



UNIVERSITY OF TORONTO

Banting and Best Diabetes Centre

ANNUAL REPORT

JULY 1, 2000 – JUNE 30, 2001

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BACKGROUND

The Banting and Best Diabetes Centre (BBDC) was established at the University of Toronto in 1978 with the primary objective of advancing diabetes research, education, and patient care.

Dr. Edward A. Sellers, a personal friend of Dr. Charles Best, was the first Director of the Diabetes Centre (1978-1981). He was succeeded by Dr. Charles H. Hollenberg who was appointed Director from 1981-1993, followed by Dr. Bernard Zinman who served as Director from 1993-2000. Presently, the Director of the Centre is Dr. Daniel J. Drucker who was appointed in July of 2000.

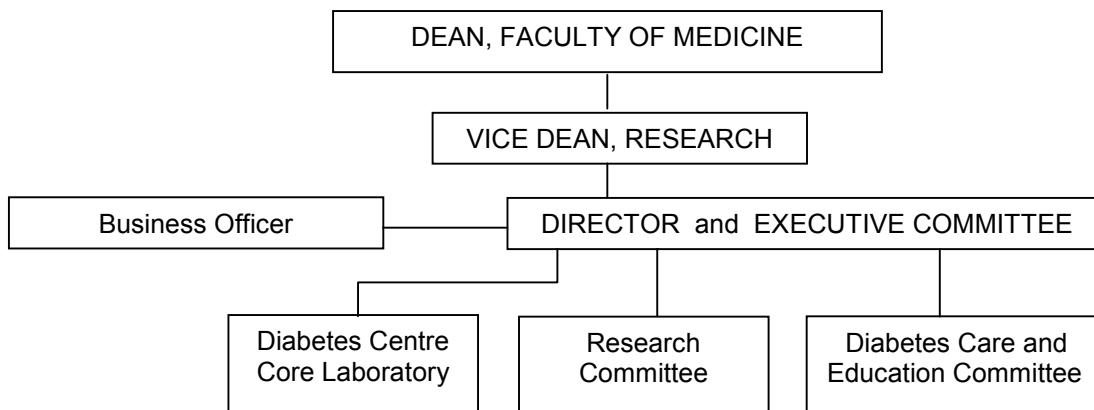
The programs of the BBDC are supported almost entirely from the income on its endowment. The BBDC has also received generous donations from industry which has funded various research programs for students and fellows. The Centre offers several studentships, fellowships, and other support for qualified individuals involved in diabetes research at the University of Toronto.

MEMBERSHIP

The Diabetes Centre membership is derived from various departments at the University of Toronto and its affiliated teaching hospitals. To be eligible for membership, one must be involved in diabetes-related research and hold a full-time faculty appointment at the University of Toronto. Membership allows University of Toronto investigators and their trainees to become eligible to apply for the Centre's awards and competitions. In addition, the Centre has an expanded e-mail distribution list which includes individuals with diabetes interests located at other universities, employed by industry, or involved in diabetes health care delivery.

ADMINISTRATIVE STRUCTURE and COMMITTEES

The administrative structure of the BBDC was established to provide both broad based input and an efficient decision making process. Since the Diabetes Centre is an Extra-Departmental Unit of the Faculty of Medicine, members cannot hold their primary university appointment in the Centre and graduate students must be registered with a graduate department to obtain their degree. The BBDC administrative structure is as follows:



The Director reports to the Dean, Faculty of Medicine through the Vice-Dean, Research. The Director of the Diabetes Centre and the Executive Committee form the principal decision making body of the Centre. The Research Committee and the Diabetes Care and Education Committee serve as the principal working committees. The Diabetes Core Laboratory provides laboratory, analytical, and technical support to the Diabetes Centre investigators on a cost recovery basis.

EXECUTIVE COMMITTEE

This is the principal decision making body of the Centre established to ensure that the goals of the Centre are appropriately implemented. The Executive Committee provides leadership and representation for the University of Toronto diabetes community.

Director: Dr. Daniel J. Drucker	Department of Medicine, Division of Endocrinology & Metabolism
Dr. Patricia Brubaker	Department of Physiology
Dr. Denis Daneman	Department of Medicine, Division of Endocrinology & Metabolism
Dr. I. George Fantus	Department of Medicine, Division of Endocrinology & Metabolism
Dr. Avrum Gotlieb	Laboratory Medicine and Pathobiology
Dr. Robert G. Josse	Department of Medicine, Division of Endocrinology & Metabolism
Dr. George Steiner *	Department of Medicine, Division of Endocrinology & Metabolism
Dr. Mladen Vranic *	Department of Physiology
Dr. Cecil C. Yip	Vice-Dean of Research, Faculty of Medicine
Dr. Bernard Zinman	Department of Medicine, Division of Endocrinology & Metabolism

* Term ended in December 2000

RESEARCH COMMITTEE

One of two working committees of the BBDC. Among its many responsibilities, the Research Committee advises the Executive Committee on new research initiatives to be undertaken by the Centre, and implements the scientific review of the BBDC research competitions.

Chair: Dr. Patricia Brubaker	Department of Physiology
Dr. Khosrow Adeli	Laboratory Medicine and Pathobiology
Dr. Myron Cybulsky	Laboratory Medicine and Pathobiology
Dr. Harry Elsholtz	Laboratory Medicine and Pathobiology
Dr. Dominic Ng	Department of Medicine, Division of Endocrinology & Metabolism
Dr. Yu Tian Wang	Laboratory Medicine and Pathobiology
Dr. Michael Wheeler	Department of Physiology

DIABETES CARE AND EDUCATION COMMITTEE

The second of two working committees, this committee develops and publishes standards for the total health care of diabetic patients in Toronto area hospitals, and communicates these standards to health care practitioners nationally. The Diabetes Care and Education Committee organizes continuing medical education in diabetes for the health care team which is comprised of physicians, nurse educators, dietitians, pharmacists, and other health care professionals.

Chair: Dr. Denis Daneman	Department of Medicine, Division of Endocrinology & Metabolism
Ms. Marianne Beckstead	Registered Nurse, Coordinator, Multidisciplinary Diabetes Complications Clinic, St. Michael's Hospital
Ms. Kathryn Camelon	Registered Dietitian, Toronto General Hospital
Ms. Margy Campbell	Registered Nurse, Tri-Hospital Diabetes Education Centre (TRIDEC)
Ms. Ann Fox	Tri-Hospital Diabetes Education Centre (TRIDEC)
Ms. Marcia Frank	Clinical Nurse Specialist, Division of Endocrinology, Hospital for Sick Children
Dr. Janet Hux	Department of Medicine
Dr. Jackie James	Department of Medicine, Division of Endocrinology & Metabolism
Dr. Lori MacCallum	Clinical Pharmacy Specialist, St. Michael's Hospital

(All appointments held with the University of Toronto or University of Toronto-affiliated teaching hospitals.)

BBDC BUDGET
JULY 1, 2000 – JUNE 30, 2001

INCOME		
Endowment	473,923	
BBDC Investments	182,404	
TOTAL INCOME		\$656,327
EXPENDITURES		
Administration:		
Salary Support + Benefits	70,000	
Office Supplies/Miscellaneous	30,000	
Sub-total:		100,000
Educational Functions:		
Seminars	12,000	
Hugh Sellers Fellows	115,000	
Novo Nordisk Fellow	35,000	
Endocrine Fellow	11,000	
Summer Studentships	17,500	
Trainee Travel Awards	10,000	
Sub-total:		200,500
Faculty Support:		
Reuben & Helene Dennis Scholar	10,000	
Clinical Biochemistry (Irwin 10/10)	73,000	
Basic Science/Physiology (Giacca 4/5)	9,000	
Sub-total:		92,000
Pilot and Feasibility Projects:		
Pilot and Feasibility Funding	60,000	
Pilot Grants for Innovative Activities Related to Diabetes Education, Management..	30,000	
Sub-total:		90,000
Other Research Initiatives:		
Equipment Grant Competition	120,000	
Potential New Programs	40,000	
Sub-total:		160,000
TOTAL EXPENDITURES		\$642,500

**SUMMARY OF FUNDING PROGRAMS
JULY 1, 2000 – JUNE 30, 2001**

BBDC FUNDED PROGRAMS

The following programs are supported by funds from the BBDC's 2000-2001 budget:

Program	Amount budgeted for 2000-2001
Equipment Grants	\$120,000
Trainee Travel Awards	10,000
Pilot Grants for Innovative Activities Related to Diabetes Education, Management, and Care	30,000
Hugh Sellers Fellowships	115,000
Summer Studentships	17,500
Reuben & Helene Dennis Scholar	10,000
Pilot and Feasibility Funding	60,000
Total	\$362,500

OTHER PROGRAMS

The following programs are not supported by funds from the BBDC budget and, therefore, do not appear in the 2000-2001 budget outlined on the previous page. These programs are made possible by donations from industry as well as income earned on generous corporate and private endowments.

Program	Amount awarded in 2000-2001
Eli Lilly/BBDC Research Personnel Awards Program	\$75,000
Eli Lilly/BBDC Research Program	120,000
BBDC/Novo Nordisk Studentship Program	170,000
Tamarack Graduate Award in Diabetes Research	12,000
Yow Kam-Yuen Graduate Scholarship in Diabetes Research	24,000
Archie Sopman Diabetes Research Competition	11,000
Total	\$412,000

FUNDING OPPORTUNITIES & FUNDING DECISIONS

*The Centre's funding programs are only open to BBDC Members as well as students and fellows working in the laboratory of a member (*with the exception of the following awards: 1) Pilot Grants for Innovative Activities Related to Diabetes Education, Care, and Management AND 2) Archie Sopman Diabetes Research Competition). The latter two are also open to staff members of the University of Toronto affiliated teaching hospitals.*

PILOT AND FEASIBILITY FUNDING

This program provides funding of up to \$20,000 per applicant, for one year, to enable eligible investigators to explore completely new initiatives in the area of diabetes research. This competition is open to any full-time faculty member of the University of Toronto conducting diabetes-related research. Applications are reviewed and ranked by members of the BBDC Research Committee as well as an external reviewer. The following are the Pilot and Feasibility Funding recipients for 2000-2001:

Applicant	Title of Research	Amount of Award
Dr. Joanne Rovet	Hypoglycemia and brain function in children with diabetes	\$19,950
Dr. Catharine Whiteside	Retinal cells in culture to study cellular/molecular mechanisms of diabetic retinopathy	\$20,000

EQUIPMENT GRANTS

A minimum amount of \$5,000 and a maximum amount of \$50,000 is made available for the one-time purchase of laboratory equipment for diabetes research. Equipment costing between \$25,000 and \$100,000 is funded at 50 % and requires the applicant to obtain matching funds from other sources. To be eligible, the applicant must be a full-time faculty member of the University of Toronto conducting diabetes research. Applications are reviewed and ranked by members of the BBDC Research Committee as well as an external reviewer. The following are the Equipment Grant recipients for 2000-2001:

* Funding contingent upon receipt of matching funds from other granting agency.

Applicant	Title of Research	Amount of Award
Dr. Herbert Gaisano and Dr. Michael Wheeler	State-of-the-art determination of islet beta secretory and metabolic functions	\$50,000*
Dr. Myron Cybulsky	Quantification of gene expression by real-time PCR	\$50,000*
Dr. Dominic Ng	Atherosclerosis, arterial thrombosis, and hemodynamics in murine models of dyslipidemia and diabetes	\$12,000
Dr. Amira Klip	Measurement of glucose uptake in single cells: A new step in the study of insulin action	\$ 8,000

REUBEN & HELENE DENNIS SCHOLAR IN DIABETES RESEARCH

This competition is held once every two years. An amount of \$10,000 per year for two years is available to be used for the salary of a researcher and/or research support at the Banting and Best Diabetes

Centre. To be eligible, the applicant must be a principal investigator who holds a full-time academic appointment at the University of Toronto. Applications are reviewed and ranked by members of the BBDC Research Committee as well as an external reviewer. The last competition was held in early 2000 and the recipient of this two-year award is:

Applicant	Academic Title	Amount of Award
Dr. Denny Trinh	Assistant Professor, Endocrine Division, Department of Medicine, University of Toronto	\$10,000 for 2000-2001 \$10,000 for 2001-2002

ARCHIE SOPMAN DIABETES RESEARCH COMPETITION

The BBDC is delighted to announce the first annual Archie Sopman Diabetes Research Competition. This award is only open to University Health Network employees. To be eligible, the applicant must be either a staff physician, dietitian, nurse, or clinical trial coordinator who is involved in diabetes research, diabetes education, or diabetes clinical care at the University Health Network. Funding can be used for: 1) Travel to a national or international diabetes meeting; 2) To purchase equipment for use in a diabetes research program or; 3) To support a visiting lecturer in diabetes or metabolic disorders. Applications are reviewed by a BBDC Review Sub-Committee. This year's funding recipients are:

Applicant	Title	Purpose	Amount of Award
Marilyn Mori	Diabetes Educator, Clinical Dietitian	Travel to meeting	Up to \$1000
Ewa Wojtan	Diabetes Nurse Educator	Travel to meeting	Up to \$1000
Martha Wright	Diabetes Nurse Educator	Travel to meeting	Up to \$1000
Tess Montada-Atin	Diabetes Nurse Educator	Travel to meeting	Up to \$1000
Ana Offenheim	Registered Nurse CDE	Travel to meeting	Up to \$1000
Margaret De Melo	Clinical Dietitian, Diabetes Educator	Travel to meeting	Up to \$1000
Kathy Camelon	Registered Dietitian, Diabetes Educator	Travel to meeting	Up to \$1000
Anne Guilar	Registered Dietitian, Diabetes Educator	Travel to meeting	Up to \$1000
Ann Murphy	Registered Dietitian, Diabetes Educator	Travel to meeting	Up to \$1000
Josie Caruso-Ditta & Ann Cook	Registered Dietitian Diabetes Nurse Educator	Travel to meeting	Up to \$1000 each

PILOT GRANTS FOR INNOVATIVE ACTIVITIES RELATED TO DIABETES EDUCATION, MANAGEMENT AND CARE

This program provides a maximum of \$10,000 for two years for innovative activities related to individuals with diabetes. This program is intended to support practical activities in the following general areas:

- i. Diabetes care
- ii. Diabetes education program evaluation
- iii. Practical implementation (and evaluation) of clinical research findings

It is designed to encourage academic activities from individuals not usually supported by traditional granting processes; specifically, front line health care professionals in the University of Toronto-affiliated hospitals or working with UofT-affiliated academics. Applications are reviewed by members of the BBDC

Diabetes Care and Education Committee. The following are the Pilot Grant award recipients for 2000-2001:

Applicant	Title of Research	Amount Awarded
Ann Jones and Marc Goldstein	Impact of a foot care program on lower extremity morbidity of hemodialysis patients with diabetes mellitus.	\$8,000 for one year
Sherry L. Grace Enza Gucciardi Margaret De Melo Ruth Lee	Evaluating nutritional outcomes in Portuguese adults.	\$15,000 over two years
Gillian Booth Janet Hux	The impact of socioeconomic status on avoidable hospitalizations for diabetes in Ontario.	\$8000 for one year

HUGH SELLERS FELLOWSHIPS

The support of research fellows has been a major priority of the BBDC. Since the inception of the BBDC and through the generosity of the Sellers family, a "Hugh Sellers Fellowship" has been awarded annually. Whenever possible, the Centre has endeavoured to support one or two additional trainees a year. This program provides one year of funding to an individual holding an M.D. or Ph.D. who is performing full-time diabetes research training. Applications are reviewed by members of the BBDC Research Committee plus two external reviewers. The Hugh Sellers Fellowship award recipient for 2000-2001 is:

Applicant	Title of Research	Amount of Award
Dr. Younes Anini	Indirect mechanisms regulating secretion of glucagon-like peptide-1	\$25,000

TRAINEE TRAVEL AWARDS

The BBDC Trainee Travel Awards are available to post-doctoral fellows and graduate students conducting diabetes research in the laboratory of a BBDC member. Trainees are eligible for a Travel Award upon written confirmation of acceptance of a first author abstract for presentation at a national or international meeting. Applications are reviewed by members of the Research Committee. This year the BBDC awarded **19 applicants up to \$500 each** to defray the expense of attending a national or international meeting. The following are the Trainee Travel Award recipients for 2000-2001:

Applicant	Supervisor	Title of Research
Younes Anini	Dr. Patricia Brubaker	Leptin stimulates GLP-1 secretion by intestinal endocrine L cells in culture.
Laurie Baggio	Dr. Daniel Drucker	1. Differential Roles for GLP-1 & GIP in the Control of Glucose Homeostasis in Mice 2. Improved Glucose Tolerance but Normal Islet Histology in Mice Expressing a MT-Exendin Transgene
André Carpentier	Dr. Gary Lewis	1. Portal Anastomosis (PA) of the Pancreas Graft Vein Results in Higher Plasma Triglyceride Levels Compared With Systemic Anastomosis (SA) in Patients With Combined Kidney-Pancreas Transplant (KPT) 2. Glucose Potentiation of the Acute C-Peptide Response to Intravenous Arginine is Lost With Prolonged Elevation of Plasma Free Fatty Acids (FFA) in Non-

		Diabetic Obese Individuals
Kristin Freeland	Dr. Thomas Wolever	The effect of dietary fiber compared to glycemic carbohydrate on appetite and short-term food intake in healthy males.
Andrew Haber	Dr. George Fantus	N-Acetyl-L-Cysteine Prevents Insulin Resistance Due to Glucotoxicity and Lipotoxicity in Vivo
Anthony Hanley	Dr. John McLaughlin	1. Proinsulin and Cardiovascular Disease Risk Factors in a Native Canadian Population 2. Association of Parity With Risk of Diabetes and Related disorders in a Native Canadian Population
Karen Inouye	Dr. Mladen Vranic Dr. Stephen Matthews	Impaired epinephrine counterregulation in streptozotocin-diabetic rats exposed to recurrent hypoglycemia is due to decreased adrenal phenylethanolamine-N-methyltransferase (PNMT) mRNA expression rather than adaptations in the hypothalamo-pituitary-adrenal (HPA) axis.
William Ju	Dr. Yu Tian Wang	Distinct Domains of the β_2 Subunit Confer GABA _A Receptor Cell Surface Expression and Function
Tony Kim	Dr. Adria Giacca	1. Enhanced intimal proliferation after balloon catheter injury in normal rats treated with high fat diet and insulin implants 2. The lipotoxic effect of free fatty acids on glucose stimulated insulin secretion is accentuated in prediabetic diabetes-prone BB rats.
Daniel Konrad	Dr. Amira Klip	The Anti-Diabetic Drug alpha-Lipoic Acid Activates the p38 Mitogen-Activated Protein Kinase in L6 Myotubes
Tony K.T. Lam	Dr. Adria Giacca	1. Free fatty acid-induced impairment in hepatic glucose metabolism is time-dependent and associated with protein kinase C- δ translocation. 2. Free fatty acids increase hepatic glucose production in the basal state and during hyperinsulinemic clamps by different mechanisms.
Yuanfang Liu	Dr. Daniel Drucker	HNF-3 γ Activates Glucagon Gene Transcription But is Not Essential For Glucose Homeostasis or Glucagon Gene Expression <i>in Vivo</i>
Patrick MacDonald	Dr. Michael Wheeler	Kv2.1 mediates β -cell delayed-rectifier currents and regulates insulin secretion.
Min Nian	Dr. David Irwin	Dissociation of DNA sequences regulation tissue-specific versus nutrient regulation of human glucagon gene transcription in enteroendocrine cells.
Louisa Pontrelli	Dr. Khosrow Adeli	Atorvastatin Treatment Beneficially Alters the Lipoprotein and Metabolic Profile and Increases LDL Particle Diameter in Patients with Insulin Resistance/Metabolic Syndrome X
Simon Smukler	Dr. Anne Marie Salapatek	Novel visualization of insulin exocytosis reveals that nitric oxide stimulates insulin secretion via the guanylate cyclase/cGMP pathway.
Gary Sweeney	Dr. Amira Klip	Intracellular delivery of phosphatidylinositol(3,4,5) trisphosphate and phosphatidylinositol(3,4) bisphosphate cause translocation and incorporation of GLUT4 to the plasma membrane without increasing glucose transport in muscle and fat cells.
Changiz Taghibiglou	Dr. Khosrow Adeli	Hepatic VLDL-apo B Overproduction is associated with Attenuated Hepatic Insulin Signaling in a Fructose Fed Hamster Model of Insulin Resistance: Evidence of Increased Expression of PTP-1B and Decreased Abundance of ER60 Protease
Qinghua Wang	Dr. Patricia Brubaker	GLP-1 treatment prevents the onset of diabetes in young db/db mice.

BBDC-TORONTO DIABETES ASSOCIATION ANNUAL TRAINEE AWARDS COMPETITION

Students and post-doctoral fellows are invited to submit their abstracts for the BBDC/TDA Annual Trainee Awards Competition. To be eligible, the trainee's supervisor must be a full-time faculty member at the University of Toronto. The abstract must be directly related to diabetes research, and the trainee must be first author. Abstracts are reviewed by two members of the BBDC Research Committee and two members of the Toronto Diabetes Association Committee. Prizes are awarded by the Toronto Diabetes Association and winners are invited to present posters on their work at the BBDC Annual Scientific Day. The prize winners are as follows:

Applicant	Supervisor	Title of Abstract
1 st Prize Patrick MacDonald	Dr. Michael Wheeler and Dr. Anne Marie Salapatek	Kv2.1 Mediates β -Cell Delayed-Rectifier Currents and Regulates Insulin Secretion
2 nd Prize Julie Lovshin	Dr. Daniel Drucker	GLP-1 Receptor Signaling Modulates Anorectic GLP-2 Action in the Murine Central Nervous System
3 rd Prize Simon Smukler	Dr. Anne Marie Salapatek and Dr. Michael Wheeler	Novel Visualization of Insulin Exocytosis Reveals that Nitric Oxide Stimulates Insulin Secretion Via the Guanylate Cyclase/cGMP Pathway
4 th Prize Jamie Jospheh	Dr. Michael Wheeler and Dr. Anne Marie Salapatek	Uncoupling Protein 2 is a Negative Regulator of Pancreatic β -cell Function
5 th Prize Younes Anini	Dr. Patricia Brubaker	Leptin Stimulates GLP-1 Secretion by Intestinal Endocrine L Cells

BBDC-NOVO NORDISK STUDENTSHIP AWARDS

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 (OSOTF)**, the support obtained from Novo Nordisk was matched by equal contributions from the University of Toronto and the provincial government of Ontario for a total endowment of 4.2 million dollars. Each year the Banting and Best Diabetes Centre invites applications from students who are registered with the Faculty of Medicine, School of Graduate Studies at the University of Toronto. To be eligible for this award, students must demonstrate financial need, and must be carrying out studies in diabetes research. Applications are ranked and reviewed by the BBDC Research Committee. This year the income on the endowment enabled the BBDC to award **10 studentships of \$17,000 each**. The following are the Novo Nordisk Studentship Award recipients for 2000-2001:

Applicant	Supervisor	Title of Research
Dominika Dabrowski	Dr. Philippe Poussier	An integrated approach towards curing Type 1 diabetes.
Jennifer Estall	Dr. Daniel Drucker	Structural analysis of glucagon-like-peptide receptor signaling pathways.
Tanya Hansotia	Dr. Daniel Drucker	Importance of GLP-1 and GIP as incretins: The phenotype of the double knockout.
Jamie Joseph	Dr. Michael Wheeler	The role of UCP-2 in insulin secretion and diabetes: The UCP-2 knockout mouse.
Tony K.T. Lam	Dr. Adria Giacca	The effects of free fatty acids on peripheral and hepatic glucose metabolism.
Ki Lim	Dr. Carol D. Rodgers	The role of exercise training in attenuating diabetes induced capillary degeneration.

Min Nian	Dr. Daniel Drucker and Dr. David Irwin	Regulation of human proglucagon gene.
Zoya Potyomkina	Dr. Maire Percy	Genetic and biochemical markers of Type 1 1/2 diabetes mellitus.
Simon Smukler	Dr. Anne Marie Salapatek	Determination and characterization of the functional role of nitric oxide in pancreatic beta cells.
Aihua Song	Dr. Hans-Michael Dosch	The induction of ICA69 self-tolerance in transgenic NOD mice

YOW KAM-YUEN GRADUATE SCHOLARSHIP IN DIABETES RESEARCH

The BBDC is delighted to introduce a new graduate scholarship award made possible by a generous private endowment which was matched under the **Ontario Student Opportunity Trust Fund** program (OSOTF). This is the first year that this scholarship is being awarded, and competitions for this award will be held annually. To be eligible for this award, students must demonstrate financial need, and must be carrying out studies in diabetes research. Applicants must also be registered with the Faculty of Medicine, School of Graduate Studies at the University of Toronto. Applications are ranked and reviewed by the BBDC Research Committee. This year the income on the endowment enabled the BBDC to award **2 studentships of \$12,000 each**. The following students have been offered a scholarship of \$12,000 each:

Applicant	Supervisor	Title of Research
Laura Glaab	Dr. Denis Daneman	The impact of Type 1 diabetes on school attendance.
Sonya Goron	Dr. Harry Elsholtz	Regulation of RGS proteins by phosphorylation: A possible mechanism in insulin regulation of RGS4.

TAMARACK GRADUATE AWARD IN DIABETES RESEARCH

The BBDC is also delighted to introduce a new graduate scholarship award made possible by a generous private endowment which was matched under the **Ontario Student Opportunity Trust Fund** program (OSOTF). This is the first year that this scholarship is being awarded, and competitions for this award will be held annually. To be eligible for this award, students must demonstrate financial need, and must be carrying out studies in diabetes research. Applicants must also be registered with the Faculty of Medicine, School of Graduate Studies at the University of Toronto. Applications are ranked and reviewed by the BBDC Research Committee and preference is given to those students whose primary area of study is diabetic retinopathy. This year the income on the endowment enabled the BBDC to award **one studentships of \$12,000**. The following is this year's Tamarack Graduate Award recipient:

Applicant	Supervisor	Title of Research
Lorraine Dixon	Dr. Carol D. Rodgers	What is the optimal exercise "prescription" for women with Type 2 diabetes?

SUMMER STUDENTSHIP PROGRAM

The Summer Studentship Program is designed to introduce young undergraduate students to diabetes research. Each year the BBDC awards ten studentships to qualified undergraduate and/or medical

students to carry out full-time summer research in diabetes in the laboratory of a BBDC member. The student's stipend is shared by the BBDC and the supervisor(s). Students have the opportunity to participate in a weekly summer seminar series and to present their work at the end of the summer in a workshop format. The BBDC gratefully acknowledges partial support of the 2001 Summer Studentship Program by Novartis Pharmaceuticals Canada Inc. and GlaxoSmithKline. The following are the 2001 Summer Studentship recipients:

Student	Supervisor(s)	Title of Research
Lorraine Chow	Dr. Patricia Brubaker	Cholinergic regulation of human GLP-1, a potent insulinotropic peptide.
Neil Goldenberg	Dr. Melvin Silverman	The regulation of SGLT 1 (Na ⁺ -glucose transporter from the small intestine).
Sigmund S. T. Kaw	Dr. Herbert Gaisano	Islet perfusion studies of SNARE-mutant expressing rat islets.
Denise Lee	Dr. George Fantus	Regulation of PAI-1 gene expression by the hexosamine biosynthesis pathway.
Anthony Naassan	Dr. Adria Giacca	Beta cell lipotoxicity.
Hany Soliman	Dr. Jayne Danska	Role of inducible nitric oxide synthase in autoimmune diabetes
Keiyan Sy	Dr. Robert Tsushima	β-cell ion channel association within caveolae.
Derek Tai	Dr. Stephen Matthews	The role of glucocorticoids in hypothalamo-pituitary-adrenal dysfunction in diabetes.
Tiffany Tam	Dr. Philippe Poussier	Genetics of Type 1 diabetes in the BB rat.
Daphne Yau	Dr. Michael Wheeler & Dr. Anne Marie Salapatek	The design of novel in vitro assays to examine the correlation between glucose metabolism and insulin secretion.

EDUCATIONAL ACTIVITIES OF THE CENTRE

MONTHLY SEMINAR SERIES

An ongoing responsibility of the Centre is to invite researchers within Canada and the United States to present their work on diabetes research at our Seminar Series. To ensure a broad audience, seminars have been incorporated into the City-wide Endocrine Rounds which are held every Friday morning at 8 a.m. in the Private Dining Room at the Mount Sinai Hospital. This year's presentations were as follows:

- | | |
|---------------------|---|
| September 29 | <i>"Intestinal Gene Therapy for Treatment of Diabetes"</i>
Dr. Timothy J. Kieffer
Division of Endocrinology & Metabolism, University of Alberta, Edmonton |
| October 27 | <i>"Role of Uncoupling Proteins in β Cell Function and Glucose Homeostasis"</i>
Dr. Michael Wheeler
University of Toronto |
| November 10 | <i>"Glucagon-like Peptides in the CNS"</i>
Dr. Daniel Drucker
Division of Endocrinology and Metabolism, University of Toronto |
| December 15 | <i>"The Missing Link: A unifying biochemical mechanism for diabetic complications"</i>
Dr. Michael A. Brownlee
Albert Einstein College of Medicine, Bronx, New York |
| January 12 | <i>"Mechanisms of altered HPA and counter-regulatory function in diabetes"</i>
Dr. Mladen Vranic
Department of Physiology, University of Toronto |
| February 16 | <i>"Controversies in the diagnosis and management of polycystic ovary disease"</i>
Dr. Ellen Greenblatt
Department of Obstetrics and Gynecology, University of Toronto |
| March 23 | <i>"Molecular dissection of novel pathways regulated by the hepatocyte nuclear factor 1alpha"</i>
Dr. Markus Stoffel
Rockefeller University, New York, NY |
| April 27 | <i>"A new therapeutic target for reversing insulin resistance in vivo"</i>
Dr. Steven Shoelson
Joslin Diabetes Centre
Harvard Medical School, Boston, Massachusetts |
| May 18 | <i>"Metabolic engineering in glucose homeostasis"</i>
Dr. Denny Trinh
Division of Endocrinology and Metabolism, University of Toronto |
| May 25 | <i>"Diabetes and pregnancy"</i>
Dr. Mathew Sermer
Department of Obstetrics and Gynecology, University of Toronto |

BBDC INVESTIGATOR SEMINAR SERIES

These monthly seminars provide an opportunity for BBDC investigators located in the Max Bell Research Wing and their trainees to exchange diabetes research data. The meetings are usually held on the last Friday of each month from 12 to 1 p.m. at the Toronto General Hospital, CCRW 3rd floor conference room. Below is the 2000-2001 Investigator Seminar Series schedule.

Friday, September 29	Host: D. Drucker
Friday, October 27	Host: G. Fantus
Friday, November 24	Host: H. Elsholtz
Friday, December 15	Host: D. Irwin
Friday, January 26	Host: D. Trinh
Friday, February 23	Host: D. Drucker
Friday, March 30	Host: H. Elsholtz
Friday, April 27	Host: G. Fantus
Friday, May 25	Host: D. Drucker

ANNUAL SCIENTIFIC DAY 2001

The Annual Scientific Day is designed to provide a forum for BBDC members to facilitate scientific interchange and to assist in the development of collaborative diabetes-related research activities. This event also provides an opportunity for trainees (i.e. fellows and graduate students), supervised by members of the BBDC, to present their research work. Each year an internationally recognized scientist is invited to present the keynote address. In addition, the Director of the Centre has an opportunity to review the activities of the BBDC over the past year with the Centre membership at large. This event is open and free, including lunch, to all BBDC members and their trainees.

This year, the BBDC Annual Scientific Day was held on **Friday, May 11, 2001** at Vaughan House, The Estates of Sunnybrook. The keynote speaker was **Dr. Jay Horton** from the Department of Medical Genetics, University of Texas Southwestern Medical Centre, Dallas. The event was supported in part by Eli Lilly Canada Inc. and Novo Nordisk Canada Inc. The program was as follows:

8:00 – 8:30 a.m. COFFEE AND MUFFINS

Chair: Dr. Harry Elsholtz

8:30 – 9:00 “Towards an understanding of the mechanism of VLDL overproduction in insulin resistant states”
Dr. Gary Lewis, Department of Medicine

9:00 – 9:30 “ β cell stimulus-secretion coupling: electrogenesis to visualization of single insulin exocytic events”
Dr. Anne Marie Salapatek, Department of Physiology

9:30 – 10:00 “The IRS-1 PH domain binding protein, PHIP, defines a novel regulator of insulin receptor signaling”
Dr. Maria Rozakis-Adcock, Hamilton Regional Cancer Centre

10:00 – 10:30 COFFEE BREAK

Chair: Dr. Michael Wheeler

10:30 – 11:00 “Leptin Stimulates GLP-1 secretion by intestinal endocrine L cells in Culture.”
Dr. Younes Anani, BBDC-Hugh Sellers Fellow

11:00 – 11:30 “Regulation of the human proglucagon gene.”
Dr. David Irwin, Laboratory Medicine and Pathobiology

11:30 – 11:45 Director’s Report
Dr. Daniel Drucker, Director, Banting and Best Diabetes Centre

11:45 – 1:00 p.m. POSTER PRESENTATIONS AND LUNCH

Chair: Dr. Dominic Ng

1:00 – 2:00 “SREBPs in Lipid Metabolism and Diabetes”
Dr. Jay Horton, Department of Medical Genetics, University of Texas Southwestern Medical Centre, Dallas

DIABETES UPDATE 2001

Diabetes Update is a highly successful, bi-annual continuing education event which attracts hundreds of health care professionals split almost evenly between physicians, diabetes nurses, dietitians and pharmacists. The program usually includes members of the University of Toronto faculty as well as internationally renowned guest faculty. This year, the BBDC held **DIABETES UPDATE 2001** at the Metro Toronto Convention Centre on **Wednesday, March 28th, 2001**. The event focused on the exciting new developments in the field of diabetes therapeutics, including insulins and insulin sensitizing agents, antihypertensive and lipid-lowering agents. The program consisted of the following presentations:

- Morning Lectures:**
- “Dysglycemia and cardiovascular risk”
Dr. Hertzell Gerstein, Chief, Division of Endocrinology, McMaster University School Medical School
 - “Insulin pharmacotherapeutics 2001: new twists to old molecules”
Dr. Bernard Zinman, Chief, Division of Endocrinology and Metabolism, Mount Sinai Hospital & University Health Network
- Morning Workshops:**
- “Dietary carbohydrates in the insulin resistance syndrome”
Dr. Tom Wolever, Professor of Nutritional Sciences and Medicine, St. Michael’s Hospital
 - “Nutriceuticals and herbal medicines in diabetes”
Michael Heffer, Coordinator of Perinatal Pharmacy, Mount Sinai Hospital
 - “Parenting a child with type 1 diabetes”
Dr. Barbara Anderson, Senior Psychologist, Joslin Diabetes Centre
- Afternoon Lectures:**
- “Insulin sensitizing agents: mechanisms and pharmacology”
Dr. Willa Hsueh, Chief, Division of Endocrinology and Metabolism, UCLA
 - “Insulin sensitizing agents: clinical application”
Dr. Lawrence Leiter, Chief, Division of Endocrinology and Metabolism, St. Michael’s Hospital
- Afternoon Workshops:**
- “Improving treatment adherence to weight management strategies”
Dr. Barry Simon, Assistant Professor of Psychiatry, Centre for Addition and Mental Health
 - “Management of diabetic kidney disease: evidence-based practice and prevention”
Dr. Catharine Whiteside, Professor of Medicine, Division of Nephrology, University Health Network
 - “Targeting postprandial hyperglycemia”
Dr. Robert Josse, Professor of Medicine and Nutritional Sciences, Division of Endocrinology, St. Michael’s Hospital

LABORATORIES

CORE LABORATORY

Director: Dr. George Fantus

The Core Laboratory was established in 1984 to provide analytical and technical support to the University of Toronto diabetes research community. A wide range of research quality assays are provided for investigator initiated clinical/basic research as well as for industry sponsored trials. The Core Laboratory will collaborate with the investigator to establish new assays to carry out and enhance diabetes-related research at the University.

BBDC INVESTIGATOR LABORATORIES

The Banting and Best Diabetes Centre has laboratory space on the 4th floor of the Max Bell Research Wing at the Toronto General Hospital, University Health Network. There are five BBDC scientists: **Drs. Daniel Drucker, George Fantus, and Denny Trinh**, who hold their primary appointment in the Department of Medicine; and **Drs. Harry Elsholtz and David Irwin** who hold their primary appointment in the Department of Laboratory Medicine and Pathobiology. The investigators have shared access to a broad range of specialized research equipment on the 4th floor of the Max Bell Research Wing, and make use of BBDC offices for lab meetings and administrative core activities.

The research activities of the group are focused on understanding insulin action and signal transduction (Drs. Elsholtz and Fantus), regulation of gene transcription (Drs. Elsholtz, Drucker, Irwin and Trinh), and the biology of the glucagon-like peptides (Drs. Drucker, Irwin). The group is also studying the metabolic control of glucose regulation using gene transfer techniques and metabolic engineering to manipulate metabolic pathways in peripheral tissues essential for insulin action and glucose disposal (Dr. Trinh).

The BBDC Investigators meet as a group monthly to review research progress, while participating fully in the spectrum of research activities ongoing at the University of Toronto.

PUBLICATIONS

BBDC NEWSLETTER

The Banting and Best Diabetes Centre distributes a quarterly newsletter, **BBDC NEWS**, by e-mail to those who have joined our e-mail distribution list. Issues are normally distributed in September, December, March, and June of each year. The newsletter highlights upcoming BBDC events, funding opportunities, award results, and BBDC seminars.

WEBSITE www.bbdc.org

This past year saw the launch of the revised BBDC website in March. Visitors to our revised site can now view information on all of our funding programs, funding decisions, educational activities, membership, diabetes meetings, clinical trials, diabetes research at the University of Toronto, and so much more. All application forms for BBDC competitions can now be downloaded from the site.

SUPPORTERS OF THE BANTING AND BEST DIABETES CENTRE

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* July 1, 2000 to June 30, 2001