary F. Lewis, MD, FRCPC

Director, Banting & Best Diabetes Centre
Professor, Departments of Medicine and Physiology
Sun Life Financial Chair in Diabetes
Drucker Family Chair in Diabetes Research

Dear BBDC members,

It is my pleasure to highlight some of the new initiatives the BBDC has undertaken this past year.

New Educational Opportunities for Trainees

In response to suggestions made by reviewers who conducted the 2016 BBDC External Review we have created a number of new educational opportunities for our trainees. These include:

- A New Trainee Advancement & Development Committee formed to implement the scientific review of the Summer Studentship, Annual Trainee Award, and Trainee Travel Award funding programs. A member of this committee is selected to coordinate the Charles Hollenberg Summer Studentship program. This committee provides our post-doctoral fellows with an opportunity to gain firsthand experience in reviewing applications, to get to know one another and to play an active role in BBDC activities. It also provides much needed relief for our very busy Training and Research Excellence Com-

mittee. I am pleased to report that this initiative has been received with a high level of enthusiasm by our fellows and reviews are of the highest calibre. I would like to thank Dr. Tony Lam for initiating and overseeing this committee.

- Graduate students and post-doctoral fellows now have the opportunity to meet with visiting speakers as part of the BBDC Seminar Series at City-wide Endocrine Rounds.
- New monthly Trainee Lab Seminar Series for graduate students and post-doctoral fellows to present their basic science research in progress will begin in September 2017. This seminar series will replace the previous TGRI-MSRI diabetes seminar series and will be open to trainees in labs of all BBDC PIs. They will be held monthly at the U of T Medical Sciences Building.
- New quarterly Clinical Research-in-Progress Rounds for trainees involved in clinical research. Many thanks to Dr. Lorraine Lipscombe for initiating and organizing these rounds which will begin in September 2017 and will be held at Women's College Hospital.

- BBDC-Joslin-UCPH Training Day: In conjunction with the 4th BBDC-Joslin-UCPH Diabetes Conference to be hosted by the BBDC in Toronto on October 19–20, 2017, the Danish Diabetes Academy has generously offered to organize a one-day Training Day Diabetes Challenge for ten trainees from each of the three participating institutions. The main objective of this challenge is to engage and motivate young researchers prior to and during the Conference and to facilitate the development of networks among trainees and future faculty across the three institutions. Participants will be divided into multi-institutional teams that will be tasked with developing and presenting novel solutions to a diabetes-related challenge to a panel of senior researchers.
- Post-doctoral fellows rather than faculty will be chairing sessions at the 4th BBDC-Joslin-UCPH Conference, thereby increasing their participation in the conference and focusing on trainees in all BBDC activities.
- A highly successful Diabetes Update 2017 was held April 21, 2017 which attracted hundreds of healthcare professionals from across Ontario and beyond.
- QUEST committee members have begun planning a three part article focusing on how to design, implement and sustain a quality improvement project in diabetes. The goal of the Quality Improvement Primer in Diabetes is to publish articles in the Canadian Journal of Diabetes and post them on the BBDC-QUEST website. The articles are intended to educate healthcare providers who want to lead change in their practice but have little experience in the area of quality improvement.

KNOWLEDGE TRANSLATION AND OPTIMIZING CARE MODELS PROGRAM

- Reach of the Diabetes Pharmacists Network continues to grow with 1,071 members across Canada, 59,649 webpage views, 3,532 video plays, and more than 6,200 users of the BBDC Guidebook for Pharmacists on Diabetes Management.
- Three new modules were launched on the Diabetes Pharmacists Network Interactive Learning Program: 1) Preconception Care in Women with Diabetes: What Do Pharmacists Need to Know?, 2) Where is the Profession of Pharmacy Headed?, 3) SGLT2 inhibitors: What Do Pharmacists Need to Know?
- The 4th Annual Diabetes Pharmacists Networking Event was held at the 19th Canadian Diabetes Association/Canadian Society of Endocrinology and Metabolism Professional Conference in Ottawa in October 2016. Dean Neil J. MacKinnon from the James L. Winkle College of Pharmacy at the University of Cincinnati was the keynote speaker.

Outstanding BBDC Applied Research Programs Continue to Evolve and Make Major Contributions

QUALITY EDUCATION AND SAFETY (QUEST) PROGRAM

- A BBDC-QUEST Environmental Scan and Scoping Review was undertaken to determine what interventions, innovations, models, and quality improvement strategies were utilized in Ontario at the provider level to address gaps in care for individuals with diabetes. Members of the QUEST committee are now in the process of a detailed assessment of all sources included in the document to identify initiatives that can be applied locally, as well as what gaps still exist and what opportunities there are to address them.
- In April 2017, the BBDC-QUEST educational website diabetesquest.ca was launched with the purpose of providing the diabetes healthcare provider with the best clinical resources and tools to facilitate and improve clinical care. The team is now focused on refining the vision and purpose of the site, developing and posting diabetes content and improving communications and social media to drive traffic to the site.
- The BBDC-QUEST program continues to support the University of Toronto Diabetes Scorecard Project, an innovative multi-site initiative designed to successfully implement a standardized audit and feedback program using a patient derived “diabetes scorecard” with the aim of driving future improvement in diabetes care.

Human Islet Cell Isolation Facility Now Open

I am pleased that this past year has seen the establishment of an Islet Cell Isolation lab which is now up and running. This has been a work in progress, requiring the raising of funds to support its establishment and close collaboration with the Multi-Organ Transplant program and the McEwen Centre for Regenerative Medicine at UHN. The new dedicated Human Islet Cell Isolation Facility is now operational at the UHN. The facility, managed by Dr. Mark Catral and Multi-organ Transplant at UHN, will provide researchers with quality control tested human islet cells. The facility can also assist with specialized assays to assess islet and stem-cell-derived islet cell function. For those interested in obtaining high quality human islets, details are posted on the BBDC website.



Diabetes Action Canada (DAC)

Formerly known as the SPOR Network in Diabetes and its Related Complications, Diabetes Action Canada (DAC) is based at UHN/U of T and has provided a major new resource and national networking opportunity for many BBDC members and U of T diabetes researchers, educators and care providers. The major strength of the BBDC currently lies in the CIHR Pillar 1 discovery and Pillars 1-2 clinical research activities of its members, whereas the focus of DAC is on CIHR pillars 2, 3 and 4. The two organizations thereby complement each other, providing a platform and resources for all BBDC-affiliated diabetes researchers, educators and care providers. Many BBDC members are principal and co-principal investigators in DAC and are benefiting from its focus on population research, implementation science, knowledge translation, health economics research and health policy. DAC is an organization that is rapidly gaining recognition nationally as a major force for the prevention of diabetes complications and its

leadership is working hard to ensure its sustainability beyond the initial five year funding cycle.

International Diabetes Collaborations

Our International Diabetes Collaboration team has been working with clinicians in two low resource countries, Ethiopia and Guyana, to improve diabetes care.

- **Ethiopia:** Diabetes-related amputations are a major problem in Ethiopia, which has the fourth highest number of persons with type 2 diabetes in Africa. Collaborating with their Ethiopian colleagues and extending the successful model developed in Guyana, Canadian clinicians have built a diabetic foot centre at Tikur Anbessa (Black Lion) Hospital in Addis Ababa, Ethiopia. Canadian funds supported renovations, necessary basic equipment including plantar pressure redistribution supplies, and travel for Canadian visitors.
- **Guyana:** Funded by a World Diabetes Foundation grant in 2016, the three-year Guyana Diabetes Care Project has partnered with the Guyana



Ministry of Public Health and the national referral hospital, the Georgetown Public Hospital Corporation, as well as Orbis, an international eye care NGO, and the WONDOOR global health program to implement a multi-component project that will: introduce screening and treatment for diabetic retinopathy to Guyana, begin universal screening for diabetes in pregnancy, validate the Indian Diabetes Risk Score in Guyana and expand the use of the Guyana Health Information System, an electronic medical database.

BBDC-Kangbuk Samsung International Research Fellowships

The BBDC's partnership with Kangbuk Samsung Hospital in Seoul South Korea is proving to be highly successful. The first two post-doctoral fellows from Kangbuk have now entered their second year of training in Toronto and a third is scheduled to join a BBDC lab in the near future. Recruitment of additional fellows is currently underway by the Kangbuk program leadership. Our Korean partners are very pleased with the excellent diabetes research training their prospective faculty members are obtaining in Toronto and the contribution of these outstanding Korean post-doctoral fellows to BBDC member labs is of great benefit.

Overall this has been another exciting year for the BBDC and its membership. We will continue to work hard to innovate, expand our programs and provide the resources and stimulating environment that facilitates advances in diabetes research, education and care that positively impact on those living with diabetes.

WORLDWIDE INDIVIDUALS

AFFECTED WITH **diabetes**

BY **2040**

642
MILLION

WILL RISE TO

TODAY

415
MILLION

COMMITTEES : •

July 2016 to June 2017

Executive Committee

The governance structure of the BBDC consists of a Director and Executive Committee who ensure that the goals of the Centre are appropriately implemented. The Executive Committee provides leadership and representation for the University of Toronto diabetes research and care community.

DIRECTOR & CHAIR

Dr. Gary Lewis, Department of Medicine, Division of Endocrinology & Metabolism, and Department of Physiology*

Dr. Tony Lam, Department of Medicine and Department of Physiology*

Dr. Khosrow Adeli, Department of Biochemistry, and Department of Laboratory Medicine & Pathobiology*

Dr. Lorraine Lipscombe, Department of Medicine, and Department of Health Policy, Management and Evaluation*

Dr. George Fantus, Department of Medicine, Division of Endocrinology & Metabolism, and Department of Physiology*; BBDC Core Laboratory Director

Dr. Julia Lowe, Department of Medicine, Division of Endocrinology & Metabolism* (to December 2016)

Dr. Richard Gilbert, Department of Medicine, Division of Endocrinology & Metabolism*

Dr. Bruce Perkins, Department of Medicine, Division of Endocrinology & Metabolism*

Dr. Ilana Halperin, Department of Medicine, Division of Endocrinology & Metabolism*

Dr. Phillip Segal, Department of Medicine, Division of Endocrinology & Metabolism*

Dr. Richard Hegele, Vice Dean, Research and International Relations, Faculty of Medicine*

Dr. Minna Woo, Department of Medicine, Division of Endocrinology & Metabolism*

Applied Research Steering Committee

This committee is made up of the leadership of the Applied Research Programs. Their purpose is to coordinate activities in these programs and promote collaboration between the Applied Research and Discovery Research Programs.

CHAIR

Dr. Gary Lewis, Department of Medicine, Division of Endocrinology & Metabolism, and Department of Physiology*

Dr. Lori MacCallum, Program Director, Knowledge Translation and Optimizing Care Models; Leslie Dan Faculty of Pharmacy*

Dr. Lorraine Lipscombe, Leader, Vulnerable Populations/Population Health Program

Dr. Phillip Segal, Chair, Quality Education and Safety Committee

Dr. Julia Lowe, Leader, International Diabetes Collaboration Program

Training and Research Excellence Committee

This committee implements the scientific review of BBDC funding programs, develops the Annual Scientific Day program, and selects speakers for the BBDC Seminar Series.

CHAIR

Dr. Tony Lam, Associate Director of Research, BBDC; Departments of Medicine and Physiology*

Dr. Herbert Gaisano, Departments of Medicine* and Physiology*

Dr. Kim Connelly, Department of Medicine, Division of Cardiology*

Dr. Margaret Hahn, Department of Psychiatry*

Dr. Caroline Kramer, Department of Medicine*

Dr. Daniel Winer, Department of Laboratory Medicine and Pathobiology*

Dr. Maria Cristina Nostro, Department of Physiology*

Dr. Darren Yuen, Department of Laboratory Medicine and Pathobiology*

Dr. Robert Screatton, Department of Biochemistry*

Dr. Hoon-Ki Sung, Department of Laboratory Medicine and Pathobiology*

Quality Education and Safety Committee

This committee fosters and develops continuing health education and quality improvement initiatives for all members of the diabetes team with the aim of providing a tangible impact at the patient level.

CHAIR **Dr. Phillip Segal**, Department of Medicine, Division of Endocrinology & Metabolism*

Dr. Geetha Mukerji, Department of Medicine, Division of Endocrinology & Metabolism*

Ms. Celia Fredericks, Clinical Nurse Specialist, Mount Sinai Hospital

Dr. Monica Parry, Lawrence S. Bloomberg Faculty of Nursing*

Ms. Leigh Caplan, Certified Diabetes Nurse Educator, Sunnybrook Hospital

Ms. Lori Sutton, Outreach Facilitator, Toronto Central LHIN Diabetes Program, South Riverdale Community Health Centre

Dr. Julie Anne Gilmour, Resident, Department of Medicine, Division of Endocrinology & Metabolism*

Ms. Dana Whitham, Case Manager, Diabetes, St. Michael's Hospital

Dr. Ilana Halperin, Department of Medicine, Division of Endocrinology & Metabolism*

Dr. Rene Wong, Department of Medicine, Division of Endocrinology & Metabolism*

Dr. Lori MacCallum, Program Director, Knowledge Translation and Optimizing Care Models; Leslie Dan Faculty of Pharmacy*

Trainee Advancement and Development Committee

A subcommittee of the Training and Research Excellence Committee, this committee of post-doctoral fellows was established to implement the scientific review of the Summer Studentships, Annual Trainee Awards, and Trainee Travel Awards funding programs. Members are fellows with diverse expertise and disciplines who are either BBDC or externally funded.

CHAIR **Dr. Tony Lam**, Associate Director of Research, BBDC; Departments of Medicine and Physiology*

Dr. Haneesha Mohan (Supervisor: Dr. Michael Wheeler)

Dr. Sri Batchu (Supervisors: Drs. Kim Connelly and Andrew Advani)

Dr. Erin Mulvihill (Supervisor: Dr. Daniel Drucker)

Dr. Xavier Revelo (Supervisor: Dr. Daniel Winer)

Dr. Helen Dranse (Supervisor: Dr. Tony Lam)

Dr. Jillian Rourke (Supervisor: Dr. Robert Screatton)

Dr. Javier Jaldin-Fincati (Supervisor: Dr. Amira Klip)

Dr. Priska Stahel (Supervisor: Dr. Gary Lewis)

Dr. Cynthia Luk (Supervisor: Dr. Minna Woo)

* University of Toronto

FUNDING PROGRAMS & FUNDING DECISIONS

This section of our annual report provides a brief overview of the significant funding that we provide for the diabetes research, education and care communities at the University of Toronto and its affiliated institutions. Complete details and specific eligibility requirements for each program are outlined on our website bbdc.org.





FUNDING PROGRAMS FOR TRAINEES

Annual Trainee Awards

The Annual Trainee Awards program is intended to showcase the best innovative and novel diabetes research being conducted by trainees at the University of Toronto and to provide an incentive for BBDC trainees to share their very best work with their colleagues and the BBDC membership. The top ten abstracts are selected for poster presentations at the BBDC's Annual Scientific Day where they are judged by internationally renowned diabetes researchers. This year's judges were Dr. Randy Levinson, Senior Editor of Nature Medicine and Dr. Hoon-Ki Sung, Department of Laboratory Medicine & Pathobiology, University of Toronto. The winners receive gift cards for the University of Toronto Bookstore. The 2016/2017 prize winners are:

Prize	Recipient	Supervisor(s)	Title of Research
1st Prize	Helen Dranse	Dr. Tony Lam	Upper small intestinal protein sensing regulates glucose homeostasis
2nd Prize	Zhila Semnani-Azad	Dr. Anthony Hanley	Longitudinal Associations of Soluble CD163 with Insulin Sensitivity and β -Cell Function: The Prospective Metabolism and Islet Cell Evaluation (PROMISE) Cohort
3rd Prize	Alexander E. Vlahos	Dr. Michael Sefton	Subcutaneously transplanted islet-embedded endothelialized modules restore normoglycemia in diabetic SCID/Bg mice
Honourable Mention	Sydney Brandt	Dr. Michael Wheeler	The circulating furan fatty acid metabolite CMPF directly enhances hepatic FGF21 secretion and lipid metabolism
Honourable Mention	Emily McGaugh	Dr. Maria Cristina Nostro	Elucidating the role of FGF signalling during pancreatic developments
Honourable Mention	Cigdem Sahin	Dr. Carolyn Cummins	A Novel PPAR Pan-Active Agonist Derived from Cashew Nut Shell Liquid Ameliorates Dyslipidemia and Insulin Resistance in Diet-Induced Obese Mice



Charles Hollenberg Summer Studentship Program

This program is designed to introduce undergraduate and medical students to the field of diabetes research, by providing an opportunity to perform a full-time summer research studentship in the laboratory of a BBDC member. Students and their supervisors participate in a weekly Seminar Series which include presentations by the summer students describing how their projects fit into the overall goals of their labs. All students present the results of their work at the end of the summer in a workshop format at a half-day mini-conference. The awards are valued at \$4,800 each (half is provided by the BBDC). The BBDC would like to thank Dr. Xavier Revelo for coordinating the 2017 Summer Studentship Program. The 2017 summer studentship recipients are:

2017 Charles Hollenberg Summer Studentship recipients with program coordinator, Dr. Xavier Revelo (right)

Recipient	Supervisor	Title of Research
Brigida Bruno	Dr. Catherine Yu	Increasing safe insulin use and blood glucose control in patients with diabetes: Developing and launching an Insulin Stewardship Program
Amanda Fantin	Dr. Ian Rogers	Developing a 3-dimensional culture system using a decellularized pancreas to support the growth and differentiation of iPSC derived islets
Shillang Ge	Dr. Xiao-Yan Wen	Validation of novel gluconeogenesis regulators for anti-diabetic drug discovery using transgenic zebra fish reporter lines
Patrick Gurses	Dr. Patricia Brubaker	Role of Bmal1 in circadian secretion of glucagon-like peptide-1
Caroline Hircock	Dr. Derek van der Kooy	The origin of post-mitotic beta cells from progenitor cells in the pancreas
Cindy Kao	Dr. Andras Nagy	Generation of Fully/Partially Reprogrammed iPS Cells Derived from Pancreatic β -cells of Reprogrammable Mouse
Sara Keshavjee	Dr. Michael Sefton	Evaluating Endothelialized Pseudo Islet Modules with MSCs in a Streptozotocin-Induced Diabetic SCID/Bg Model
Justin Kim	Dr. Daniel Winer	Elucidating the role of intestinal IgA in regulating the gut microbiota and immune cell inflammatory profile in obesity and insulin resistance
Harry Lau	Dr. Qinghua Wang	Synergistic effects of GABA and GLP-1 on human β -cell functions and proliferation
Samantha Lee	Dr. I. George Fantus	Studies of the role of thioredoxin-interacting protein (TXNIP) protein-protein interacting domain in the pathogenesis of diabetic neuropathy (DN)
Alison Liu	Dr. Michelle Bendeck	The role of Discoidin Domain Receptor 1 in brown/beige adipogenesis and the development of type 2 diabetes
Ilia Ostrovski	Dr. Bruce Perkins	Alleviating Carbohydrate-Counting Burden in Type 1 Diabetes Using Artificial Pancreas and Sodium Glucose-Linked Transporter 2 Inhibition: A Randomized Placebo-Controlled Trial
Afifa Saleem	Dr. Jonathan Rocheleau	Islet-on-a-chip: design of an optical sensor to measure oxygen consumption rate of individual islets with high temporal resolution
Theresa Tam	Dr. Amira Klip	Mechanisms of neutrophil polarization in a high fat environment through macrophage cross talk
Anthony Wong	Dr. Michael Wheeler	The Effects of Furan Fatty Acids on Liver Function and Glucose Homeostasis

1 IN 2 PEOPLE WITH diabetes
ARE undiagnosed.

Graduate Studentships

BBDC-NOVO NORDISK STUDENTSHIPS

A collaboration with Novo Nordisk Canada Inc. was established in 1996 to provide long-term endowment in support of graduate students who are pursuing a career in diabetes research. As part of the Ontario Student Opportunity Trust Fund program, the support obtained from Novo Nordisk was matched by equal contributions from the University of Toronto and the Government of Ontario for a total endowment of 4.2 million dollars. Studentships are valued at up to \$21,000 each. The 2016/2017 award recipients are:

Recipient	Supervisor(s)	Title of Research
Angela Brijmohan	Dr. Andrew Advani	HDAC6 in Diabetic Kidney Disease
Chantal Kowalchuk	Dr. Margaret Hahn	Effects of atypical anti-psychotics on hypothalamic insulin signaling
Neruja Loganathan	Dr. Denise Belsham	The effect of endocrine disrupting chemicals on feeding-related hypothalamic neurons
David Ngai	Dr. Michelle Bendeck	The Role of the Discoidin Domain Receptor-1 in Mechanotransduction and the Pathogenesis of Diabetic Vascular Calcification
Jarvis Noronha	Dr. John Sievenpiper	'Catalytic' Doses of Fructose & its Epimers in Glycemic Control
Joshua Rapps	Dr. Minna Woo	Elucidating molecular mechanisms of autophagy in the pathogenesis of diabetes mellitus
Ingrid Dominique Santaren	Dr. Anthony Hanley and Dr. Richard Bazinet	Understanding the Link Between Dairy Foods and Type 2 Diabetes Etiology: A Novel Approach Using Dairy Fatty Acid Biomarkers
Zhila Semnani-Azad	Dr. Anthony Hanley	Soluble CD163, a marker of adipose tissue macrophage activation, in the etiology of type 2 diabetes
Victoria Tokarz	Dr. Warren Lee and Dr. Amira Klip	Intravital Microscopy to Investigate the Rate-Limiting Step in Insulin Delivery to Tissues
Alexander Vlahos	Dr. Michael Sefton	Modular Tissue Engineering for the Subcutaneous Transplantation of Pancreatic Islets
Sarah Wheeler	Dr. Patricia Brubaker	Regulation of Glucagon-like Peptide-1 Exocytosis by the SNARE Protein Syntaxin1a
An Qi Xu	Dr. Jayne Danska	Protection against Type 1 diabetes in Non-obese diabetic mice by a refined human gut-derived bacterial consortium
Junghwa Yun	Dr. Xiao-Yan Wen	Validation and mechanistic studies of gluconeogenesis regulators identified from zebrafish chemical genetic screens

BBDC-UNIVERSITY HEALTH NETWORK GRADUATE AWARDS

These awards were made possible by the 10-year partnership between the BBDC and the University Health Network. To be eligible for this award, the student's supervisor must hold a full-time UHN appointment as an active staff physician, or if he/she holds an associate staff position or staff scientist position the supervisor's principal laboratory or clinical research space must be physically located at the UHN. Studentships are valued at up to \$21,000 each. The 2016/2017 award recipients are:

Recipient	Supervisor	Title of Research
Paige Bauer	Dr. Tony Lam	The role of microbiota in gut nutrient sensing
Sydney Brandt	Dr. Michael Wheeler	The circulating furan fatty acid CMPF decreases fat accumulation in the liver associated with obesity.
Cindy Bui	Dr. Jonathan Rocheleau	Investigating mitochondrial NADPH production under diabetic conditions using a novel NADPH sensor
Emily McGaugh	Dr. Cristina Nostro	Identifying the role of guidance cue molecules during pancreatic development
Harindra Rajasekeran	Dr. David Cherney	The role of SGLT2 inhibition in treatment of focal segmental glomerulosclerosis (FSGS)
Zhuolun Song	Dr. Tianru Jin	Dietary Curcumin Intervention Attenuates Body Weight Gain in High Fat Diet Fed Mice Via Inhibiting Fat Tissue Inflammation and Increasing Brown Adipocyte UCP1 Expression

TAMARACK GRADUATE AWARD IN DIABETES RESEARCH

This graduate scholarship was made possible by a generous private endowment which was matched by equal funding from the University of Toronto and the Government of Ontario under the Ontario Student Opportunity Trust Fund program. The award is valued at up to \$21,000. The 2016/2017 award recipient is:

Recipient	Supervisor	Title of Research
Lucia Andrea Zurbau	Dr. Vladimir Vuksan	Co-administration of three complimentary therapies (viscous dietary fiber, whole grain and ginseng) for comprehensive cardiovascular disease risk reduction in type 2 diabetes

YOW KAM-YUEN GRADUATE SCHOLARSHIP IN DIABETES RESEARCH

This graduate scholarship was made possible by a generous private endowment which was matched by equal funding from the University of Toronto and the Government of Ontario under the Ontario Student Opportunity Trust Fund program. The value of the award varies and is normally between \$10,000 and \$15,000. The 2016/2017 award recipient is:

Recipient	Supervisor	Title of Research
Julie Ann Dung Van	Dr. James Scholey	Characterizing the Urinary Peptidome of Adolescents with Type 1 Diabetes Mellitus using a Discovery-Based Approach

Post-Doctoral Fellowships

The support of research fellows has been a major priority of the BBDC since the Centre's inception. Each year, the BBDC endeavours to provide as many fellowships as possible to enable individuals holding an MD or PhD to carry out full-time diabetes research at the University of Toronto or one of its affiliated institutions. The objective of these awards is to attract and foster young investigators to initiate and/or continue research training in the field of diabetes. Awards are \$40,000 or \$50,000 depending on the degree held. The 2016/2017 recipients are:

HUGH SELLERS POST-DOCTORAL FELLOWSHIP

Recipient	Supervisor	Title of Research
Priska Stahel	Dr. Gary Lewis	Central Nervous System-mediated effects of insulin, glucagon and glucagon-like peptide-1 in the regulation of hepatic glucose production in humans

BBDC POST-DOCTORAL FELLOWSHIPS

Recipient	Supervisor	Title of Research
Shaaban Abdo	Dr. Michael Wheeler	The identification and targeting of organic anion transporters (OATs) to prevent fatty acid-dependent beta cell dysfunction
T. M. Zaved Waise	Dr. Tony Lam	Insulin action in the brain

BBDC FELLOWSHIPS IN DIABETES CARE (FUNDED BY ELI LILLY/BOEHRINGER INGELHEIM DIABETES ALLIANCE)

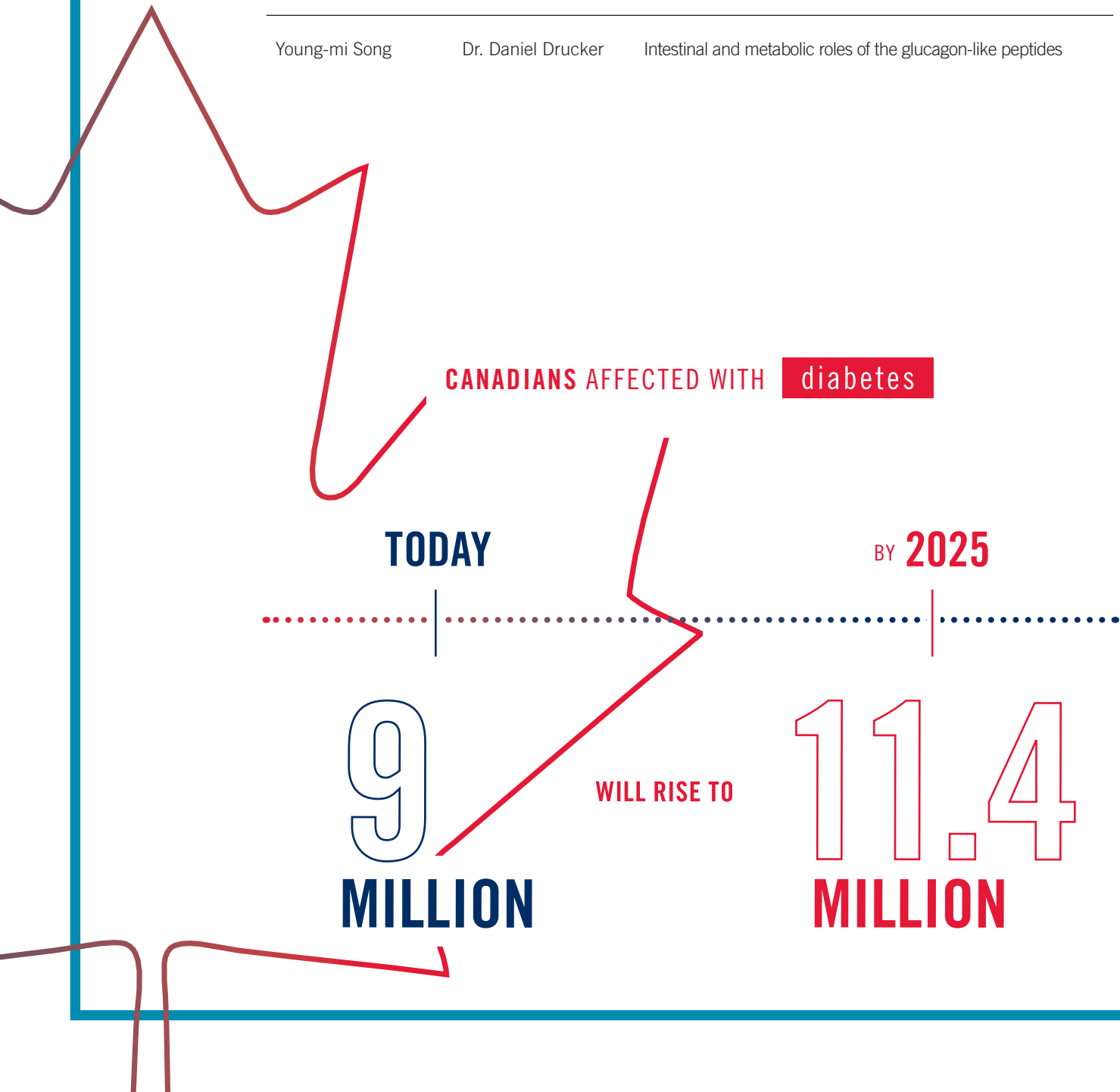
The BBDC Fellowships in Diabetes Care have been made possible by a generous contribution from Eli Lilly/Boehringer Ingelheim Diabetes Alliance. Eli Lilly first established this program in 2009 and has been generously providing annual support since then.

Recipient	Supervisor	Title of Research
Dler Mahmood	Dr. Maria Rozakis-Adcock	Epigenetic regulation of hepatic gluconeogenesis & insulin resistance
Haneesha Mohan	Dr. Michael Wheeler	Identification of a Predictive Metabolic Signature for the Transition from Gestational Diabetes to Type 2 Diabetes
Payal Shah	Dr. Daniel Drucker	Dipeptidyl Peptidase-4 and the control of metabolic inflammation
Lili Tian	Dr. Tinaru Jin	A novel mechanism for controlling adipogenesis: The role of the microRNA miR-17

BBDC-KANGBUK SAMSUNG INTERNATIONAL RESEARCH FELLOWSHIP PROGRAM

In 2015, the BBDC and University Health Network entered into a first-of-its kind partnership with the Kangbuk Samsung Medical Centre in Seoul, South Korea to help them become Asia’s top centre for diabetes treatment, research and education. In the first phase of the partnership, Kangbuk Samsung Hospital will provide a maximum of \$3 million to establish an international fellowship program in which post-doctoral research fellows recruited by the Kangbuk Samsung Hospital will be hosted by BBDC-affiliated scientists. Host labs are selected by Kangbuk Samsung based on their identified areas of interest. Fellows from South Korea will travel to Toronto to receive hands-on training under the guidance of the BBDC’s world-renowned researchers. In 2016, the first two fellows arrived in Toronto to begin a 3-year fellowship. They are:

Recipient	Supervisor	Title of Research
Min Jeong-Kim	Dr. Minna Woo	Investigating molecular mechanisms of autophagy in pancreatic beta cells
Young-mi Song	Dr. Daniel Drucker	Intestinal and metabolic roles of the glucagon-like peptides



Trainee Travel Awards

Attendance at scientific meetings provide all researchers, trainees and established researchers alike, with an opportunity to hear about cutting edge research in their field, often well before those results are published in scientific journals. Scientific meetings provide an opportunity for trainees to present their research findings to an international audience of their peers and promote networking and the establishment of research collaborations. The Trainee Travel Awards are available to trainees presenting a first-author abstract directly related to diabetes research which has been accepted for poster or oral presentation at a scientific meeting. Trainees receive reimbursement of up to \$1,000 CAD to attend the meeting. The 2016/2017 award recipients are:

Recipient	Supervisor	Title of Research
Mona Abraham	Dr. Tony Lam	Activation of Dynamin-related Protein 1-dependent Mitochondrial Fission in the Dorsal Vagal Complex is Sufficient and Necessary to Induce Insulin Resistance
Paige Bauer	Dr. Tony Lam	Microbiota in the upper small intestine alters gut hormone-dependent fatty acid sensing pathways to influence whole body glucose homeostasis
Jodi Bernstein	Dr. Mary L'Abbe	Free sugar labelling is better than total sugar labelling to identify high-sugar "foods to limit" in the Canadian prepackaged food supply
Brigida Bruno	Dr. Catherine Yu	Psychometric Properties of DDS, SF12, PAC1C and DCS in Cohort of Patients with Diabetes and Other Comorbidities
William Cameron	Dr. Jonathan Rocheleau	Organelle-targeting of Apollo-NADP ⁺ Requires Careful Selection of Fluorescent Proteins to Maintain PH Independence
Sarah Farr	Dr. Khosrow Adeli	Bile acid signaling as a novel regulator of postprandial lipemia and intestinal lipoprotein production
Ghazal Fazli	Dr. Gillian L. Booth	Progression of Prediabetes to Type 2 Diabetes Among Recent Immigrants and Long-Term Residents in Canada
Victoria Higgins	Dr. Khosrow Adeli	The effect of BMI on circulating biomarkers of the metabolic syndrome in the CALIPER cohort of healthy children and adolescents
Calvin Ke	Dr. Gillian Booth	Impact of Socioeconomic Status on Incidence of End-Stage Renal Disease (ESRD) and Mortality following Dialysis in Patients with Diabetes
Reha Kumar	Dr. Ilana Halperin	Metformin vs Insulin for Management of Gestational Diabetes Mellitus: Impact on Pregnancy Outcomes and Patient Satisfaction
Neruja Loganathan	Dr. Denise Belsham	The Effect of Bisphenol A and Bisphenol S on Feeding-Related Hypothalamic Npy and AgRP Neurons
Brian Lu	Dr. Shiley X.Y. Wu	Development of highly concentrated thermally stable insulin formulations by experimental investigation and molecular dynamic modeling
Yuliya Lytvyn	Dr. David Cherney	Renal and Vascular Effects of Uric Acid Lowering in Patients with Uncomplicated Type 1 Diabetes Mellitus
Lilia Magomedova	Dr. Carolyn L. Cummins	Hepatic ablation of the nuclear receptor coactivator, ARGLU1, is protective against the development of type 2 diabetes and fatty liver in high-fat diet fed mice
Alexandre Martchenko	Dr. Patricia Brubaker	The core clock gene Bmal1 positively regulates circadian secretion of glucagon-like peptide-1 from the intestinal L cell

Recipient	Supervisor	Title of Research
Jarvis Clyde Noronha	Dr. John L. Sievenpiper	Effect of Small Doses of Fructose and Allulose on Postprandial Carbohydrate Metabolism in Type 2 Diabetes: An Acute Randomized Double-blind Crossover Trial
Harindra Rajasekeran	Dr. David Cherney	The effect of SGLT2 inhibition on urinary adenosine excretion in patients with Type 1 Diabetes
Xavier Revelo	Dr. Daniel Winer	Intrahepatic T cells promote inflammation and insulin resistance during obesity and non-alcoholic fatty liver disease
Jillian Rourke	Dr. Robert Screaton	High-Thoroughput Functional Genomics Identifies the Cell-Cycle Kinase Inhibitors p21 and p18 as Regulators of Primary Human Beta-Cell Proliferation
Ingrid Dominique Santaren	Dr. Richard Bazinet	Serum Fatty Acids Derived from Dairy Consumption are Associated with Longitudinal Changes in Insulin Sensitivity and Beta-cell Function: the PROspective metabolism and ISlet cell Evaluation (PROMISE) Cohort
Zhila Semnani-Azad	Dr. Anthony Hanley	Longitudinal Associations of Soluble CD163 with Insulin Sensitivity and β -Cell Function: The Prospective Metabolism and Islet Cell Evaluation (PROMISE) Cohort
Vivian Szeto	Dr. Zhong-Ping Feng	Cerebrovascular Safety of Sulfonylureas: The Role of KATP Channels in Neuroprotection and Stroke Risk in Sulfonylurea Treatment of Type 2 Diabetes
Jennifer Taher	Dr. Khosrow Adeli	The role of brown adipose tissue in mediating the lipid lowering effects of GLP-1
Victoria Tokarz	Dr. Warren Lee	Investigating the Role of the Vascular Endothelium in Insulin Delivery
Susan Tran	Dr. Ravi Retnakaran	Effect of Liraglutide on Time to Post-challenge Peak Glucose in Patients with Type 2 Diabetes (T2DM)
Julie Anh Dung Van	Dr. James Scholey	Characterizing the Urinary Peptidome of Early Type 1 Diabetes to Infer Protease Activity in the Kidney
T. M. Zaved Waise	Dr. Tony Lam	Mechanism of metformin action in the upper small intestine
Zhengnan (Windy) Wang	Dr. Anthony Hanley	Urinary Vitamin D Binding Protein as a Potential Biomarker for Nephropathy in Patients at Risk for Type 2 Diabetes: The Prospective Metabolism and Islet Cell Evaluation (PRMOISE) Cohort Study
Sarah Wheeler	Dr. Patricia Brubaker	Regulation of Biphasic Exocytosis of Glucagon-like Peptide-1 by the SNARE Protein Syntaxin1a
Erin Worndl	Dr. Lorraine Lipscombe	Impact of a Cancer Diagnosis on Acute Diabetic Complications

Travel Grants: 3rd BBDC-JOSLIN-UCPH Conference

The following individuals received travel grants to attend the 3rd BBDC-Joslin Diabetes Center-University of Copenhagen joint Conference, *Cellular Mechanisms and Cell-Based Therapies of Diabetes*, held November 10-12, 2016 in Boston. Funds were provided by the Joslin Diabetes Center

Recipient	Supervisor	Title of Research
Battsetseg Batchuluun	Dr. Michael Wheeler	Elevation of Circulating Acylcarnitines Induces Pancreatic β -cell

Recipient	Supervisor	Title of Research
William Cameron	Dr. Jonathan Rocheleau	Mitochondrial Targeting of APOLLO-NADP ⁺ Reveals that Palmitate-induced Toxicity in Beta-cells Involves a Drop in Mitochondrial NADPH/NADP ⁺ Redox State
Kenny Chan	Dr. Dana Philpott	Hematopoietic NOD1 depletion protects against metabolic inflammation and insulin resistance
Helen J. Dranse	Dr. Tony Lam	Mechanisms of Intestinal Protein Sensing
Javier Jaldin-Fincati	Dr. Amira Klip	Insulin signalling and insulin uptake into microvascular and lymphatic endothelial cells
Wenjuan Liu	Dr. Qinghua Wang	Combined therapy of GABA and GLP-1 prevents the onset of diabetes by promoting β -cell regeneration in mice
Helen Luck	Dr. Daniel Winer	IgA-related immune cell populations regulate obesity-induced insulin resistance
Lilia Magomedova	Dr. Carolyn Cummins	The glucocorticoid receptor coactivator ARGLU1 promotes steroid diabetes but does not impact anti-inflammatory effects of corticosteroids
Xavier Revelo	Dr. Daniel Winer	Nucleic acid-targeting pathways promote inflammation in obesity-related insulin resistance
Elodie Varin	Dr. Daniel Drucker	Is adipocyte DPP4 an adipokine critical for control of energy metabolism?

POPULATIONS WITH

HIGH RISK

OF TYPE 2 diabetes

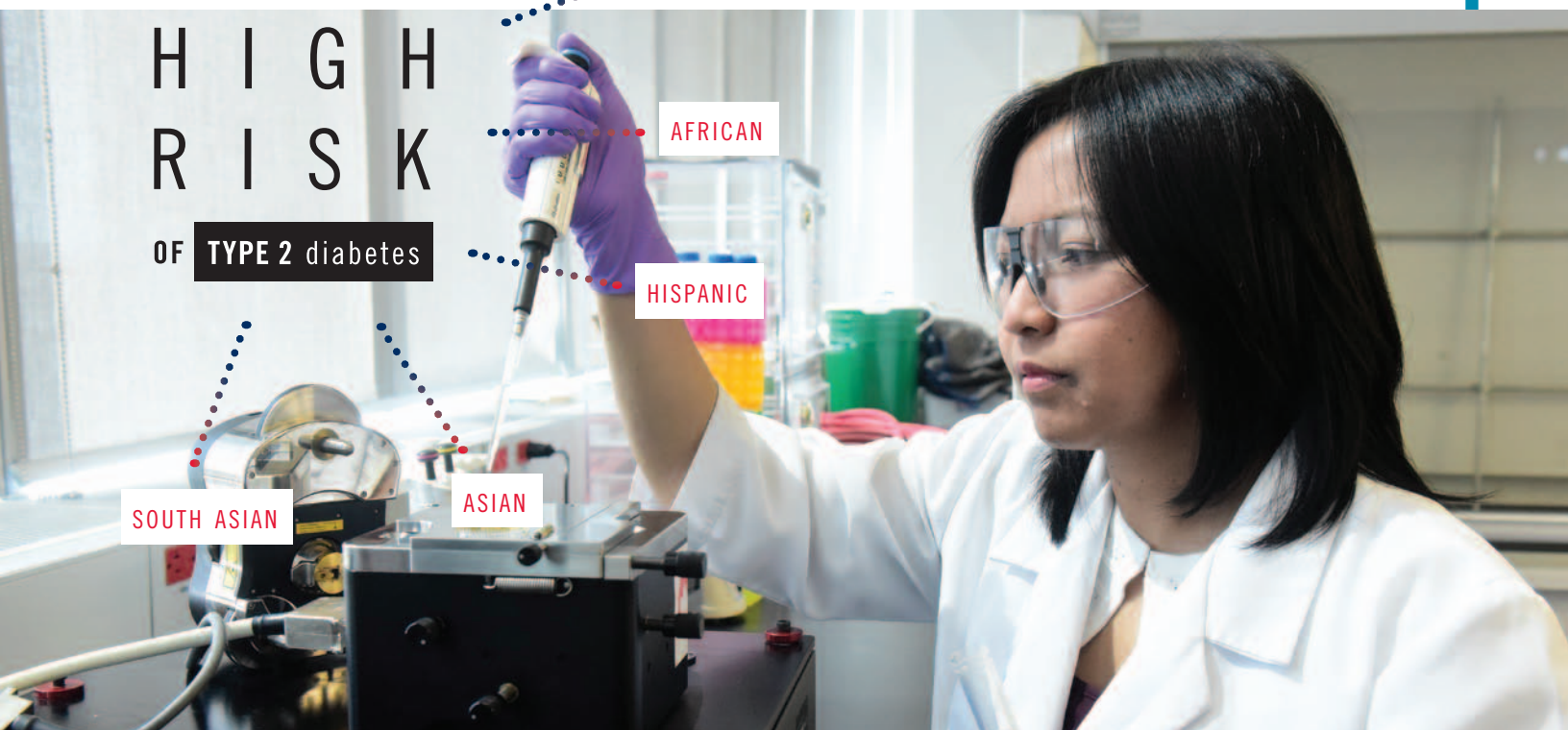
INDIGENOUS DESCENT

AFRICAN

HISPANIC

ASIAN

SOUTH ASIAN



FUNDING PROGRAMS FOR FACULTY AND HEALTH PROFESSIONALS

Archie Sopman Diabetes Research and Education Awards 2016

This program is intended to promote continuing diabetes education for health professionals at the University Health Network who do not normally have access to funds to travel to diabetes conferences or bring seminar speakers to Toronto. Award recipients who attend conferences are encouraged to share their learnings from the conference with their colleagues. Funding for this program is provided by the Toronto General and Western Hospital Foundation Archie Sopman endowment fund. The endowment is held at the University Health Network (UHN) and award payments are made directly to the recipients by the UHN. The 2016 funding recipients are:

Recipient	Occupation and UHN Site	Amount (For travel to meeting)
Farnouche Alimoradiyan	Diabetes Nurse Educator, Toronto General Hospital	Up to \$1,000
Karen Blekaitis	Registered Dietitian, Toronto General Hospital	Up to \$1,000
Lucia Chan	Registered Nurse, Toronto Western Hospital	Up to \$1,000
Margaret De Melo	Practice Leader, Clinical Nutrition, Toronto Western Hospital	Up to \$1,000
Doreen Klaar	Registered Dietitian, Toronto Western Hospital	Up to \$1,000
Kitty Mak	Nurse Clinician, Toronto General Hospital	Up to \$1,000
Elaine Wylie	Clinical Nurse Specialist, Toronto General Hospital	Up to \$1,000

Astrazeneca Impact Challenge Grant: Cardiovascular/Diabetes

In 2013, the BBDC and the Heart & Stroke/Richard Lewar Centre of Excellence in Cardiovascular Research in conjunction with the Vice-Dean, Research and International Relations, Faculty of Medicine established this joint funding program to support research initiatives focusing on diabetes and heart disease. The goal is to establish the University of Toronto as an international leader in the study of diabetes and heart disease and to foster bench to bedside translational research with a focus on innovation and first-in man clinical trials. Applicants must be members of either the BBDC and/or the Heart & Stroke/Richard Lewar Centre of Excellence to be eligible to apply. This funding program is administered by and payments are made to the award recipients by the Heart & Stroke/Richard Lewar Centre of Excellence. In 2015, the program received a generous contribution from AstraZeneca which will provide three \$250,000 grants over three years. The 2016/2017 funding recipient is:

Principal Applicant	Co-Applicants	Title of Research	Amount
Dr. Rulan Parekh	Dr. Jason Fish Dr. Mansoor Husain Dr. David Cherney	Novel Biomarkers of Vascular Dysfunction in Diabetes and End-Stage Renal Disease	\$224,960



Diabetes Educator of the Year 2016 Celia Fredericks (left) with nomination supporter Arnold Temple

BBDC - Novo Nordisk Chair in Incretin Biology

In 2010, the BBDC–Novo Nordisk Chair in Incretin Biology was established at the Banting & Best Diabetes Centre, University of Toronto. The research Chair was made possible through a \$3 million gift from Novo Nordisk in appreciation of the innovative diabetes research undertaken by the Centre. Both Novo Nordisk and the University of Toronto, Faculty of Medicine have a long-standing tradition of diabetes research originally dating back to the discovery of insulin, and most recently focused on the science of incretin biology which holds the potential to have the kind of transformative impact that insulin had in improving the lives of people with diabetes. This Chair will position the University of Toronto as a leader in this area of research. **Dr. Daniel J. Drucker** is the Chair holder and has been reappointed for a second 5-year term until 2020. Dr. Drucker is a clinician–scientist world-renowned for his ability to translate scientific breakthroughs into clinical treatments for patients.

Diabetes Educator of the Year Award 2016

Each year one award is presented to recognize a diabetes educator who has demonstrated outstanding efforts and achievements in his/her role as a diabetes educator. This award is meant to recognize achievements above and beyond the individual's clinical job description, and exceptional individuals who contribute to initiatives across teams within their organization and more broadly to the diabetes community. Candidates are not required to be members of the BBDC. The 2016 award recipient is:

Recipient	Occupation and institution	Amount
Celia Fredericks, RN, CDE	Clinical Nurse Specialist, Mount Sinai Hospital	\$1,000

Reuben & Helene Dennis Scholar in Diabetes Research (Biennial Program)

This award was established to support new clinician–scientists and basic scientists in the early stages of their careers. Faculty are eligible for this funding within five years of their first faculty appointment. Awards are held over a 2-year period. This is a biennial funding program. The 2016–2018 award recipient is:

Recipient	Title of Research	Amount
Dr. Satya Dash	Investigating the role of dopaminergic pathways in human carbohydrate and lipid metabolism	\$10,000 for 2016/2017 \$10,000 for 2017/2018

Sun Life Financial New Investigator Award

This award is made possible by a generous contribution from Sun Life Financial. The award was established to support new clinician-scientists and basic scientists in the early stages of their careers, which is a particularly challenging and vulnerable time as the researcher transitions from trainee to independent investigator. Faculty are eligible for this funding within five years of their first faculty appointment. Awards are held over a 2-year period. The 2016–2018 award recipient is:

Recipient	Title of Research	Amount
Dr. John Sievenpiper	Effect of nuts on body weight and adiposity: Is a calorie a calorie?	\$40,000 for 2016/2017 \$40,000 for 2017/2018

Sun Life Financial Pilot and Feasibility Grants

New ideas and directions for research involve risk-taking by scientists and funding agencies. Most established funding agencies require considerable evidence of feasibility before they consider funding an application for a new project. Furthermore, researchers who are new to the diabetes field who may wish to adapt their non-diabetes research techniques to a diabetes-related topic of interest are disadvantaged in most funding competitions. The BBDC, therefore, prioritizes pilot and feasibility funding to attract researchers without a pre-existing track record of diabetes research or established diabetes researchers who wish to pilot an innovative research idea or project. This funding program is made possible by a generous contribution from Sun Life Financial. The 2016/2017 grant recipients are:

Recipient	Title of Research	Amount
Dr. Michelle Bendeck	Discoidin Domain Receptor 1 is a novel regulator of obesity and energy expenditure in an animal model of type 2 diabetes	\$50,000
Dr. David Cherney Dr. Sunita Singh Dr. S. Joseph Kim Dr. Mark Catral	Impact of Pancreas Transplantation on the Complications of Type 1 Diabetes	\$49,985
Dr. Herbert Gaisano	Direct visualization of T2D islet biology in vivo using the anterior chamber of the eye as observation chamber	\$50,000
Dr. Tianru Jin Dr. Burton Yang	A novel mechanism for controlling adipogenesis: The role of the microRNA miR-17	\$50,000
Dr. Andras Nagy	Generating homing tissues as recipient sites for transplant of pancreatic islets and insulin producing cells	\$49,754
Dr. Daniel Winer Dr. Hubert Tsui	Disruption of Neurogenic Inflammatory Circuits as a Cause of Diabetes-related Immune Suppression and Susceptibility to Infectious Disease	\$60,000

EDUCATIONAL ACTIVITIES

3rd BBDC-Joslin Diabetes Center-UCPH Conference: Cellular Mechanisms and Cell-based Therapies of Diabetes

On November 10–12, 2016, the Joslin Diabetes Center co-hosted the 3rd collaborative conference in Boston which focused on cellular mechanisms and cell-based therapies of diabetes. New information regarding diabetes, both at the clinical and basic levels, is being reported at a rapid pace. Despite this, much remains to be done to have a complete understanding of this complex disease. These annual conferences represent a joint effort between the BBDC, the Joslin Diabetes Center and the University of Copenhagen, three of the world's oldest diabetes clinical and research centers, to address this challenge. They are held on a rotating basis and seek to address the latest developments in the field of diabetes research which we believe will have important implications in research and clinical applications in the near future.

DAY 1: THURSDAY, NOVEMBER 10, 2016

8:00 A.M. Registration and breakfast

8:30 Opening Remarks: **George King** and **Susan Bonner-Weir**

Session 1: Regenerative Biology & Cell-based Therapy

Moderators: Susan Bonner-Weir and Gary Lewis

Session 2: Mitochondria and Bioenergetics

Moderators: Keith Blackwell and Nils Billestrup

8:45	Doug Melton: Making Pancreatic Islet Cells from Stem Cells	1:15	Aaron Cypess: The Bioenergetics and Thermogenic Capacity of Human Brown Adipose Tissue
9:15	Anne Grapin-Botton: Control of Pre- and Postnatal Endocrine Cell Expansion by Wnt4	1:45	Robert Screatton: Functional Genomics and Mitochondrial Function
9:45	Rohit Kulkarni: Novel Pathways Promoting Human Beta Cell Proliferation	2:15	Yu-Hua Tseng: Cold-Induced Lipid Dynamics in Brown Fat-Mediated Thermogenesis and Fuel Metabolism
10:15	Break	2:45	Break
10:35	Andras Nagy: Multiple Ways of Using Pluripotency for the Treatment of Diabetes	3:05	Matthew Gillum: Hepatic Nutrient-Sensing Qualitatively Regulates Appetite and Sensation-Seeking in Rodents and Humans
11:05	Amy Wagers: Targeting Stem Cells and Their Niches to Repair Damaged Skeletal Muscle	3:35	George King: Regulation of Glycolysis and Mitochondrial Metabolism as a Treatment for Diabetic Complications
11:35	Selected Abstract 1: Vijay Yechoor (Baylor College of Medicine): Tead1 reciprocally regulates adult β -cell proliferation and function	4:05	Selected Abstract 3: Elahu Gosney Sustarsic (University of Copenhagen): Regulation of brown adipose metabolism by a key mitochondrial phospholipid
11:50	Selected Abstract 2: Ecrument Dirice (Joslin Diabetes Center): Rapid proliferation of β -cells limits progression of disease in a NOD model of type 1 diabetes	4:20	Selected Abstract 4: Kyoungmin Park (Joslin Diabetes Center): Regulation of brown fat activation and development by insulin's specific actions on the endothelium
12:05 P.M.	Lunch	4:35 – 6:00	Poster Session 1 and Wine & Cheese

DAY 2: FRIDAY, NOVEMBER 11, 2016

8:00 A.M. Breakfast

Session 3:
Genetics Beyond Mendel

Moderators: Andrzej Krolewski and Amira Klip

Session 4:
Inflammation & Immunity in Diabetes

Moderators: Stephan Kissler and Jens H. Nielsen

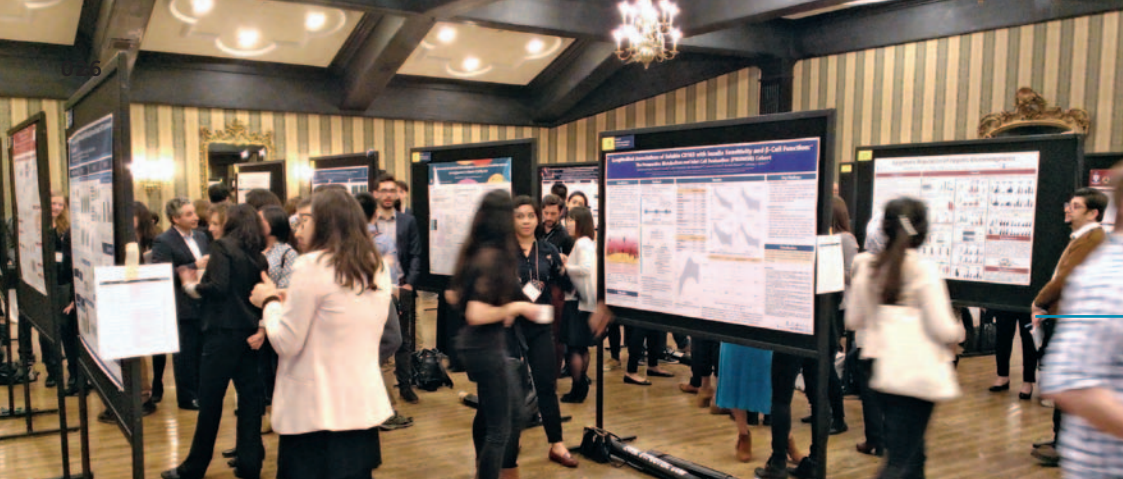
8:30	Jorge Ferrer: Non-Coding Genome Function in Pancreatic Islets and Diabetes	1:30 P.M.	Diane Mathis: Immune/Metabolic System Crosstalk
8:45	Andrew Paterson: Genetics of Risk Factors for Diabetes Complications: Insight into Mechanisms	2:00	Soren Buus: Identification and Validation of T Cell Epitopes
9:15	Mary Elizabeth Patti: Early Life Mediators of Diabetes Risk	2:30	Jason Gaglia: Monitoring Pancreas Inflammation in Type 1 Diabetes
9:45	Break	3:00	Break
10:15	Romain Barres: Epigenetic Inheritance Affecting Metabolism	3:30	Daniel Winer: The Intestinal Adaptive Immune System in Obesity and Insulin Resistance: A Potential New Therapeutic Target
10:45	Marcus Pezolesi: Identifying Genes for Diabetes and Diabetic Complications in the Next Generation	4:00	Allison Goldfine: The Role of Insulin in Regulation of Beta Cell Function
11:15	Selected Abstract 5: Line Hjort (Rigshospitalet): Epigenome-wide changes in DNA methylation and risk of cardio-metabolic disease in 9-15 years old offspring of GDM women and controls	4:30	Selected Abstract 7: Helen Luck (University of Toronto): IgA-related immune cell populations regulate obesity-induced insulin resistance
11:30	Selected Abstract 6: Julian Benedikt Geiger (Roskilde University): Micro-RNA-29A mediates glucose-induced mitochondrial dysfunction in β -cells by suppression of isocitrate dehydrogenase 2 activity	4:45	Selected Abstract 8: Emrah Altindis (Joslin Diabetes Center): Fecal Proteomics Analysis Provides a Novel Window into the Effects of Diet and Gut Microbiome on Host-Gut Metabolism
11:45	Poster Session 2 and Lunch	6:00 – 10:00	Offsite Dinner at The Harvard Club (ticketed event)

DAY 3: SATURDAY, NOVEMBER 12, 2016
Session 5:
New Mechanisms of Cellular Communications

Moderators: Gordon Weir and Henning Beck-Nielsen

8:30 A.M.	Eric Verdin: Mitochondrial Protein Acylation and Metabolic Regulation
8:45	Laurie Goodyear: Exercise Regulated Adipokines and Myokines: Novel Mechanisms for Cell-to-Cell Communication
9:15	Selected Abstract 9: Elodie Varin (University of Toronto): Is adipocyte DPP4 an adipokine critical for control of energy metabolism?
9:30	Selected Abstract 10: Helen Dranse (University of Toronto): Mechanisms of intestinal protein sensing
9:45	Break
10:15	Amira Klip: Molecular Machinery Mobilizing Glucose Transporters to the Muscle Membrane
10:45	Jens Juul Holst: Glucagon Enigmas
11:15	C. Ronald Kahn: Adipose Tissue miRNAs: A New Form of Adipokine
11:45	Closing Remarks: George King and Gary Lewis





Trainee poster session

Annual Scientific Day

This annual event provides an opportunity for BBDC members to exchange scientific information and ideas and assists in the development of collaborative diabetes-related research activities. It also provides a valuable opportunity for BBDC trainees to network and present their research. BBDC post-doctoral fellowship recipients, graduate studentship recipients and select Annual Trainee Awards abstract submitters present posters of their work. This year **Dr. Randy Levinson**, Senior Editor of Nature Medicine and **Dr. Hoon-Ki Sung**, Department of Laboratory Medicine and Pathobiology, University of Toronto co-judged ten of the trainee posters for the Annual Trainee Awards competition.

The event focuses on the latest diabetes research topics with both clinical and laboratory applications. This year's Charles Hollenberg Memorial Lectureship was delivered by **Dr. Barbara Kahn**, George R. Minot Professor of Medicine, Harvard Medical School. Registration is free for all BBDC members, their trainees and U of T endocrine residents.

We gratefully acknowledge partial support of this year's event by: AstraZeneca, Boehringer-Ingelheim/Eli Lilly Diabetes Alliance, Janssen Inc., Medtronic Canada, Merck Canada Inc., Novo Nordisk, Sanofi Diabetes and the University Health Network. We are also grateful to Sun Life Financial, a major supporter of the BBDC.

28TH ANNUAL SCIENTIFIC DAY • FRIDAY, MAY 5, 2017 • THE OLD MILL, TORONTO

8:00 A.M. Continental breakfast and poster set-up

Session 1 Chair: Cynthia Luk

8:40 Welcome and Introduction: **Tony Lam**

8:45 **David Cherney:** The Role of SGLT2 Inhibition in the Management of Diabetes-Related Complications

9:15 **Diane Wherrett:** Trial Net/Type 1 Diabetes

9:45 **Zaved Waise:** Nutrient Sensing in the Small Intestine

10:00 Refreshments, Poster Presentations, and BBDC Annual Trainee Awards Competition poster judging by **Randy Levinson** and **Hoon-Ki Sung**. Moderator: Tony Lam

Session 2 Chair: Priska Stahel

11:15 **Khosrow Adeli:** The Role of Gut-derived Peptides in the Regulation of Lipoprotein Metabolism in Diabetes and Obesity

11:45 **Minna Woo:** Harnessing Tumour Suppressors and Oncogenes to Target Diabetes

12:15 P.M. BBDC Director's Report: **Dr. Gary Lewis**

12:30 Lunch

Session 3 Chair: Tony Lam

1:30 **Charles Hollenberg Memorial Lectureship**
Barbara Kahn: Adipose Lipogenesis and the Discovery of Novel Lipids with Beneficial Effects for Both Type 1 and Type 2 Diabetes

2:30 BBDC Annual Trainee Awards Presentation 2016/2017: **Randy Levinson** and **Hoon-Ki Sung**

2:40 Evaluation and adjournment

BBDC Seminar Series (at City-wide Endocrine Rounds)

Each year the BBDC invites internationally renowned diabetes researchers to present their work on diabetes research at our Seminar Series and to interact with BBDC faculty. To ensure a broad audience, seminars have been incorporated into the University of Toronto City-wide Endocrine Rounds which are held every Friday morning at the Mount Sinai Hospital.



Ajay Chawla, MD, PhD

Professor, Departments of Physiology and Medicine Cardiovascular Research Institute, University of California, San Francisco

Innate Mechanisms of Thermoregulation

NOVEMBER 4, 2016



Jeffrey Bluestone, PhD

A.W. and Mary Margaret Clausen Distinguished Professor, Director, Hormone Research Institute, University of California, San Francisco

Re-balancing the Immune System in Autoimmune Diseases

MARCH 24, 2017

Diabetes Pharmacists Network

The Diabetes Pharmacists Network was created by the BBDC as a way to bring together pharmacists from across Canada who are interested in the care of patients with diabetes. At the BBDC, we are committed to finding ways to improve the lives of people with diabetes and those at risk of diabetes. We recognize the value of pharmacists in improving outcomes for patients and want to empower and support pharmacists who exemplify best practices through networking, education, and knowledge translation initiatives. Our goal is to bring together pharmacists to share ideas and best practices through events, publications, networking and interactive learning. Membership is free and open to all licensed pharmacists in Canada with an interest in diabetes. Pharmacy students currently enrolled in a pharmacy program in Canada are also invited to join. Visit diabetespharmacistsnetwork.ca for more information.

GUIDEBOOK FOR PHARMACISTS ON DIABETES MANAGEMENT

The BBDC's Guidebook for Pharmacists on Diabetes Management is intended to support pharmacists in the

management of diabetes patients, particularly during scheduled medication reviews. The Guidebook incorporates recommendations from Canadian evidence-based guidelines in diabetes, blood pressure and lipid management and is supplemented with information that pharmacists need to know, including prevention and management of adverse effects, tips for assessment of adherence and medication management. Print and e-book versions of the guidebook are available in both English and French at diabetespharmacistsnetwork.ca.

Quest Website

The BBDC's Quality Education & Safety program recently launched an educational website where diabetes health care providers can obtain the best diabetes clinical practice resources and learn about local diabetes initiatives. The QUEST committee has produced and curated a selection of some of the preeminent clinical diabetes resources available. Providers will find valuable tools and information about the disease and options to get involved with diabetes care and research in their communities. Visit the site at diabetesquest.ca.

Diabetes Update

Diabetes Update is a biennial continuing education event organized by the BBDC's Quality Education and Safety Committee. This full-day event is targeted to health care providers in primary and specialty care who are involved in diabetes education and management. The 2017 conference was held on April 21, 2017 and emphasized the importance of partnerships and collaboration towards improving care of people living with diabetes.

The BBDC would like to thank the following for supporting Diabetes Update 2017: Gold Level Sponsor: Novo Nordisk. Silver Level Sponsors: Abbot, Janssen, Eli Lilly, Merck. Bronze Level Sponsors: AstraZeneca, Pfizer.

Speaker
Dr. Arno Kumagai



Diabetes Update 2017 plenary lecture



BBDC DIABETES UPDATE • FRIDAY, APRIL 21, 2017 • HILTON TORONTO HOTEL

7:45 A.M. Registration & Breakfast

8:20 Welcome, Opening Remarks and Introduction: **Dr. Rene Wong**

Plenary Lectures

8:30 **Dr. Arno Kumagai:** Person-Centered Care: Perspectives, Plans, and Applications to Working with Individuals with Diabetes

9:10 Active Learning: Panel discussion - Diabetes Q & A

9:30 **Dr. Zubin Austin:** The Psychology of Interprofessional Collaboration: How Ready Are We?

10:30 Health break and networking

Concurrent Workshops 1

1. **Ms. Marissa Battistella, Dr. Jeremy Gilbert, and Ms. Diane Zianis:**
Strategies to improve care of Patients with Diabetes, Heart Disease and Kidney Disease
 2. **Dr. Camilla Wong and Dr. Afshan Zahedi:**
Strategies to improve care of Elderly Patients with Diabetes
 - 11:00 3. **Dr. Barry Simon:**
Strategies to improve care of patients with diabetes and Disordered Eating
 4. **Ms. Jane Rajah:**
Strategies to improve care of patients with diabetes with Socioeconomic Barriers
 5. **Dr. Denis Daneman and Dr. Geetha Mukerji:**
Strategies to improve the transition of patients with diabetes from the Paediatric to the Adult Setting
-

12:15 P.M. Lunch break

Plenary Lecture

1:30 **Dr. Jeremy Gilbert, Dr. Ross Upshur and Heidi Lazar-Meyn:**
The Top Five Papers of the Year: Should they Change our Practice?

2:10 Active Learning: Q & A

2:25 Presentation of the 2016 Diabetes Educator of the Year Award

2:35 Health break and networking

Concurrent Workshops 2

2:55 Repeat of morning concurrent Workshops 1

4:10 Evaluation and adjournment

CORE LABORATORY :•

The BBDC Core Laboratory provides a wide range of high quality laboratory services to diabetes researchers at the University of Toronto involved in clinical and/or basic research. The lab also provides services to the wider scientific community including external academic and/or industry initiated research. A list of current services and assays provided by the Core Lab is available on the BBDC's website at bbdc.org or by contacting the Core Lab directly:

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ACKNOWLEDGEMENTS :•

We would like to express our gratitude and appreciation to the following:

The members of our Training and Research Excellence Committee, Quality Education and Safety Committee, and new Trainee Advancement and Development Committee who volunteer their time to review applications for the Centre's funding programs and to organize educational initiatives on behalf of the BBDC.

The members of our Executive Committee, Discovery Research Steering Committee, and Applied Research Steering Committee.

Our 2017 Charles Hollenberg Summer Studentship Program Coordinator, Dr. Xavier Revelo.

Everyone who participated in our 28th Annual Scientific Day and Diabetes Update 2017.

The 2016/2017 Annual Trainee Awards poster judges, Drs. Randy Levinson and Hoon-Ki Sung.

Our fundraisers: Faculty of Medicine Office of Advancement and the Toronto General and Western Hospital Foundation.

OUR SUPPORTERS :•

The Banting & Best Diabetes Centre gratefully acknowledges endowed financial support from the following contributors:

C. H. Best Memorial Fund
 The Estate of Reuben & Helene Dennis
 The Estate of Marion Hamilton
 The Estate of Miriam Neveren
 The Estate of Dr. & Mrs. Edward A. Sellers
 The Estate of Mary E. Sharp
 The Estate of Archie Sopman (Toronto General & Western Hospital Foundation)
 The Estate of Arthur Spoerri
 Novo Nordisk
 Mr. Stephen Yow Mok Shing

The Centre is also grateful to the following for contributions made in 2016/2017:

Abbott
 AstraZeneca
 Boehringer-Ingelheim/Eli Lilly Diabetes Alliance
 Janssen
 Kangbuk Samsung Hospital
 Medtronic
 Merck
 Novo Nordisk
 Pfizer
 Sanofi Diabetes
 Toronto General & Western Hospital Foundation
 United Way of Greater Toronto
 University Health Network
 Individuals who have donated to the Banting & Best Diabetes Centre this past year.

The BBDC gratefully acknowledges the support of our major contributors:





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Join our email list to receive our newsletter and notifications regarding BBDC funding programs, seminars and educational events. Email diabetes.bbdc@utoronto.ca to join.



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