



University of Toronto, Faculty of Medicine

BANTING AND BEST DIABETES CENTRE

**ANNUAL REPORT
JULY 1, 2006 – JUNE 30, 2007**

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MISSION

To support and advance diabetes research, education, and patient care at the University of Toronto and its affiliated hospitals.

MESSAGE FROM THE DIRECTOR, DANIEL J. DRUCKER, M.D.

Pursuant to our external review in the spring of 2006, the BBDC has explored a number of new partnership initiatives, seeking to expand our capability to promote and support diabetes research, clinical care and education. In August 2007, we announced a partnership with the University Health Network to increase funding dedicated to research trainees, with a focus on graduate students and postdoctoral fellow. The agreement also provides a platform for enhanced fundraising collaborative activities, and support for additional speakers and seminar series. Special recognition are due to key individuals who were instrumental in formulating the vision underlying this new partnership: Dr. Gary Lewis for his leadership in the design and implementation of this new agreement; and to Drs. Robert Bell and Dean Catherine Whiteside for their commitment to enhancing the profile and support of diabetes activities at the University Health Network and the University of Toronto.

As a result of recommendations made by our external review team, we have also revised our membership guidelines to recognize the diversity of individuals involved in diabetes-related activities at the University of Toronto. We also remain active in pursuing discussions with additional parties with an eye to broadening the activities of the BBDC beyond its currently defined scope of programs.

What can we look forward to in 2007-2008? First, the BBDC will be physically relocating its offices to the 12th floor of the Eaton Wing at the Toronto General Hospital, adjacent to the Endocrinology and Diabetes clinical unit on the 12th floor of the new clinical services wing. There are also discussions underway surrounding a more optimal organized and enhanced display of historical items related to the discovery of insulin. We receive frequent enquiries from individuals world wide who wish to visit the Banting and Best Diabetes Centre, and our move to new quarters, together with increased attention to our historical legacy, should result in a more approachable and substantial physical BBDC presence in our new location.

What new initiatives are we pursuing? The BBDC Executive has recommended that we consider holding a satellite meeting in conjunction with the October 2009 Meeting of the International Diabetes Federation, to be held in Montreal, Quebec. I am delighted to announce that the BBDC will host an official IDF Meeting in Toronto on Recent Advances in Beta-Cell Biology: Scientific and Clinical Implications on October 16-17, 2009. Save the date and stay tuned for more details.

As always, the success of the BBDC depends on the hard work and dedication of its members. We thank all those who have given of their precious time and energy to make our year a success. Please continue to let us know what you like and how we can do better.

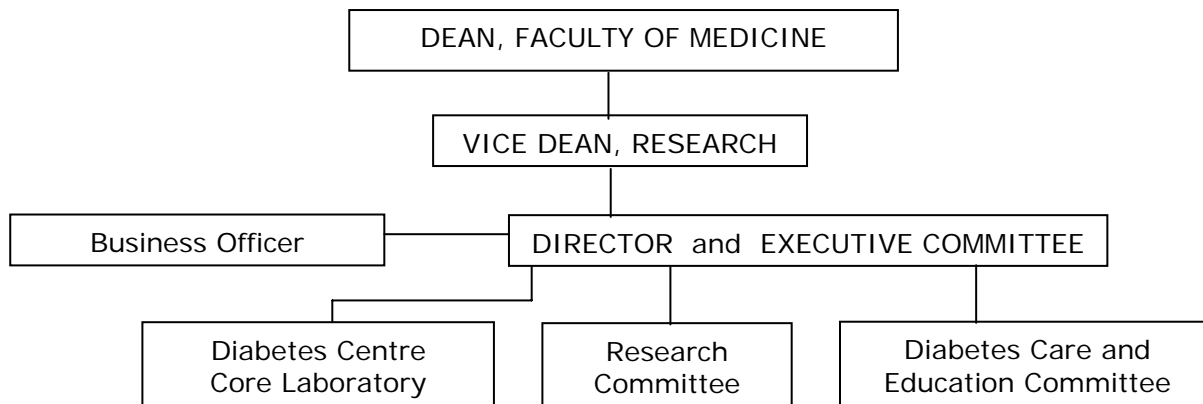
BACKGROUND

The Banting and Best Diabetes Centre was established in 1978 as an extra-departmental unit of the Faculty of Medicine at the University of Toronto. Dr. Edward A. Sellers, a personal friend of the co-discoverer of insulin, 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 first appointed in July of 2000 and re-appointed for a second term in July 2006.

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

ADMINISTRATIVE STRUCTURE and COMMITTEES

The administrative structure of the BBDC was established to provide both broad based input and an efficient decision making process. The BBDC administrative structure is as follows:



The Director reports to the Dean, Faculty of Medicine. 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 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. The committee members for the year 2006-2007 are:

- | | |
|--|---|
| Director: Dr. Daniel J. Drucker | Department of Medicine, Division of Endocrinology & Metabolism* |
| Dr. Patricia Brubaker | Department of Physiology* |
| Dr. I. George Fantus | Department of Medicine, Division of Endocrinology & Metabolism* |
| Dr. Avrum Gotlieb | Laboratory Medicine and Pathobiology* |
| Dr. Jacqueline James | Department of Medicine, Division of Endocrinology & Metabolism* |
| Dr. Amira Klip | Department of Biochemistry* |
| Dr. Peter Lewis | Department of Biochemistry; Vice Dean, Research* |
| Dr. Bernard Zinman | Department of Medicine, Division of Endocrinology & Metabolism* |

RESEARCH COMMITTEE

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. The committee members for the year 2006-2007 are:

- | | |
|-------------------------------------|--|
| Chair: Dr. Patricia Brubaker | Department of Physiology* |
| Dr. Shelley Boyd (as of April 2007) | Department of Ophthalmology and Vision Sciences* |

Dr. Anthony Hanley	Department of Medicine, Division of Endocrinology & Metabolism*
Dr. Tianru Jin	Department of Medicine; and Department of Laboratory Medicine and Pathobiology*
Dr. Tony Lam (as of April 2007)	Department of Physiology, and Department of Medicine*
Dr. Bruce Perkins	Department of Medicine, Division of Endocrinology & Metabolism*
Dr. Maria Rozakis Adcock	Department of Laboratory Medicine and Pathobiology*
Dr. Allen Volchuk	Department of Medicine, Division of Endocrinology & Metabolism*
Dr. Qinghua Wang	Department of Physiology, and Department of Medicine*
Dr. Minna Woo (to March 2007)	Department of Medicine, Division of Endocrinology & Metabolism*

DIABETES CARE AND EDUCATION COMMITTEE

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. The committee members for the year 2006-2007 are:

Chair: Dr. Jacqueline James	Department of Medicine, Division of Endocrinology & Metabolism*
Ms. Marianne Beckstead	Clinical Nurse Specialist in Diabetes, Toronto General Hospital
Miss Jennifer Buccino	Clinical Dietitian, Hospital For Sick Children
Ms. Margaret De Melo	Clinical Dietitian and Diabetes Educator, Toronto Western Hospital
Ms. Jan Glozier	Diabetes Educator, North York General Hospital (Branson Division)
Dr. Jeannette Goguen	Department of Medicine, Division of Endocrinology & Metabolism*
Mr. Henry Halapy	Diabetes Pharmacist, St. Michael's Hospital
Ms. Angela Kennedy	Diabetes Educator, Toronto East General Hospital
Ms. Carolyn Lawton	Nurse Practitioner Diabetes, Sunnybrook Health Sciences Centre
Dr. Kusiel Perlman	Department of Medicine, Division of Endocrinology & Metabolism*

* *University of Toronto faculty member*

MEMBERSHIP

Membership with the BBDC is free and allows individuals to become eligible to apply for the Centre's various funding programs. Until May of 2006, BBDC membership was only open to University of Toronto diabetes research faculty. **Membership is now open to individuals involved in full and part-time diabetes research, education, or patient care and employed at the University of Toronto or one of its affiliated institutions.** (E.g. scientists, physicians, nurses, dietitians, pharmacists, and other allied health care professionals.) Affiliated institutions include:

Fully Affiliated Institutions

Baycrest Centre for Geriatric Care
Bloorview MacMillan Children's Centre
Centre for Addiction and Mental Health
Hospital for Sick Children
Mount Sinai Hospital
St. Michael's Hospital
Sunnybrook Health Sciences Centre
Toronto Rehabilitation Institute
University Health Network (i.e. Toronto General, Toronto Western, and Princess Margaret hospital sites)
Women's College Hospital

Partially Affiliated Institutions

George Hull Centre for Children and Families
Hincks-Dellcrest Centre
Humber River Regional Hospital
North York General Hospital
Providence Healthcare
Scarborough Hospital
St. John's Rehabilitation Hospital
St. Joseph's Health Centre
Surrey Place Centre
Toronto East General Hospital
West Park Healthcare Centre

Postdoctoral fellows, graduate students, undergraduate students, research associates and technicians are not eligible for BBDC membership.

As of June 30, 2007 there are a total of **135 members** registered with the BBDC: **102 are U of T research faculty members; 33 are health care professionals involved in diabetes education and/or care.** Most members who are diabetes research faculty are profiled on the BBDC's website in the [Research at the University](#) section. The Centre also has an expanded **e-mail distribution list** of approximately 300 contacts, which not only includes our members but also postdoctoral fellows, graduate students, and other individuals with diabetes interests located at other universities and employed by industry. As of June 30, 2007, the BBDC members are:

BBDC Members (U of T Research Faculty):

Last Name	First Name	Affiliation(s)
Adeli	Khosrow	Hospital For Sick Children
Backx	Peter	University of Toronto
Baines	Andrew	University of Toronto
Bazinet	Richard	University of Toronto
Belsham	Denise	University of Toronto
Bendeck	Michelle	University of Toronto
Booth	Gillian	St. Michael's Hospital
Boright	Andrew	Toronto General Hospital
Boyd	Shelley	St. Michael's Hospital
Brubaker	Patricia	University of Toronto
Carlen	Peter	University of Toronto
Colton	Patricia	Toronto General Hospital
Connelly	Philip	St. Michael's Hospital
Cybulsky	Myron	Toronto General Hospital
Daneman	Denis	Hospital For Sick Children
Danska	Jayne	Hospital For Sick Children
Dhe-Paganon	Sirano	University of Toronto
Diamant	Nicholas	Toronto Western Hospital

Donnelly	Sandra	St. Michael's Hospital
Dosch	Hans-Michael	Hospital for Sick Children
Drucker	Daniel	Mount Sinai Hospital
Elsholtz	Harry	Toronto General Hospital
Fantus	George	Mount Sinai Hospital
Farine	Dan	Mount Sinai Hospital
Feig	Denice	Mount Sinai Hospital
Fu	Lei	Sunnybrook Health Sciences Centre
Gaisano	Herbert	University of Toronto
Giacca	Adria	University of Toronto
Gilbert	Richard	St. Michael's Hospital
Goguen	Jeannette	St. Michael's Hospital
Gotlieb	Avrum	University of Toronto
Greenwood	Carol	University of Toronto
Grynpas	Marc	Mount Sinai Hospital
Halperin	Mitchell	St. Michael's Hospital
Hamilton	Jill	Hospital For Sick Children
Hanley	Anthony	University of Toronto
Hughes	Timothy	University of Toronto
Hux	Jan	Sunnybrook Health Sciences Centre
Irwin	David	University of Toronto
James	Jackie	Mount Sinai Hospital
Jenkins	David	University of Toronto
Jin	Tianru	Toronto General Hospital
Josse	Robert	St. Michael's Hospital
Kelly	Catherine	Women's College Hospital
Kenshole	Anne	Women's College Hospital
Klip	Amira	Hospital For Sick Children
Lam	Tony	Toronto General Hospital
Langille	Lowell	University of Toronto
Leiter	Lawrence	St. Michael's Hospital
Leong-Poi	Howard	St. Michael's Hospital
Lewis	Gary	Toronto General Hospital
Lewis	Peter	University of Toronto
Li	Ren-Ke	Toronto General Hospital
Lu	Wei-Yang	University of Toronto
Mandelcorn	Mark	Toronto Western Hospital
Matthews	Stephen	University of Toronto
McIntyre	Roger	Toronto Western Hospital
Meng	Qing	University of Toronto
Nathan	Paul	Hospital For Sick Children
Ng	Dominic	St. Michael's Hospital
Norwich	Kenneth	University of Toronto
Ohashi	Pamela	Ontario Cancer Institute
Pace-Asciak	Cecil	Hospital For Sick Children
Parker	Thomas	St. Michael's Hospital
Parra	Esteban	University of Toronto at Mississauga
Paterson	Andrew	Hospital For Sick Children
Percy	Maire	University of Toronto
Perkins	Bruce	Toronto General Hospital
Perlman	Kusiel	Hospital For Sick Children
Poussier	Philippe	Sunnybrook Health Science Centre
Prud'homme	Gerald	St. Michael's Hospital
Quaggin	Susan	Mount Sinai Hospital

Retnakaran	Ravi	Mount Sinai Hospital
Rodin	Gary	Toronto General Hospital
Rovet	Joanne	Hospital For Sick Children
Rozakis	Maria	University of Toronto
Scholey	James	Toronto General Hospital
Sefton	Michael	University of Toronto
Shah	Baiju	Sunnybrook Health Sciences Centre
Silverman	Mel	University of Toronto
Steiner	George	Toronto General Hospital
Stewart	Donna	University of Toronto
van der Kooy	Derek	University of Toronto
Volchuk	Allen	Toronto General Hospital
Vranic	Mladen	University of Toronto
Wang	Qinghua	St. Michael's Hospital
Watt	Valerie	University of Toronto
Weisel	Richard	Toronto General Hospital
Wen	Xiao-Yan	Princess Margaret Hospital
Westall	Carol	Hospital For Sick Children
Wheeler	Michael	University of Toronto
Wherrett	Diane	Hospital For Sick Children
Whiteside	Catharine	Toronto General Hospital
Wittnich	Carin	University of Toronto
Wojtowicz	Martin	University of Toronto
Wolever	Thomas	University of Toronto
Woo	Minna	St. Michael's Hospital; Ontario Cancer Institute
Woodgett	James	Mount Sinai Hospital
Yip	Cecil	University of Toronto
Yip	Christopher	University of Toronto
Young	Kue	University of Toronto
Zinman	Bernard	Mount Sinai Hospital

BBDC Members (Health Care Professionals):

Last Name	First Name	Affiliation
Brundage	Anna	Women's College Hospital
Buccino	Jennifer	Hospital For Sick Children
Camelon	Kathy	Toronto General Hospital
Christo	Carolyn	Women's College Hospital
Cleave	Barbara	Mount Sinai Hospital
Cook	Ann	Toronto Western Hospital
De Melo	Margaret	Toronto Western Hospital
DiRaimo	Pat	Humber River Regional Hospital - Finch Site
Dumsha	Rose	North York General Hospital - Branson site
Feldt	Marsha	Women's College Hospital
Fox	Ann	Women's College Hospital
Frank	Marcia	Hospital For Sick Children
Fredericks	Celia	Mount Sinai Hospital
Glozier	Jan	North York General Hospital
Guilar	Anne	Toronto General Hospital
Halapy	Henry	St. Michael's Hospital
Ho	Rose	Toronto Western Hospital
Jones	Helen	Mount Sinai Hospital
Kennedy	Angela	Toronto East General Hospital

Lawton	Carolyn	Sunnybrook Health Sciences Centre
Levin	Wendy	Women's College Hospital
Li	Louisa	Toronto Western Hospital
MacCallum	Lori	St. Michael's Hospital
Mak	Kitty	Toronto Western Hospital
Montada-Atin	Tess	St. Michael's Hospital
Murphy	Ann	Toronto General Hospital
Offenheim	Ana	Toronto Western Hospital
Opsteen	Christine	Mount Sinai Hospital
Walker	Sheila	Sunnybrook Health Sciences Centre
Weiland	Mary	Toronto Western Hospital
Whitham	Dana	St. Michael's Hospital
Willits	Barb	St. Joseph's Health Centre
Wilson	Jay	Scarborough Hospital

FINANCIAL REPORT (Statement of operations for the fiscal year ended June 30, 2007 with comparative figures for the fiscal year ended June 30, 2006)

	2007	2006
REVENUES		
Unrestricted:		
Carry forward from previous year	378,029	228,197
Endowment income *	438,137	429,375
Donations/miscellaneous income	19,549	61,339
Restricted:		
BBDC/Novo Nordisk Studentship endowment fund **	176,440	178,202
Yow Kam-Yuen Scholarship endowment fund **	11,827	12,248
Tamarack Graduate Award endowment fund **	16,223	20,055
BBDC fellowship/personnel fund	193,547	109,000
Archie Sopman endowment fund (University Health Network) ***	38,800	38,329
Novo Nordisk Canada Inc. for Annual Trainee Awards †	1,200	1,200
TOTAL REVENUES	1,273,752	1,077,945
EXPENSES		
Administration:		
Salary support and benefits	100,485	87,852
Office supplies/review expenditures/miscellaneous	13,651	16,545
Educational Functions:		
BBDC Seminar Series	8,005	5,667
BBDC and T.G.R.I. Diabetes Investigator Seminar Series	3,653	3,860
Workshop	0	889
Annual Scientific Day	17,206	15,651
Funding Programs for Trainees:		
Hugh Sellers and BBDC Postdoctoral Fellowships	179,400	109,000
BBDC/Novo Nordisk Studentships **	166,500	172,226
Yow Kam-Yuen Graduate Scholarship in Diabetes Research **	11,000	12,000
Tamarack Graduate Award in Diabetes Research **	16,000	20,000
Charles Hollenberg Summer Studentship Program 2007	36,000	36,000
Trainee Travel Awards	23,347	32,864
Annual Trainee Awards from Novo Nordisk †	1,200	1,200
Funding Programs and Support for Faculty:		
Reuben & Helene Dennis Scholar in Diabetes Research	10,000	10,000
New Investigator Awards For Diabetes Research	40,000	40,000
Pilot and Feasibility Grants (biannual program)	0	60,000
Equipment Grants for Diabetes Research (biannual program)	90,000	0
Travel allowance for committee chairs	1,309	3,107
Other Funding Programs:		
Pilot Grants for Innovative Activities Related to Diabetes Education, Management & Care	0	0
Archie Sopman Diabetes Research and Education Awards (2007 calendar year) ***	8,190	12,500
Diabetes Educator of the Year Award 2006	2,000	2,000
TOTAL EXPENSES	727,946	641,361
REVENUES LESS EXPENSES	545,806	436,584

* Endowment income represents investment income distributed by the University's Long-Term Capital Appreciation Pool. The annual endowment income is available to the BBDC for spending and it is expected to increase every year by inflation. Market conditions can also affect future income distribution.

** Ontario Student Opportunity Trust Fund. Revenue amount includes carry forward of unspent endowment income from previous year. Payments made directly to award recipients by Faculty of Medicine Graduate Affairs.

*** This endowment is held at the University Health Network (UHN). Revenue amount includes carry forward of unspent endowment income from previous years. Payments are made directly to the award recipients by the UHN.

† Annual Trainee Awards are paid directly to award recipients by Novo Nordisk Canada Inc.

DESCRIPTION OF FUNDING PROGRAMS and FUNDING DECISIONS

The BBDC's funding programs are only open to individuals who are involved in diabetes research, education, or patient care and employed at the University of Toronto or one of its affiliated institutions. Specific eligibility requirements are outlined for each program.

ANNUAL TRAINEE AWARDS

Each year undergraduate and graduate students, and postdoctoral fellows are invited to submit their abstracts for the Annual Trainee Awards competition. To be eligible, the trainee's supervisor must be a member of the BBDC. The abstract must be directly related to diabetes research and the trainee must be first author. Abstracts are reviewed by members of the Research Committee. This year's prizes and plaques were generously provided by **Novo Nordisk Canada Inc.** and paid directly to the trainees. The 2006/2007 prize winners are:

Award	Applicant	Supervisor	Abstract Title
1 st Prize (tied)	Christine Tang	Dr. Adria Giacca	β cell Glucotoxicity <i>in vivo</i> : Role of Superoxide Generation and the JNK pathway
1 st Prize (tied)	Helene Duez	Dr. Gary Lewis	Acute DDP-4 Inhibition but not GLP-1R Agonist Administration Rapidly Enhances Insulin-mediated Suppression of Endogenous Glucose Production in Mice
2 nd Prize	Danna Breen	Dr. Adria Giacca	Insulin Decreases Vascular Smooth Muscle Cell Migration After Arterial Injury Through a Nitric Oxide Synthase-Dependent Mechanism
3 rd Prize	Simon Lee	Dr. Michael Wheeler	Uncoupling protein-2 modulation of reactive oxygen species and cell death in the β -cell
Honourable Mention	Patrick Lam	Dr. Herbert Gaisano	Munc18b regulates insulin secretion by docking of secretory granules in pancreatic islet β -cells
Honourable Mention	Changting Xiao	Dr. Gary Lewis	Oral antioxidant taurine but not oral N-acetylcysteine ameliorates free fatty acid-induced impairment in insulin sensitivity and beta cell function in obese and overweight, non-diabetic humans

ARCHIE SOPMAN DIABETES RESEARCH AND EDUCATION AWARDS

This award is only open to full and part-time University Health Network employees (i.e. employees of Toronto General Hospital, Toronto Western Hospital, or Princess Margaret Hospital). To be eligible, the applicant must be either a staff physician, dietitian, nurse, social worker, pharmacist, scientist, research technician, or clinical trial coordinator who is involved in diabetes research, diabetes education, or diabetes clinical care. Applicants are not required to be members of the BBDC. Funding can be used for: 1) Travel to a national or international diabetes meeting occurring in the year 2007 or 2) To support a visiting lecturer in diabetes or metabolic disorders in the year 2007. Applications are reviewed by the BBDC's director. 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 and paid directly to the award recipients. The funding recipients for the 2007 calendar year are:

Applicant	Position and UHN Site	Purpose	Award
Marianne Beckstead	Clinical Nurse Specialist, Toronto General Hospital	Travel to diabetes meeting	Up to \$1,000
Kathryn Camelon	Practice Leader, Clinical Nutrition, Toronto General Hospital	Travel to diabetes meeting	Up to \$1,000
Margaret De Melo	Practice Leader, Clinical Dietitian, Toronto Western Hospital	Travel to diabetes meeting	Up to \$1,000
Lorna Lawrence	Clinical Dietitian-Diabetes, Toronto Western Hospital	Travel to diabetes meeting	Up to \$190
Doreen Klar	Clinical Dietitian, Toronto Western Hospital	Travel to diabetes meeting	Up to \$1,000
Louisa Li	Clinical Dietitian, Toronto Western Hospital	Travel to diabetes meeting	Up to \$1,000
Kitty Mak	Registered Nurse, Diabetes Nurse Educator, Toronto Western Hospital	Travel to diabetes meeting	Up to \$1,000
Ann Murphy	Registered Dietitian, Toronto General Hospital	Travel to diabetes meeting	Up to \$1,000
Mary T. Weiland	Clinical Dietitian, Diabetes Educator, Toronto Western Hospital	Travel to diabetes meeting	Up to \$1,000

CHARLES HOLLENBERG SUMMER STUDENTSHIP PROGRAM 2007

This program is designed to introduce young undergraduate students to diabetes research. This year the BBDC awarded 15 studentships valued at \$4,800 each 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 are required to participate in the program's weekly *Seminar Series* and to present their work at the end of the summer in a workshop format at the *Mini-conference* (see page 21 for seminar series and conference program). Applications are reviewed and ranked by members of the Research Committee. The following are the 2007 summer studentship recipients:

Applicant	Supervisor(s)	Title of Research
Arash Azin	Dr. Amira Klip	Unexpected Partners: Insulin-dependent Association of Glycolytic Enzymes with Muscle Glucose Transporter 4 (GLUT4)
Dasha Borysov	Dr. Denise Belsham	Glucose-sensing by specific neurons in the hypothalamus
Madhu Chari	Dr. Tony Lam	Brain Glucotoxicity and Diabetes
Diana Choi	Dr. Minna Woo	Mechanisms of beta cell apoptosis in diabetes models
Howard (Chia Hao) Hsu	Dr. Shelley Boyd	Can Erythropoietin Antagonism Reduce Diabetic Retinal Neovascularization?
Xiao Yan Jin	Dr. Qing Meng and Dr. Khosrow Adeli	Beneficial Effects and Underlying Mechanisms of Soy Isoflavone in Type 2 Diabetes
Yanruo (Roger) Lu	Dr. I. George Fantus	Role of PKC-zeta and IRS-1 Ser 318 in Hyperglycemia-induced Insulin Resistance
Venetia Lo	Dr. Sandra Donnelly	Renal anemia in diabetes mellitus
Laura Quinn	Dr. Maria Rozakis	Role of PHIP1 in pancreatic islet cell function
Sabreena Sadat	Dr. Dominic Ng	Regulation of glucose and energy homeostasis in a genetic model of low HDL
William Schultz	Dr. Patricia Brubaker	The role of R-spondin1 in GLP-1 regulation of beta cell mass and function
Elena Sidorova	Dr. Allen Volchuk	Cloning, Bacterial Expression and Purification of ATF6 and OASIS Cytoplasmic Domains

Adam Sirek	Dr. Mladen Vranic	Improving counterregulation to hypoglycemia in diabetic rats using somatostatin receptor antagonism
Sobia Sultan	Dr. Michael Wheeler	The role of uncoupling protein 2 in pancreatic beta-cell function
Jeffery (Shu-Chieh) Yu	Dr. Xiao-Yan Wen	Knockdown of Pdx-1 and Insb Genes to Study Zebrafish Beta Cell Development

DIABETES EDUCATOR OF THE YEAR AWARD 2006

This new award was established in 2005 to recognize diabetes educators who have demonstrated outstanding efforts and achievements in their role as a diabetes educator. One award of \$2,000 is presented each year. This award is meant to recognize those who educate at the patient and community/professional levels. Candidates must be nominated for the award by a health care professional. To be eligible for nomination, the candidate must be a full or part-time diabetes educator or health care professional employed by a University of Toronto-affiliated institution. Nominations are reviewed and ranked by members of the Diabetes Care and Education Committee. The following is the recipient of the Diabetes Educator of the Year Award for 2006:

Nominee	Title
Marcia Frank, RN, MHSc, CDE	Clinical Nurse Specialist, Hospital For Sick Children

EQUIPMENT GRANTS FOR DIABETES RESEARCH

A minimum amount of \$5,000 and a maximum amount of \$30,000 is made available for the one-time purchase of laboratory equipment for diabetes research. To be eligible, the applicant must be a full-time faculty member of the University of Toronto conducting diabetes research and a member of the BBDC. Those who wish to purchase equipment costing over \$30,000 are required to obtain the remaining funds from other sources before the BBDC releases the funds to successful applicants. Applications are reviewed and ranked by members of the Research Committee as well as an external reviewer(s). Following consultation with the Research Committee in 2005, the BBDC decided to hold this annual funding program on a biannual basis instead in order to divert funds to its postdoctoral fellowship program. The Equipment Grant recipients for the 2006/2007 year are:

Applicant(s)	Title of Research	Amount
Dr. Herbert Gaisano	FRET analysis of SNARE-K+ channel single molecule interactions to reveal their optimal actions on insulin granule exocytosis	\$30,000
Dr. Allen Volchuk	Fluorescence Microscope Imaging System for Diabetes-Related Research	\$30,000
Dr. Michael Wheeler Dr. Peter Backx Dr. Patricia Brubaker Dr. Adria Giacca Dr. Stephen Matthews Dr. Mladen Vranic	Acquisition of a Digital Imaging System for Protein Analysis	\$30,000

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 (*OSOTF*), 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. Each year the BBDC 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 Research Committee. This year the BBDC was able to award 18 studentships of up to \$21,000. The following are the BBDC/Novo Nordisk Studentship recipients for 2006-2007:

Applicant	Supervisor	Title of Research
Jasmine Bahrami	Dr. Daniel Drucker	The role of endogenous glucagon-like peptide-2 in nutrient absorption and the development of bowel hyperplasia
Prasad Dalvi	Dr. Herbert Gaisano (Sept. to Dec. 2006) Dr. Denise Belsham (Jan. to Aug. 2007)	The role of Syntaxin 4 and Munc18c in insulin exocytosis
Laura Fick	Dr. Denise Belsham	Hypothalamic Neuropeptides Involved in Feeding are Regulated in a Circadian Manner Within Clonal, Immortalized Neurons
Grace Flock	Dr. Daniel Drucker	Incretin control of alpha cell function
Diana Islam	Dr. Tianru Jin	Examining the role of the Epac signaling pathway in proglucagon gene expression, hormone synthesis and secretion
Matylda Jasic (Sept. to Dec. 2006)	Dr. Denise Belsham	Ghrelin Synthesis and Signalling in Immortalized, Clonal, Hypothalamic Neurons
Michael Kiraly	Dr. Mladen Vranic and Dr. Stephen Matthews	The Effects of 13 Weeks of Exercise Training and Neurogenic Stress on Beta-cell Mass Dynamics and Function in the male Zucker Diabetic Fatty (ZDF) Rat Model of Type 2 Diabetes Mellitus
Elida Wing Shan Lai	Dr. Allen Volchuk	Molecular characterization of ER stress-induced pancreatic beta-cell death
Simon Lee	Dr. Michael Wheeler	Uncoupling protein-2 modulation of reactive oxygen species and cell death in the pancreatic beta-cell
Golnaz Madadi	Dr. Denise Belsham	Insulin Synthesis and Signaling in the Brain
Edward Park	Dr. Adria Giacca	Mechanism(s) underlying free fatty acid induced hepatic insulin resistance
Matthew Parrott	Dr. Carol Greenwood	Diet-induced insulin resistance may accelerate cognitive decline and neurodegeneration in a transgenic mouse model of Alzheimer's disease
Janice Sarmiento	Dr. Philippe Poussier	Association of PTPN22 in Diabetes
Karen Sison	Dr. George Fantus and Dr. Susan Quaggin	Role of VEGF-A in diabetic nephropathy and glomerular permeability
Simon Smukler	Dr. Derek van der Kooy	Identification and Characterization of Mammalian Pancreas-Derived Multipotent Precursors
Christine Tang	Dr. Adria Giacca	The Role of Oxidative Stress in Beta Cell Glucotoxicity in vivo
Victor Wong	Dr. Patricia Brubaker	The role of R-spondin/Wnt signaling in GLP-1 regulation of pancreatic beta cell mass and function
Jessica Yue	Dr. Mladen Vranic and Dr. Adria Giacca	Mechanism of diminished glucagon response to hypoglycemia: Impact of antagonizing somatostatin actions on hypoglycemia-induced glucagon release

GRADUATE STUDENTSHIPS:
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 (OSOTF). 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 vascular problems of diabetes. Applications are ranked and reviewed by the Research Committee. This year the income earned on the endowment enabled the BBDC to award two studentships of up to \$8,000. The following students are the 2006-2007 Tamarack Graduate Award recipients:

Applicant	Supervisor	Title of Research
Lisa D'Alessandro	Dr. Kenneth Norwich and Dr. Patricia Brubaker	Refinement and Testing of a Mathematical Model of Glucose Regulation
Jane Sun	Dr. Tianru Jin	Examination of Crosstalks between insulin and Wnt Signaling Pathways

GRADUATE STUDENTSHIPS:
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 (OSOTF). 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 Research Committee. This year the income earned on the endowment enabled the BBDC to award one \$11,000 studentship. The following student is the 2006-2007 Yow Kam-Yuen Graduate Scholarship recipient:

Applicant	Supervisor	Title of Research
Anna Radziszewska	Dr. Minna Woo	Dissecting c-Myc biology toward enhancing beta cell mass

HUGH SELLERS and BBDC POSTDOCTORAL 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, one Hugh Sellers Postdoctoral Fellowship has been awarded annually. Whenever possible, the Centre endeavours to support additional trainees a year if funding is available. This program provides one year of funding for an individual holding an M.D. or Ph.D. who is carrying out full-time diabetes research training at the University of Toronto or one of its fully affiliated institutions. Stipends approximate those of the CIHR postdoctoral fellowship program. Applications are reviewed by members of the Research Committee plus an external reviewer(s). The Hugh Sellers and BBDC Fellowship recipients for 2006-2007 are:

Applicant and Award	Supervisor	Title of Research
Hongfang Lu (Hugh Sellers Fellowship)	Dr. Michael Wheeler	Proteomic and Genomic Approaches to Identify Potential Susceptibility Factors Associated with the Development of Type 2 Diabetes
Shuhei Ishikura (BBDC Fellowship)	Dr. Amira Klip	Sorting by sortilin of the insulin-sensitive glucose transporter in a specialized compartment
Roman Iakoubov (BBDC Fellowship)	Dr. Patricia Brubaker	Elucidating the role of atypical Protein Kinase Czeta in molecular mechanisms underlying fatty acid-induced

		glucagon-like peptide-1 secretion
Benjamin Lamont (BBDC Fellowship)	Dr. Daniel Drucker	GIP action, glucose homeostasis, and the islet beta cell
Katrina MacAulay (BBDC Fellowship)	Dr. James Woodgett	Direct evaluation of the role of glycogen synthase kinase-3 isoforms in insulin responses in mouse tissues
Angela Smith (BBDC Fellowship)	Dr. Gary Lewis	Mechanisms of intestinal lipoprotein overproduction in insulin resistant states

PILOT AND FEASIBILITY GRANTS

This program provides funding of up to \$30,000 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 both new and established full-time faculty members of the University of Toronto. Applicants new to the field of diabetes research do not need to be a member of the BBDC, but are encouraged to join the membership. Applications are reviewed and ranked by members of the Research Committee as well as an external reviewer(s). Following consultation with the Research Committee in 2005, the BBDC decided to hold this annual funding program on a biannual basis instead in order to divert funds to its postdoctoral fellowship program. Therefore, there was no competition held for the 2006-2007 fiscal year.

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

This program provides funding of up to \$20,000 per applicant for pilot projects which are one to two years in length. Funding is intended to support new research initiatives in the following general areas: 1) Diabetes care delivery; 2) Evaluation of diabetes education programs; and 3) Practical issues in diabetes management. It is designed to encourage new academic research activities from individuals not usually supported by traditional granting processes, specifically, front line health care professionals working at the University of Toronto-affiliated hospitals or working with U of T-affiliated academics. Hence, applicants are not required to be members of the BBDC. Applications are reviewed by members of the Diabetes Care and Education Committee. There was no competition held for the 2006-2007 fiscal year.

REUBEN & HELENE DENNIS SCHOLAR IN DIABETES RESEARCH and NEW INVESTIGATOR AWARDS FOR DIABETES RESEARCH

In 2004 the BBDC merged the two competitions into one which is held every two years. These awards were established to support new University of Toronto diabetes research faculty. The New Investigator Awards provide funding of \$20,000 per year for two years, and the Dennis Scholar Award provides \$10,000 per year for two years. To be eligible, the applicant must be involved in diabetes research and must be a principal investigator who holds a full-time academic appointment with the University of Toronto. Faculty are eligible for this funding normally within **five** years of their first faculty appointment. Applications are reviewed and ranked by members of the Research Committee as well as an external reviewer(s). The recipients of these two-year awards are:

Reuben & Helene Dennis Scholar in Diabetes Research

Applicant	Title of Research	Award
Dr. Gillian Booth	Gender-related differences in diabetes susceptibility: the relative contribution of social, environmental and lifestyle factors	\$10,000 for 2006/2007 \$10,000 for 2007/2008

New Investigator Awards for Diabetes Research

Applicant	Title of Research	Award
Dr. Esteban Parra	Application of admixture mapping to identify type 2 diabetes susceptibility genes.	\$20,000 for 2006/2007 \$20,000 for 2007/2008
Dr. Allen Volchuk	Examining Anti-Diabetic Properties of Oleanolic Acid in Pancreatic β -cells	\$20,000 for 2006/2007 \$20,000 for 2007/2008

TRAINEE TRAVEL AWARDS

The Trainee Travel Awards are available to approximately 30 postdoctoral fellows and graduate students conducting diabetes research in the laboratory of a University of Toronto faculty member and BBDC member. Trainees are eligible for a Travel Award of up to \$1,000 (CDN) each to defray the expense of attending a national or international meeting. The trainee must be presenting a first-author abstract which has been accepted for presentation at the meeting. Applications are reviewed by members of the Research Committee. The following are the Trainee Travel Award recipients for 2006-2007:

Name	Supervisor	Title of Abstract(s)
Kristin Beard	Dr. I. George Fantus	Bradykinin Sensitizes Rat Adipocytes to Insulin by Activation of Guanylate Cyclase/cGMP/Protein Kinase G and Inhibition of JNK and ERK1/2
Danna Breen	Dr. Adria Giacca	1. Insulin Decreases Vascular Smooth Muscle Cell Migration After Arterial Injury Through A Nitric Oxide Synthase-Dependent Mechanism 2. Resveratrol, a Red Wine Polyphenol, Inhibits Neointimal Growth by Decreasing Vascular Smooth Muscle Cell Migration Independent of Nitric Oxide Synthase <i>In Vivo</i>
Feihan Dai	Dr. Michael Wheeler	Visinin-like-protein-1 (VILIP-1) is expressed in pancreatic β -cells and regulates insulin secretion and insulin gene transcription
Grace Flock	Dr. Daniel Drucker	The classic incretin receptors for GLP-1 and GIP are essential for the sustained glucoregulatory actions of Vildagliptin in mice
Irene Hadjiyanni	Dr. Daniel Drucker	Exendin-4 Delays Diabetes Onset and Reduces the Severity of Insulinitis in NOD mice.
Joanne Hsieh	Dr. Khosrow Adeli	Glucagon-Like Peptides (GLP-1 and GLP-2) Regulate Intestinal Production of ApoB48-Containing Lipoproteins: Evidence for Differential Regulation and Implications in Intestinal Fat Absorption
Diana Islam	Dr. Tianru Jin	Examination of the Role of Epac Signaling Pathway in Regulating Proglucagon Gene Expression in Pancreatic A Cells
Michael Kiraly	Dr. Stephen Matthews and Dr. Mladen Vranic	Maintenance of euglycemia with long-term exercise is associated with improvements in beta cell function, and partial preservation of beta cell mass in male ZDF rats.
Patrick Lam	Dr. Herbert Gaisano	Munc18b Regulates Insulin Secretion by Docking of Secretory Granules in Pancreatic Islet β cells
Benjamin Lamont	Dr. Daniel Drucker	Differential anti-diabetic efficacy of incretin agonists vs. DDP-4 inhibition in high fat fed mice
Gareth Lim	Dr. Patricia Brubaker	Insulin Regulates Glucagon-like Peptide-1 Secretion from the Enteroendocrine L Cell Through a MEK/ ERK1/2-dependent Pathway

Andrei Oprescu	Dr. Adria Giacca	Role of Oxidative Stress and Inflammation in Lipid-Induced β -cell Dysfunction
Anna Radziszewska	Dr. Minna Woo	Absence of Caspase-3 protects beta cells from c-Myc induced apoptosis without leading to tumor formation.
Varinder Randhawa	Dr. Amira Klip	Regulating cell surface GLUT4 arrival and fusion in L6 skeletal muscle cells
Janice Sarmiento	Dr. Philippe Poussier	Allelic Variation in PTPN22 is Associated with Increased T1D Susceptibility in the BB Rat
Nish Saxena	Dr. David Jenkins	Some determinants of low glycemic index breads
Simon Smukler	Dr. Derek van der Kooy	Adult Mammalian Pancreas-Derived Multipotent Stem Cells
Ilana Talior	Dr. Amira Klip	α -Actinin-4 binds to GLUT4 and participates in insulin-dependent GLUT4 mobilization towards the plasma membrane
Christine Tang	Dr. Adria Giacca	Beta cell Glucotoxicity <i>in vivo</i> : Role of Superoxide Generation and the JNK Pathway
Kanta Taniguchi	Dr. I. George Fantus	Tumor Necrosis Factor- α Converting Enzyme (TACE) Mediates High Glucose-induced MAPK Activation in Rat Mesangial Cells
Diana Wong	Dr. Khosrow Adeli	Proteomic Profiling of Prechylomicron Transport Vesicles (PCTVs) involved in Assembly and Secretion of AboB48-containing Chylomicrons in the Intestine Enterocytes
Ling Xia	Dr. Catherine Whiteside	1) In High Glucose Mesangial Cell Upregulation of Vascular Endothelial Growth Factor is Dependent on Protein Kinase C- β 1 and Reactive Oxygen Species 2) Mesangial Cell Downregulation of Alpha-Smooth Muscle Actin Expression in 3-Dimensional Culture Reversed by Growth Factor or High Glucose Activation of Protein Kinase C and ERK1/2
Changting Xiao	Dr. Gary Lewis	Oral antioxidant taurine but not oral N-acetylcysteine ameliorates free fatty acid-induced impairment in insulin sensitivity and beta cell function in obese and overweight, non-diabetic humans
Jessica Yue	Dr. Mladen Vranic	Recurrent stress attenuates expression of genes regulating hypoglycemic and restraint stress responses in diabetic rats

ACKNOWLEDGEMENTS

The BBDC would like to thank the members of the **Research Committee** and members of the **Diabetes Care and Education Committee** for reviewing applications for the Centre's numerous funding programs.

We would also like to thank **Dr. Allen Volchuk** for coordinating the 2007 Charles Hollenberg Summer Studentship Program.

As an integral part of the application review process, the BBDC also obtains scientific reviews from University of Toronto faculty who are involved in diabetes-related research. The BBDC would like to thank the following faculty for acting as our **external reviewers** this past year for various BBDC funding programs:

Dr. Denise Belsham
Dr. Harry Elsholtz
Dr. Tony Lam
Dr. Lowell Langille

Dr. Dominic Ng
Dr. Robert Tsushima
Dr. Michael Wheeler

EDUCATIONAL ACTIVITIES OF THE CENTRE

BBDC SEMINAR SERIES

(In conjunction with City-wide Endocrine Rounds)

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 University of Toronto City-wide Endocrine Rounds which are held every Friday morning at 8 a.m. in the 3rd floor Conference Room at the Mount Sinai Hospital's Lebovic Building. The presentations for the 2006-2007 year were as follows:

BANTING AND BEST DIABETES CENTRE, UNIVERSITY OF TORONTO SEMINAR SERIES 2006-2007 In conjunction with City-wide Endocrine Rounds 8:00 – 9:00 a.m. Mount Sinai Hospital, Lebovic Building 60 Murray Street, 3rd Floor Conference Room	
Friday, October 13, 2006	Unraveling the CNS Pathways Underlying Coordinated Body Weight and Glucose Homeostasis Joel K. Elmquist, DVM, PhD Professor and Director, Center for Hypothalamic Research Department of Internal Medicine The University of Texas Southwestern Medical Center (Dallas) Dallas, Texas
Friday, November 10, 2006	The Importance of Amyloid to the β Cell in Diabetes Steven E. Kahn, MB, ChB Professor of Medicine Division of Metabolism, Endocrinology and Nutrition University of Washington VA Puget Sound Health Care System Seattle, Washington <i>(Sponsored by Merck Frosst Canada Ltd.)</i>
Friday, December 15, 2006	The Islet in Type 2 Diabetes Peter C. Butler, MD Professor of Medicine Director, Larry L. Hillblom Islet Research Center at UCLA Los Angeles, California
Friday, January 19, 2007	GLP-1 and Cardioprotection: More Than Glycemic Control Richard P. Shannon, MD Professor of Medicine, University of Pennsylvania School of Medicine Vice Chair for Clinical Affairs, Department of Medicine, University of Pennsylvania Health System

BBDC and T.G.R.I. DIABETES INVESTIGATOR SEMINAR SERIES

These monthly seminars provide an opportunity for Toronto General Research Institute (TGRI) diabetes investigators associated with the BBDC to exchange diabetes research data. The meetings are usually held on the first Friday of each month from 12 to 1 p.m. at the Toronto General Hospital. Unlike the BBDC Seminar Series described on the previous page, this seminar series is only attended by the BBDC Director, the BBDC-associated investigators (Drs. Elsholtz, Fantus, Irwin, Jin, Lam, Lewis, Volchuk), and their trainees. *(See page 28 for more information on diabetes investigators associated with the BBDC.)* The BBDC gratefully acknowledges support of

this seminar series by **Merck Frosst Canada**. The 2006-2007 BBDC and T.G.R.I. Diabetes Investigator Seminar Series schedule is as follows:

BBDC and TGRI DIABETES INVESTIGATOR SEMINAR SERIES 2006-2007 12:00 to 1:00 p.m. MaRS/Toronto Medical Discovery Tower 101 College Street (East Tower) 4th Floor, Seminar Room 4-204		
Date	Presentation	Location
Friday, October 6, 2006	Dr. Daniel Drucker	Toronto Medical Discovery Tower, Seminar Room 4-204
Friday, November 3, 2006	Dr. Tianru Jin	Toronto Medical Discovery Tower, Seminar Room 4-204
Friday, December 1, 2006	Dr. George Fantus	Toronto Medical Discovery Tower, Seminar Room 4-204
January – NO SEMINAR	--	--
Friday, February 2, 2007	Dr. Gary Lewis	Toronto Medical Discovery Tower, Seminar Room 4-204
Friday, March 2, 2007	Dr. David Irwin	Toronto Medical Discovery Tower, Seminar Room 4-204
April – NO SEMINAR	--	--
Friday, May 4, 2007	Dr. Allen Volchuk	Toronto Medical Discovery Tower, Seminar Room 4-204

CHARLES HOLLENBERG SUMMER STUDENTSHIP PROGRAM: SEMINAR SERIES AND MINI-CONFERENCE 2007

Summer Studentship recipients and their supervisors are required to participate in the Summer Studentship Program which consists of a weekly *Seminar Series* and a *Mini-conference*. The weekly seminars are held throughout June and July. Each seminar includes a 40 to 45 minute presentation prepared by the supervisor, followed by a 5 to 10 minute presentation by the summer student which outlines the project and indicates how his/her project fits into the overall goals of the lab. All students have the opportunity to present their work at the end of the summer in a workshop format at the half-day Mini-conference. Students are required to submit a one-page abstract for the conference program. The BBDC would like to thank **Dr. Allen Volchuk** for coordinating the 2007 Summer Studentship Program. The 2007 weekly Seminar Series schedule and Mini-Conference program are as follows:

CHARLES HOLLENBERG SUMMER STUDENTSHIP PROGRAM - 2007
WEEKLY SEMINAR SERIES
4:00 - 5:00 p.m.
MaRS Centre, 101 College Street
East Tower, 4th Floor, Seminar Room 4-204

Date	Speakers	Title
Monday, June 4, 2007	Dr. P. Brubaker & William Schultz	Understanding incretin-based approaches for the treatment of type 2 diabetes
Monday, June 11, 2007	Dr. D. Ng & Sabreena Sadat	Role of lipids in diabetes and energy homeostasis
Monday, June 18, 2007	Dr. A. Klip & Arash Azin	From obesity to insulin resistance to diabetes, the cellular way
Monday, June 25, 2007	Dr. Q. Meng & Xiao Yan Jin	Methylglyoxal (MG): Role in diabetes and diabetic complications
Monday, July 2, 2007	Holiday	
Monday, July 9, 2007	Dr. T. Lam & Madhu Chari	CNS Nutrient Sensing
Monday, July 16, 2007	Dr. D. Belsham & Dasha Borysov	Insulin regulation of neuropeptide genes in the hypothalamus
Monday, July 23, 2007	Dr. S. Boyd & Howard Hsu	Epo and Insulin in the Diabetic Retina
Monday, July 30, 2007	Dr. X-Y. Wen & Jeffery Yu	Zebrafish Models to Study Pancreatic Development and Regeneration

CHARLES HOLLENBERG SUMMER STUDENTSHIP PROGRAM - 2007
MINI-CONFERENCE
1:00 – 5:00 p.m.
Monday, August 13, 2007
MaRS Centre, 101 College Street
East Tower, 4th Floor, Seminar Room 4-204

1:10 p.m.	Introduction (Dr. Allen Volchuk)
1:15	Jeffery Yu (Supervisor: Dr. Xiao-Yan Wen) Title: Characterization of Zebrafish Glucagon A Promoter in Pancreatic alpha-cell Development
1:30	Yanruo (Roger) Lu (Supervisor: Dr. George Fantus) Title: Chronic High Glucose/ High Insulin induced Insulin Resistance is Mediated Through PKC zeta
1:45	Diana Choi (Supervisor: Dr. Minna Woo) Title: Investigating the role of PTEN in type 1 diabetes mouse models: The NOD model and the RIP-GP/P14 transgenic TCR model
2:00	Laura Quinn (Supervisor: Dr. Maria Rozakis) Title: Subcellular Fractionation properties of p95, a novel F-actin binding protein and its interaction with IRS-1
2:15	Dasha Borysov (Supervisor: Dr. Denise Belsham) Title: Effects of insulin and glucocorticoids on signal transduction in clonal, immortalized hypothalamic neurons

2:30	Elena Sidorova (Supervisor: Dr. Allen Volchuk) Title: Examining ATF6 ER stress pathway activation in pancreatic beta-cells
2:45	William Schultz (Supervisor: Dr. Patricia Brubaker) Title: Regulation of the Canonical Wnt Pathway in the Beta Cell
3:00	REFRESHMENT BREAK
3:15	Venetia Lo (Supervisor: Dr. Sandra Donnelly) Title: Determinants of Hematocrit - Effects of Renal Insufficiency & Diabetes Mellitus on Erythropoietin Production and Blood Rheology
3:30	Adam Sirek (Supervisor: Dr. Mladen Vranic) Title: Normalization of the Glucagon and Corticosterone Responses to Hypoglycemia in STZ-Diabetic rats using a Somatostatin Receptor Type 2 Antagonist (SSTR2a)
3:45	Xiao Yan Jin (Supervisor: Dr. Qing Meng) Title: Quantification of Methylglyoxal by High Performance Liquid Chromatography
4:00	Madhu Chari (Supervisor: Dr. Tony Lam) Title: Glucotoxicity and Hypothalamic Nutrient Sensing
4:15	Howard Hsu (Supervisor: Dr. Shelley Boyd) Title: Potential Inhibition of Neuronal Cell Death by Erythropoietin and Insulin in the Diabetic Retina
4:30	Arash Azin (Supervisor: Dr. Amira Klip) Title: Does O-linked glycosylation affect the insulin stimulated signalling pathway in skeletal muscle cells?
4:45	Sobia Sultan (Supervisor: Dr. Michael Wheeler) Title: Differential Expression of pyruvate kinase isoforms in mouse islets and beta cells
5:00	Sabreena Sadat (Supervisor: Dr. Dominic Ng) Title: The role of ER stress in LCAT deficient mice

18th ANNUAL SCIENTIFIC DAY

This annual event which is organized by the Research Committee provides an opportunity for BBDC members to exchange scientific information and ideas, and to assist 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 postdoctoral fellowship recipients and graduate studentship recipients present posters of their work. The event focuses on the latest diabetes research topics with both clinical and laboratory applications. 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 to all BBDC members and their trainees. The program normally includes one internationally renowned guest speaker as well as University of Toronto faculty equally renowned for their work in diabetes research. The 18th Annual Scientific Day was held on **Friday, May 11, 2007** at The Estates of Sunnybrook. We gratefully acknowledge partial support of this event by **Merck Frosst Canada Ltd., Eli Lilly Canada Inc., LifeScan Canada, and Sanofi-Aventis**. The program was as follows:

**BANTING AND BEST DIABETES CENTRE
18th ANNUAL SCIENTIFIC DAY
Friday, May 11, 2007
Vaughan Estate, The Estates of Sunnybrook
2075 Bayview Avenue, Toronto**

- Breakfast, poster presentations, and lunch will be held in the lower level Courtyard Ballroom.
- All lectures will be held in the upper level Main Ballroom.

8:30 - 9:00 A.M.	CONTINENTAL BREAKFAST (lower level Courtyard Ballroom)
Chair: Dr. Maria Rozakis	
9:00 - 9:30	Genetic Inhibition of Glycogen Synthase Kinase-3: A Useful Therapeutic Strategy for Type-2 Diabetes Dr. Jim Woodgett
9:30 - 10:00	The Diabetes Epidemic: Impact and Solutions From a Population Perspective Dr. Gillian Booth BBDC's Reuben & Helen Dennis Scholar 2006-2008
10:00 - 10:30	Intestinal Insulin Resistance: An Emerging Component of the Metabolic Syndrome and Implications in Fasting and Postprandial Dyslipidemia Dr. Khosrow Adeli
10:30 - 11:15	POSTER PRESENTATIONS (lower level Courtyard Ballroom)
Chair: Dr. Allen Volchuk	
11:15 - 11:45	Diabetes and the Angiogenesis Paradox Dr. Susan Quaggin
11:45 - 12:15 P.M.	Differential Effects of Incretin Mimetics vs. Incretin Enhancers in the Treatment of Experimental Diabetes Dr. Benjamin Lamont BBDC Postdoctoral Fellow 2006-2007
12:15 - 12:25	Director's Report: Dr. Daniel J. Drucker Director, Banting and Best Diabetes Centre Professor, Department of Medicine, Division of Endocrinology & Metabolism University of Toronto
12:25 - 12:35	BBDC Annual Trainee Awards Presentation Sponsored by Novo Nordisk Canada Inc. Dr. Patricia Brubaker, Chair, BBDC Research Committee, and Mr. Clive Ward-Able, Director, Medical and Scientific Affairs, Novo Nordisk Canada Inc.
12:35 - 1:30	LUNCH (lower level Courtyard Ballroom)
Chair: Dr. Patricia Brubaker	
1:30 - 2:30	Charles Hollenberg Lecture Control of Glucose Homeostasis by the TORC Family of CREB Coactivators Dr. Marc Montminy
2:30	EVALUATION AND ADJOURNMENT

GUEST SPEAKER:

Marc Montminy, MD, PhD

Professor, Peptide Biology Laboratories
The Salk Institute
La Jolla, California

TORONTO SPEAKERS:

** University of Toronto*

Khosrow Adeli, PhD, FCACB, DABCC

Division Head, Clinical Biochemistry, Hospital For Sick
Children

Professor*, Department of Biochemistry and
Department of Laboratory Medicine and Pathobiology

Gillian Booth, MD, MSc

Assistant Professor*, Departments of Medicine and
Health Policy, Management and Evaluation
Division of Endocrinology & Metabolism
Adjunct Scientist, Institute for Clinical Evaluative
Sciences

Associate Scientist, Centre for Research on Inner City
Health and Staff Endocrinologist, St. Michael's Hospital

Benjamin Lamont, BSc, PhD

BBDC Postdoctoral Fellow 2006-2007

Susan Quaggin, MD, FRCPC

Associate Professor*, Department of Medicine
Samuel Lunenfeld Research Institute

Jim Woodgett, PhD

Professor*, Department of Medical Biophysics
Director of Research, Samuel Lunenfeld Research
Institute, Mount Sinai Hospital

DIABETES UPDATE

Diabetes Update is a biannual continuing education event which is organized by the Diabetes Care and Education Committee and the Faculty of Medicine Continuing Education office. **Diabetes Update 2007** was held on Friday, March 23, 2007 at the Metro Toronto Convention Centre, and was attended by approximately 650 diabetes health care professionals such as physicians, nurses, dietitians and pharmacists from across Ontario and beyond. The event focused primarily on innovative and emerging therapies in the management of type 1 and 2 diabetes. The BBDC would like to thank the following corporate sponsors for supporting this event: MAJOR CORPORATE SPONSORS: **Eli Lilly Canada Inc., GlaxoSmithKline** and **Sanofi-Aventis**. CORPORATE SPONSORS: **Animas Canada, AstraZeneca, LifeScan Canada Ltd., Medtronic Diabetes, Merck Frosst Canada Ltd., Merck Frosst/Schering Pharmaceuticals, Novo Nordisk Canada Inc., Pfizer Canada Inc., and Roche Diagnostics Canada**. The program was as follows:

**DIABETES UPDATE 2007 - INNOVATIVE AND EMERGING THERAPIES
IN THE MANAGEMENT OF TYPE 1 AND TYPE 2 DIABETES**

Friday, March 23, 2007

Metro Toronto Convention Centre

South Building, 700 Level

222 Bremner Boulevard, Toronto, Ontario

7:45 AM	Registration & Breakfast	
8:30	Welcome	Daniel J. Drucker, MD, FRCPC Director, Banting and Best Diabetes Centre
	Learning Objectives	Jacqueline James, MD, MEd, FRCPC Course Director
8:35	Lecture 1 Chair: Dr. Jacqueline James	John Walsh, PA, CDE Current And Future Technologies For Insulin Pumps And Monitors
9:25	Lecture 2 Chair: Dr. Jacqueline James	Daniel J. Drucker, MD, FRCPC New Approaches for the Treatment of Type 2 Diabetes: The Role of Incretins
10:15	Refreshment Break	
10:45	Concurrent Session 1 Chair: Ms. Carolyn Lawton	Gary Sibbald, BSc, MD, FRCPC, ABIM, DABD, Med Assessment and Management of Foot Ulcers for People with Diabetes
	Concurrent Session 2 Chair: Ms. Jan Glozier	Glenn Berall, MD, FRCPC Childhood Obesity: A Crisis of Growing Proportions
	Concurrent Session 3 Chairs: Ms. Jennifer Buccino Ms. Margaret De Melo	Dana Whitham, MSc, RD, CDE Nutrition for Diabetes: Beyond Low Carbohydrate Diets
12:15 PM	Lunch Break	
1:15	Lecture 3 Chair: Dr. Kusiel Perlman	David C. W. Lau, MD, PhD, FRCPC What's New in the Management of Fats and Diabetes?
2:05	Lecture 4 Chair: Dr. Kusiel Perlman	Paul Ciechanowski, MD, MPH New Approaches to Understanding Challenging Patient-Provider Interactions in Diabetes Management
2:55	Refreshment Break	
3:25	Concurrent Session 4 Chair: Mr. Henry Halapy	Tino Montopoli, BScPhm, CDE, CDM Opportunities for Diabetes Management in the Community Pharmacy
	Concurrent Session 5 Chair: Ms. Angela Kennedy	Sheila Laredo, MD, FRCPC, PhD What's New in the Management of Polycystic Ovary Syndrome with an Emphasis on the Pregnant Woman?
	Concurrent Session 6 Chair: Ms. Marianne Beckstead	Anna Brundage, RN, BHSc(N), CDE The Basics and Beyond: Initiating and Optimizing Insulin Pump Therapy
4:55	Evaluation & Adjournment	

GUEST SPEAKERS:

Paul Ciechanowski, MD, MPH
Associate Professor of Psychiatry, University of Washington
Medical Director, UW Consultation-Liaison Psychiatry
Program Director, UW Psychosomatic Medicine Fellowship

David C. W. Lau, MD, PhD, FRCPC
Professor of Medicine, Biochemistry & Molecular Biology
Julia McFarlane Diabetes Research Centre
Chair, Diabetes and Endocrine Research Group
University of Calgary

Tino Montopoli, BScPhm, CDE, CDM
Pharmacist
Certified Diabetes Educator; Certified Disease Manager
Orono, Ontario

John Walsh, PA, CDE
Clinical Diabetes Specialist; Public Speaker
Author: Pumping Insulin; Using Insulin
San Diego, California

COURSE DIRECTOR:

**Faculty of Medicine, University of Toronto*

Jacqueline James, MD, MEd, FRCPC
Assistant Professor*, Department of Medicine
Division of Endocrinology & Metabolism
Chair, Banting and Best Diabetes Centre, Diabetes Care and Education Committee

PLANNING COMMITTEE:

CHAIR: Jacqueline James, MD, MEd, FRCPC*
Endocrinologist, Mount Sinai Hospital

Marianne Beckstead, RN, MN, CDE
Clinical Nurse Specialist, Diabetes, University Health Network (Toronto General Hospital)

Jennifer Buccino MEd, RD, CDE
Clinical Dietitian and Clinical Educator, Hospital for Sick Children

TORONTO SPEAKERS:

**Faculty of Medicine, University of Toronto*

Glenn Berall, MD, FRCPC
Chief of Paediatrics, North York General Hospital
Assistant Professor*, Department of Paediatrics

Anna Brundage, RN, BHSc(N), CDE
Manager, TRIDEC
Women's College Hospital

Daniel J. Drucker, MD, FRCPC
Director, Banting and Best Diabetes Centre
Professor*, Department of Medicine, Division of Endocrinology & Metabolism

Sheila Laredo, MD, FRCPC, PhD
Assistant Professor* & Clinician Scientist
Division of Endocrinology & Metabolism

Gary Sibbald, BSc, MD, FRCPC, ABIM, DABD, MEd
Professor*, Departments of Medicine and Public Health Sciences

Dana Whitham, MSc, RD, CDE
Registered Dietitian, St. Michael's Hospital

Jeanette Goguen, MD, MEd, FRCPC*
Endocrinologist, St. Michael's Hospital

Henry Halapy, RPh
Diabetes Pharmacist, St. Michael's Hospital

Angela Kennedy, RN
Diabetes Educator, Toronto East General Hospital

Carolyn Lawton, RN, MScN, CDE
Nurse Practitioner, Diabetes, Sunnybrook Health Sciences Centre

Margaret De Melo, RD, CDE, BSc
Clinical Dietitian, Toronto Western Hospital

Kusiel Perlman, MD, FRCPC*
Endocrinologist, Hospital For Sick Children

Milena Forte, MD, CCFP*
Family Physician, Mount Sinai Hospital

Jan Glozier, RN, CDE
Diabetes Educator, North York General Hospital
(Branson Division)

CORE LABORATORY

Director: Dr. I. 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. A list of the current services provided by the Core Laboratory are provided on the BBDC's website, www.bbdc.org. In 2001, the Core Laboratory partnered with Pathology and Laboratory Medicine at Mount Sinai Hospital and moved its facilities to that location, although it still remains a part of the BBDC.

DIABETES INVESTIGATORS ASSOCIATED WITH THE BBDC

There are seven Toronto General Research Institute (TGRI) scientists associated with the Banting and Best Diabetes Centre:

Dr. Harry Elsholtz, Department of Laboratory Medicine and Pathobiology

Dr. I. George Fantus, Department of Medicine

Dr. David Irwin, Department of Laboratory Medicine and Pathobiology

Dr. Tianru Jin, Department of Medicine

Dr. Tony Lam, Departments of Physiology and Medicine

Dr. Gary Lewis, Department of Medicine

Dr. Allen Volchuk, Department of Medicine

The investigators have shared access to a broad range of specialized research equipment on the 10th floor of the new MaRS Centre/Toronto Medical Discovery Tower. The 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.

The research activities of the group are focused on:

- Understanding insulin action, lipid metabolism, and signal transduction (Drs. Elsholtz, Lam, Lewis and Fantus)
- Regulation of gene transcription (Drs. Elsholtz, Irwin, and Jin)
- Biology of the glucagon-like peptides (Dr. Irwin)
- Studying the cell biology of insulin secretion and exocytosis, with a focus on translation stress and the unfolded protein response in normal beta cells and in models of beta cell dysfunction (Dr. Volchuk)

The annual research highlights of the above investigators, can be found in the [Research at the University](#) section of the BBDC's web site.

PUBLICATIONS

WEB SITE: www.bbdc.org

Visitors to our site can view detailed information on all of our funding programs, funding decisions, educational activities, membership, clinical trials at University of Toronto-affiliated hospitals, diabetes research at the University of Toronto, links to international diabetes meetings, and much more. All application forms for BBDC funding programs can be downloaded from the site.

New to the web site this year:

- **2006 Research Highlights:** The annual research highlights section was added to the BBDC's web site to facilitate increased public awareness of the many exciting diabetes-related research developments that occur each year at the University of Toronto. It is intended to provide information for the general public and describes, in lay language, one or two highlights of diabetes research carried out by University of Toronto faculty members, published during the 2006 calendar year. Links to their publications are provided. The 2006 Research Highlights are located within the [Research at the University](#) section of the web site.

APPROACH TO THE MANAGEMENT OF DIABETES MELLITUS (Sixth Edition)

This BBDC publication was updated in 2005, and is available on the home page of our web site, www.bbdc.org, in a new user-friendly, web-based format. The publication is a guide to the current concepts and management strategies practiced by health care professionals at the University of Toronto and its affiliate teaching hospitals in the care of individuals with diabetes. It provides an outline of standards of care and special topics in diabetes. Where possible, available evidence is used in these guidelines, however, expert clinical opinion is used to formulate treatment strategies in areas where high level clinical evidence is unavailable. Although not an exhaustive review of the literature, this document is meant to provide practical information to help medical students, residents, physicians, diabetes educators and other health care professionals in the management of individuals with diabetes. The BBDC has been publishing and regularly updating the management guidelines since 1986 as a part of our mandate to promote diabetes education and patient care at the University of Toronto.

BBDC NEWSLETTER

The Banting and Best Diabetes Centre distributes a quarterly newsletter entitled **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. Current and past issues are available on the BBDC's web site www.bbdc.org

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Copies of this and previous annual reports can be obtained through the BBDC's web site www.bbdc.org .