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Introduction

Message from the Chair

It gives me great pleasure to present you with the first of what is meant to be an “Annual Report” of the Department of Biochemistry and Medical Genetics’ (BMG) Achievements and Activities. 2007 was filled with many notable distinctions. We welcomed our newest faculty members Drs. Alison Elliott, Emma Frost, and Aaron Marshall as nil-appointed tenure-track positions. Congratulations Dr. David Merz for obtaining Tenure! This brought our ranks to 18 tenure-track and tenured faculty positions. Of these, Drs. Hao Ding, Geoff Hicks and Marek Los hold Tier 2 CRC Chairs, and Dr. Jim Davie a Tier 1 CRC Chair.

Your hard work brought in over 4.5 million dollars in research funding and 40 articles were published in areas that span basic to translational research, as well as participation in an International Consortium. Notably, Dr. Elliott was appointed as the Director of Services for the Genetics and Metabolism Program; I am sure she will maintain strong research ties with our department. The award of the Dean of Medicine’s Strategic Recruitment Initiative for Biomedical Research to the “Regenerative Medicine” proposal, submitted by the Departments of Human Anatomy and Cell Science, Biochemistry and Medical Genetics, and Physiology represents a significant achievement and will be an important bonus to our ability to expand over the next few years.

Dr. Francis Amara received the well-deserved University of Manitoba Presidential Outreach Award for his outreach activities. Most recently, Dr. Amara launched the Head Start Aboriginal Biomedical Youth Program for Grades 5 and 6 students, providing a platform for hands-on experimental opportunities in science and research. As we all know, recruiting the next generation of scientists begins very early in the educational process. Dr. Patrick Choy received this award in 2006. Dr. Jim Davie was presented with the Research Days 2007 Mentorship Award. This makes it 3 in a row for our department: Drs. Etienne Leygue and Jane Evans received this award in 2006 and 2005, respectively. Such awards speak volumes to our commitment to excellence in teaching and training.

It goes without saying that the successes of our Faculty members depend upon the excellence of our graduate students. We awarded four Doctoral degrees (Kendra Cann, Tracy Cherlet, Katherine Dunn and Subba Reddy Maddika) and 5 Master’s (Nicolle Bristow, Alison Chatel, Jacqueline Ching, Melanie Durston and Jaganmohan Jangamreddy) in 2007. Notably, Dr. Katherine Dunn received the Governor General’s Gold Medal for Outstanding Achievement at the Graduate Level. A significant proportion of our students successfully competed for local, provincial and national studentships, and many received other important honours. Dr. Subba Reddy Maddika received the 2007 Research Day E.L. Drewry Memorial Award, as well as a Canadian Student Health Research Forum Award and the Merck Frosst Canada Inc. Award for excellence in Cell Biology. Dr. Kendra Cann was a recipient of a Canadian Student Health Research Forum Award as well as the Apotex Fermentation Inc. Award for Excellence in Molecular Biology. Starting even younger, Mr. Ted Paranjothy, a grade 12 student at Fort Richmond Collegiate, won 1st prize at the Sanofi-Aventis International BioGENEius Challenge held in Boston, MA. Mr. Yale Michaels, a grade 10 student of Grant Park High School, was awarded the American Dental Research Prize at the Intel International Science and Engineering Fair held in Albuquerque, New Mexico. Ted Paranjothy and Michael Yale were mentored by Drs. Marek Los and Geoff Hicks, respectively. These are only a few of the highlights, a full list is provided in this document. Finally, thank you to all our students for working together to produce the BMG “Survival Guide” – this represents an invaluable resource for all of our students.
In closing, congratulations to all, your hard work is very much appreciated. Your achievements have not gone unnoticed and have been posted on our web site. New initiatives will be pursued for 2008, and I look forward to reporting on these next year!

**Strategic Priorities**

***************

**Research:** As a basic science department, research is one of our major priorities. Our research can be grouped under three umbrellas: Development, Human Pathologies and Animal models; Biochemistry, Metabolism, Apoptosis and Cancer; and Clinical Genetics and Genetic Epidemiology. Our ability to succeed in these areas necessitates strong ties between basic and clinical scientists. Enhanced collaborative efforts, and focused innovative and cutting edge strategies will be critical to future successes and for securing funding in the ever-increasing competitive environment.

**Education:** Our second “raison d’être” is as educators. Our track record is one of “excellence”, but there is always room for improvement. A number of priorities come to mind and include the development of an innovative training program to prepare our students for the evolving job market, preparing a student guide as an addendum to our departmental sub-regulations, and continuing our outreach initiatives to put “science” on the radar of our youths’ career options. More challenging will be to enhance our ability to attract outstanding graduate students and trainees. Mechanisms to increase interactions between medical and graduate students would facilitate present and future ties between clinical and basic scientists.

**Revitalization:*** Increasing our numbers through recruitment is a key priority and the opportunity for this is possible through the Dean’s Strategic Initiative in Regenerative Medicine. This initiative was based on a proposal submitted by the Departments of Human Anatomy and Cell Science, Biochemistry and Medical Genetics, and Physiology. Consequently, our department is playing an active role in the recruitment process. A concerted effort will ensure that these new recruits enjoy natural ties with our faculty members and research interests. However, we must plan beyond this initiative as renewal will be very important in the coming years.

**Image:** Increased visibility with our clinical colleagues, the Faculty of Medicine, the University of Manitoba, Canadian Universities and funding agencies will have an important impact on our ability to be competitive in research, education, retention and recruitment.

![Image](image.png)

**Dr. Louise R. Simard**
Professor and Head
<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>Email</th>
<th>Research Interests</th>
<th>Publications</th>
</tr>
</thead>
</table>
• Lin W. and **Arthur G.** Phospholipids are synthesized in the G2/M phase of the cell cycle. *Int J Biochem Cell Biol* 39, 597-605  
• Bittman R., Li Z, Samadder P. and **Arthur G.** Anticancer activity of a ceramide analog containing a disulfide linkage. *Cancer Lett* 251, 53-58 |
| Patrick Choy        | Professor         | pchoy@ms.umanitoba.ca       | **Research Interests:** Lipids and lipoproteins in health and disease.                | • Au-Yeung KK, O K, **Choy PC,** Zhu DY, Siow YL. Magnesium tanshinoate B protects endothelial cells against oxidized lipoprotein-induced apoptosis. *Can J Physiol Pharmacol* (11):1053-62.  
Jim Davie  
Professor, CRC Chair  
davie@cc.umanitoba.ca

Research Interests: Chromatin structure and function, eukaryotic gene expression, histone variants and modifications, sequence-specific DNA-binding proteins.

Publications:

Hao Ding  
Assistant Professor, CRC Chair  
dingh@cc.umanitoba.ca

Research Interests: Apply mouse embryonic stem (ES) cells mediated transgenesis to analyze a gene’s function and to create human disease models. We are focusing on several genes that have been implicated in cell proliferation, angiogenesis and tumorigenesis.

Publications:
- Wu X, Ding H. Generation of conditional knockout alleles for PDGF-C. *Genesis* 45:653-657.

Jane Evans  
Professor  
jevans@ms.umanitoba.ca

Research Interests: Epidemiology of congenital malformations, numerical classification of phenotypic variability, prenatal screening and identification of high risk populations

Publications:
**Spencer Gibson**  
Associate Professor  
gibsons@cc.umanitoba.ca

**Research Interests:** Understanding the regulation of signal transduction pathways leading to either cell survival or cell death in cancer cells. This research will be translated into the clinical setting for the effective treatment of cancer.

**Publications:**

---

**R. Dan Gietz**  
Associate Professor  
gietz@cc.umanitoba.ca

**Research Interests:** Molecular genetics; Mechanisms of DNA repair in eukaryotes. Applications of the Yeast two hybrid system. Mechanisms of DNA transformation in yeast. The Gietz lab has its own home page describing the best techniques of transformation in yeast.

**Publications:**

---

**Geoff Hicks**  
Associate Professor, CRC Chair  
hicksgg@cc.umanitoba.ca

**Research Interests:** Functional Analysis of the genetic determinants of cancer and human disease.

**Publications:**
**Research Interests:** Differential gene expression during breast tumorigenesis and breast tumor progression. Actual focus: Small breast epithelial mucin (SBEM) and Steroid Receptor RNA Activator (SRA) genes.

**Publications:**

---

**Marek Los**

**Associate Professor, CRC Chair**

**Research Interests:** Molecular biology of cancer. Development of anticancer drugs those are selectively toxic against tumor cells. The stimulation of immune response against cancer antigens. "Real time" monitoring of cancer therapy.

**Publications:**

---

**David Merz**

**Assistant Professor**

erzd@ms.umanitoba.ca

**Research Interests:** Cell migrations and axon guidance, using the model organism C. elegans. Emphasis on forward genetics and molecular biology to study the regulation and guidance of cell migrations and to identify novel genes and interactions between signalling pathways in development

**Publications:**
<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
<th>Email</th>
<th>Research Interests</th>
<th>Publications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mike Mowat</td>
<td>Professor</td>
<td><a href="mailto:mmowat@cc.umanitoba.ca">mmowat@cc.umanitoba.ca</a></td>
<td>Molecular mechanisms of the p53 tumour suppressor in cell cycle control and apoptosis (programmed cell death). Identification of recessive apoptosis genes using a promoter trap retrovirus. Molecular genetics of lung tumour cell progression.</td>
<td></td>
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</tbody>
</table>

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<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
<th>Email</th>
<th>Research Interests</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steven Pind</td>
<td>Assistant Professor</td>
<td><a href="mailto:spind@cc.umanitoba.ca">spind@cc.umanitoba.ca</a></td>
<td>Research Interests: Identification and characterization of mutations in the gene encoding 3-phosphoglycerate dehydrogenase; role of serine metabolism in growth and development of the human central nervous system; protein synthesis, folding, and targeting; expression and targeting of hyaluronidase enzymes.</td>
</tr>
</tbody>
</table>
| Louise Simard    | Professor and Department Head | louise_simard@umanitoba.ca | Research Interests: Molecular genetics and cellular biology of the SMN (survival motor neuron) gene implicated in spinal muscular atrophy (SMA). Genetics of the complex trait attention deficit/hyperactivity disorder (ADHD). Publications:  
| Barb Triggs-Raine| Professor                    | traine@ms.umanitoba.ca    | Research Interests: Lysosomal storage disorders including genetic, biochemical and animal models aimed at determining the function of hyaluronidases in health and disease; Identification and characterization of disease genes in unique populations. Publications:  
Jeff Wigle  
Assistant Professor  
jwigle@sibre.ca

**Research Interests:** The homeobox transcription factors Mox1 and Mox2 and how these genes regulate cardiovascular growth in development and disease.

**Publications:**

Klaus Wrogemann  
Professor & Associate Head  
K_Wrogemann@Umanitoba.ca

**Research Interests:** Molecular basis of genetic diseases, with special emphasis on muscular dystrophies, cardiomyopathies and androgen resistance syndromes. The current focus is on limb girdle muscular dystrophies

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**Research Academic Nil-Appointments**

Bhullar, R.  
Chin, S.  
Chodirker, B.  
Chudley, A.  
Dalton, J.  
Dawson, A.  
Dembinski, T.  
Eisenstat, D.  
Elliott, A.  
Graham, M.  
Greenberg, C.R.  
Hatch, G.  
Leroux, M.  
MacRae, A.  
Mai, S.  
Marles, S.  
Marshall, A.  
Mhanni, A.  
Parry, D.  
Reed, M.  
Spriggs, B.  
Szathmáry, E.  
Thorlacius, L.  
Valdimarsson, G.  
Watson, P.  
Wilkins, J.  
Williams, G.

**Research Academic Adjunct Appointments**

Civetta, A.  
Craig, D.  
Franck, J  
Frost, E.  
Graham, M.  
Kupriyanov. V.  
Rampitsch, C.  
Vanderwel, D.  
Ye, J.
| **B.N. Chodirker**  
Professor, MD, FRCPC, FCCMG  
bchodirker@exchange.hsc.mb.ca |
<table>
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<tbody>
<tr>
<td><strong>Research Interests:</strong> Clinical genetics, genetic epidemiology, prenatal diagnosis</td>
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| **A.E. Chudley**  
Professor, MD, FRCPC, FCCMG  
achudley@exchange.hsc.mb.ca |
<table>
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<tbody>
<tr>
<td><strong>Research Interests:</strong> Clinical genetics, dysmorphology, clinical teratogenesis, Fetal Alcohol Syndrome, clinical cytogenetics and genetics of mental retardation, X-linked mental retardation, autism spectrum disorders</td>
</tr>
<tr>
<td><strong>Publications:</strong></td>
</tr>
</tbody>
</table>
| C.R. Greenberg  
Professor, MD, CM, FRCPC, FCCMG  
cgreenberg@hsc.mb.ca |
| Research Interests: Clinical genetics, inborn errors of metabolism and application of recombinant DNA technology to the study of human genetic disorders especially neuromuscular disorders, glutaric acidemia, and carnitine palmitoyl transferase-1 deficiency. |

| A. Mhanni  
Assistant Professor, Ph.D.MD, FRCPC, FCCMG, FACMG  
amhanni@exchange.hsc.mb.ca |
| Research Interests: Clinical Genetics and Inborn Errors of Metabolism. Research focus is in epigenetics and how it relates to human disorders and DNA methylation role in early developmental processes and its relationship to specific birth defects such as conotruncal anomalies of the heart. |

2007-2008 ANNUAL REPORT

WRHA Program in Genetics and Metabolism

The Program in Genetics and Metabolism is a primary Program within the Winnipeg Regional Health Authority (WRHA). This status was achieved in September 2004. The Genetics and Metabolism University affiliations include the Departments of Pediatrics and Child Health, and Biochemistry and Medical Genetics.

The Genetics and Metabolism mandate of the program is the provision of exemplary clinical service to all patients and Programs of the WRHA. In the discharge of this mandate, the Program endeavours to establish a responsive system of service delivery. In 2007, approximately 5,300 patients were seen through the service.

What is new in 2007-2008:
- As of August 2007, we were pleased to appoint Dr. Alison Elliott, PhD. as the Director of Services for the Genetics and Metabolism Program. Dr. Elliott is a certified genetic counsellor and obtained her PhD in Medical Genetics from the University of Manitoba in 2005. She comes with an excellent background in genetics research and practice.
As a WRHA Program, we report to senior management. Our VP was Mr. Mark Nescar, who left the WRHA to work for a private company. We thank Mark for his short but effective time with us. We welcomed Mr. Milton Sussman as our WRHA Team leader.

Human Resources
The Genetics and Metabolism Program is currently provided by medical staff, genetic counsellors, genetic assistants and administrative and secretarial support staff, who are primarily located at the HSC site.

Management Team
WRHA senior representative: Mr. Milton Sussman
Medical Director: Dr. Albert Chudley
Administrative Director: Mr. Ron VanDenakker
Program Director: Dr Alison Elliott, PhD

Medical Staff/Faculty:
Bernie N. Chodirker, MD
Albert E. Chudley, MD
Cheryl R. Greenberg, MD
Sandra Marles, MD
Aziz Mhanni, MD., PhD

Cross-Appointed Members:
Angie Dawson, PhD
Jane Evans, PhD
Louise Simard, PhD
Beth Spriggs, PhD
Barbara Triggs-Raine, PhD
Klaus Wrogemann, PhD

Emeritus Member:
James C. Haworth, MD

Genetic Counsellors:
Patricia Bocangel
Linda Carter
Karen MacDonald
Judy Saltel-Olson
Shannon Sanders
Kim Serfas

Genetic Counselling Assistants:
Tatum Anderson
Scarlett Drescher
Nikki Lwiwski

Medical Genetics Residents:
Mariya Kozenko, MD   PGY4
Julie Richer, MD      PGY5
Alison Rusnak, MD     PGY5+
Jagdeep Walia, MBBS   PGY1
## Professors Emeriti

| M.C. Blanchaer | K. Dakshinamurti | F.C. Stevens | E.W. Yamada |

## Administrative Staff & Responsibilities

*Front Row (left to right)* Nadia Burtniak - Finance Officer; Gerhard Dyck - Office Manager

*Back Row (left to right)* Tuntun Sarkar - Student Liaison; Jan Middleton - Communications and Media; Lil Cameron - Employee Records.
Academic Awards and Honours

Honours and Awards

<table>
<thead>
<tr>
<th>Name</th>
<th>Award</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. Francis Amara</td>
<td>- University of Manitoba Outreach Award</td>
</tr>
<tr>
<td></td>
<td>- University of Manitoba, Faculty of Medicine: Nomination for a Teaching Excellence Award</td>
</tr>
<tr>
<td>Dr. James Davie</td>
<td>- CRC in Chromatin Dynamics, Tier 1</td>
</tr>
<tr>
<td></td>
<td>- Research Days 2007 - Mentorship Award</td>
</tr>
<tr>
<td>Dr. Hao Ding</td>
<td>- CRC in Genetic Modeling, Tier 2</td>
</tr>
<tr>
<td></td>
<td>- Boehringer Ingelheim Canadian Young Investigator Award in Biological Sciences</td>
</tr>
<tr>
<td>Dr. Jane Evans</td>
<td>- Dr. John L Hamerton Distinguished Service Award, CCMG</td>
</tr>
<tr>
<td></td>
<td>- Travel Award, MICH</td>
</tr>
<tr>
<td>Dr. Geoff Hicks</td>
<td>- CRC in Cell Biology and Functional Genomics, Tier 2</td>
</tr>
<tr>
<td>Dr. Marek Los</td>
<td>- CRC in New Cancer Therapy Development, Tier 2</td>
</tr>
<tr>
<td>Dr. Jeffrey Wigle</td>
<td>- CIHR New Investigator Award</td>
</tr>
</tbody>
</table>

Federal
- Canada Research Chair (CRC)
- Canadian Institutes of Health Research (CIHR)
- Canadian College of Medical Geneticists (CCMG)

Provincial
- Manitoba Institute of Child Health (MICH)

Undergraduate students, Graduate Students, and Trainees

Report from the BMG Students Association President
Francisco Mendoza- January to September
Evan Booy - October to December

Annual Report of the Biochemistry & Medical Genetics Students Association
The 2007/2008 student council elections held in September resulted in the appointment of the following individuals to the Biochemistry and Medical Genetics student council:

President: - Evan Booy
Vice-President: - Bojan Drobic
Secretary/Treasurer: - Pamela Miller
GSA Representative: - Meghan Azad
Academic Standards and Grad Students Awards Committee Rep: - Teralee Burton
Sports Representatives: - Jimin Guo and Yongyao (Yoyo) Tan
Social Representatives: - Ludivine Coudiere, Paula Espino and Francisco Mendoza
Librarian: - Ludivine Coudiere
Events: The BMG student association had a very active social program with well attended events. A year end wind-up party was held in the spring and was a great way to finish off the academic year. Activities began again in the fall when students from BMG and Immunology participated in a paintball outing. Additionally, a Halloween party was held that included a costume contest, pumpkin carving, games and food. The annual Christmas party was a great success and included gingerbread house decorating as well as a gift exchange.

Survival Guide: This year marked the completion of the graduate students survival guide. This comprehensive guide was developed by the students to provide detailed information about the department and its graduate program. The goal of the guide is to make the transition to graduate school as easy as possible for new students. The guide includes information on university resources, research facilities, information on faculty, facility maps, registration procedures, events, awards, housing, utilities, transportation, etc. This is sure to be an asset to any new students entering the department.

Report from the GSA Rep: Meghan Azad attended all of the monthly Health Sciences Graduate Students Association (HSGSA) meetings this year. She helped organize the GSA/HSGSA elections and the HSGSA social events: September Orientation, Holiday Wine & Cheese, Valentine's Wine & Cheese, Spring It Up event, etc. As an HSGSA councillor, she also served on the Mentorship Award committee and Distinguished Lectureship committee. Finally, she prepared and submitted the two Departmental Grant Applications to receive our semi-annual cash disbursements from the GSA.

Report from the Treasurer: The BMG Graduate Students Association account opened with a balance of $840.19. After the various activities organized by the Social Committee, we retained a balance of $600.35.

Report from the Graduate Student Awards & Academic Standards Student Representative: Teralee Burton met with this Committee to discuss student award applications to rank applications for University of Manitoba Graduate Fellowship, Manitoba Health Research Council, and the Health Sciences studentships.

As the Academic Standards Student Representative, she met with the Academic Standards committee to discuss applications for tenure and/or promotion and cross-appointment to the department.

Sports: This was a quiet year for our department. In the past we organized teams for a variety of sports including floor hockey, volleyball and soccer. We look forward to putting some teams together this coming fall.

Evan Booy
President
Undergraduate Honour’s Project Students

Solmaz Nafez
Tamara Corkery
Peyman Ezzati

Graduate Students

Master of Science (MSc)

Diana (Joy) Armistead – Supervisor: Dr. Barb Triggs-Raine
Ludivine Coudiere – Supervisor: Dr. David Merz
Scarlett Drescher – Supervisor: Dr. Jane Evans
Mehdi Eshraghi – Supervisor: Dr. Jeff Wigle
Jimin Guo – Supervisor: Dr. Etienne Leygue
Ravikumar Jayachandran – Supervisor: Dr. Louise Simard
Dilshad Khan – Supervisor: Dr. Jim Davie
Anthony Lewis – Supervisor: Dr. Leigh Murphy
Lisa Levesque – Supervisor: Dr. Alberto Civetta
Pamela Miller – Supervisor: Dr. Hao Ding
Meenal Moudgil – Supervisor: Dr. Mike Mowat
Md Zinnatun Nabi, – Supervisor: Dr. Hao Ding
Vanessa Pinto – Supervisor: Dr. David Eisenstat
Iran Rashedi – Supervisor: Dr. Phillip Gardiner
Sumit Sandhu – Supervisor: Dr. Hao Ding
Caroline Shields – Supervisor: Dr. Mike Mowat
Yongyao (Yoyo) Tan – Supervisor: Dr. David Eisenstat
Duy Truong – Supervisor: Dr. Dan Gietz
Yi Yan – Supervisor: Dr. Etienne Leygue
Hongmei Zeng – Supervisor: Dr. Geoff Hicks
Yueqin (Jane) Zhou – Supervisor: Dr. Geoff Hicks

Doctor of Philosophy (Ph.D.)

Vasantha Atmuri – Supervisor: Dr. Barb Triggs-Raine
Meghan Azad – Supervisor: Dr. Spencer Gibson
Shannon Baxter – Supervisor: Dr. Jeff Wigle
Sara Beiggi – Supervisor: Dr. Spencer Gibson
Evan Booy – Supervisor: Dr. Spencer Gibson
Teralee Burton – Supervisor: Dr. Spencer Gibson
Shilpa Chooniedass – Supervisor: Dr. Etienne Leygue
Josette Douville – Supervisor: Dr. Jeff Wigle
Bojan Drobic – Supervisor: Dr. Jim Davie
Paula Espino – Supervisor: Dr. Jim Davie
Dhimankrishna Ghosh – Supervisor: Dr. John Wilkins
Trung Le – Supervisor: Dr. David Eisenstat
Lin Li – Supervisor: Dr. Jim Davie
Jaswinder Mangat – Supervisor: Dr. Desiree Vanderwel
Dianna Martin – Supervisor: Dr. Barb Triggs-Raine
Francisco Mendoza – Supervisor: Dr. Spencer Gibson
Ellert Nichols – Supervisor: Dr. Doug Craig
Carl Olson – Supervisor: Dr. Louise Simard
Anton Uvarov – Supervisor: Dr. Nasrin Mesaeli
Yanmin Yang – Supervisor: Dr. Valery Kupriyanov
Behzad Yeganeh – Supervisor: Dr. Nasrin Mesaeli

Graduates

Kendra Cann, Ph.D.
2007 CSHRF Major Award Winner of the Apotex Fermentation Inc. Award for Excellence in Research in Molecular Biology
Thesis Title: Analysis of the Function of TLS/FUS in DNA Repair and Genome Maintenance

Tracy Cherlet, Ph.D.
Thesis Title: Cross-talk between ER and TGFβ Signaling Pathways in Human Breast Cancer.

Supervisor: Dr. Geoff Hicks
Supervisor: Dr. Leigh Murphy
Katherine Leslie Ruth Dunn, Ph.D.  
Supervisor: Dr. Jim Davie  
Governor General’s Gold Medal for outstanding achievement at the graduate level  
Thesis Title: Characterization of Distinct Populations of Histone H3 Phosphorylated in Response to Mitogen Stimulation Before and After Oncogene-Mediated Cellular Transformation

Subba Reddy Maddika, Ph.D.  
Supervisor: Dr. Marek Los  
2007 CSHRF Major Awards Winner - The E. L. Drewry Memorial Award and Merck Frosst Canada Inc. Award for excellence in Cell Biology; and winner of the Dean of Medicine poster award  
Thesis Title: Molecular dissection of the role of cell survival and apoptotic signaling in normal and cancer cells.

Nicolle Bristow, M.Sc.  
Supervisor: Dr. Spencer Gibson  
CSHRF Manitoba Medical College Foundation 2007 poster award recipient  
Thesis Title: BNIP3 Mutations in Breast Cancer

Alison Chatel, M.Sc.  
Supervisor: Dr. David Merz  
Thesis Title: The Characterization of HYA-1, A Hyaluronidase Family Member in C.Elegans

No pictures available for:

Jacqueline Ching, M.Sc.  
Supervisor: Dr. Christof Rampitsch  
Thesis Title: Pyrenophora tritici-repentis ToxA requires Senescence Signals for the Induction of Necrotic Symptoms in Triticum aestivum

Melanie Durston, M.Sc.  
Supervisor: Dr. Nasrin Mesaeli  
Thesis Title: Calreticulin Overexpression: A Mouse Model of Human Hemangioendothelioma

Jaganmohan Jangamreddy, M.Sc.  
Supervisor: Dr. Jeff Wigle  
Thesis Title: Activation of Vascular endothelial growth factor receptor-3 expression by homeobox transcription factor, Prox1
Trainees

Post Doc Fellows:
Sudharsana Rao Ande – Supervisor: Dr. Jim Davie
Arunkumar Arumugam – Supervisor: Dr. Leigh Murphy
Yongqiang (Paul) Chen – Supervisor: Dr. Spencer Gibson
Gamchimeg Ishdorj – Supervisor: Dr. Spencer Gibson
Sumin Lu – Supervisor: Dr. Jim Davie
Soma Mandal – Supervisor: Dr. Jim Davie
Elizabeth McLachlan – Supervisor: Dr. Leigh Murphy
Arzu Ozturk – Supervisor: Dr. Geoff Hicks
Beatriz Perez-Cadahia – Supervisor: Dr. Jim Davie
Mohammed G. Sabbir – Supervisor: Dr. Mike Mowat
Ashok Kumar Sekar – Supervisor: Dr. Spencer Gibson
Wineeta Weebadda – Supervisor: Leigh Murphy
Anne Zuse – Supervisor: Leigh Murphy

Medical Genetic Residents*:
*all supervised by Dr. Bernie Chodirker
Marlya Kozenko, MD       PGY4
Julie Richer, MD       PGY5
Alison Rusnak, MD       PGY5+
Jagdeep Walia, MBBS       PGY1

Student Awards and Honours

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<thead>
<tr>
<th>CIHR</th>
<th>NCIC</th>
<th>NSERC</th>
<th>MHRC</th>
<th>Other</th>
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</thead>
<tbody>
<tr>
<td>Behzad Yeganeh</td>
<td>Teralee Burton</td>
<td>Shilpa Chooniedass</td>
<td>Jimin Guo</td>
<td>Hongmei Zeng (CCMB)</td>
</tr>
<tr>
<td>Josette Douville</td>
<td>Meghan Webb Azad</td>
<td>Francisco Mendoza</td>
<td>Yanmin Yang</td>
<td>Caroline Shields (CCMB)</td>
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<tr>
<td>Paula Espino</td>
<td>Francisco Mendoza</td>
<td>Shannon Baxter</td>
<td>Iran Rashedi</td>
<td>Sumit Sandhu (MGS)</td>
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<tr>
<td>Evan Booy</td>
<td>Meghan Webb Azad</td>
<td>Lisa Renee Leveque</td>
<td>Sara Beiggi</td>
<td>Ravikumar Ramachandran (MGS)</td>
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<td>Yeuqin Zhou</td>
<td>Francisco Mendoza</td>
<td>Diana Joy Armistead</td>
<td>Anton Uvarov</td>
<td>Zinnatun Nabi (UMGF)</td>
</tr>
<tr>
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<td></td>
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<td>Dilshad H. Khan (IGSS)</td>
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Federal Agencies
- Canadian Institutes of Health Research (CIHR)
- National Cancer Institute of Canada (NCIC)
- Natural Sciences and Engineering Research Council of Canada (NSERC)
Provincial Agencies
- Manitoba Health Research Council (MHRC)
- Manitoba Graduate Scholarship (MGS)

Other Agencies
- CancerCare Manitoba (CCMB)
- International Graduate Student Scholarship (IGSS)
- Manitoba Institute of Child Health (MICH)
- University of Manitoba Graduate Fellowships (UMGF)

Katherine Dunn was the winner of the Governor General Gold Medal for Outstanding Achievement at the Graduate Level for the spring 2007 convocation.

Canadian Student Health Research Forum - 2007 Research Days

<table>
<thead>
<tr>
<th>Name</th>
<th>Awards</th>
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<tbody>
<tr>
<td>Subba Reddy Maddika</td>
<td>The E. L. Drewry Memorial Award</td>
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<tr>
<td></td>
<td>Merck Frosst Canada Inc. Award for excellence in Cell Biology</td>
</tr>
<tr>
<td>Kendra Cann</td>
<td>Apotex Fermentation Inc. Award for excellence in Molecular Biology</td>
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<tr>
<td>Shilpa Chooniedass</td>
<td>Dean of Graduate Studies Poster Award (Manitoba Competition)</td>
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<td>SILVER in the International CIHR poster competition.</td>
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<tr>
<td>Meghan Webb Azad</td>
<td>The Dean of Medicine Poster Award (Manitoba Competition)</td>
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<tr>
<td>Shannon Baxter</td>
<td>Graduate Students' Association Health Sciences Caucus Poster Award</td>
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<td>(Manitoba Competition)</td>
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<tr>
<td>George Skliris</td>
<td>Manitoba Health Research Council Post Doctorate Fellow Award</td>
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<td>(Manitoba Competition)</td>
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<tr>
<td>Evan Booy and Teralee Burton</td>
<td>Manitoba Poster Competition Honourable Mentions</td>
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## Seminar Series

### Invited Speakers

<table>
<thead>
<tr>
<th>Date</th>
<th>Speaker</th>
<th>Topic</th>
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</thead>
<tbody>
<tr>
<td>Thursday, December 6, 2007</td>
<td><strong>Balwant S. Tuana, Ph.D.</strong>&lt;br&gt;Professor&lt;br&gt;Department of Cellular &amp; Molecular Medicine&lt;br&gt;University of Ottawa</td>
<td>&quot;Deregulated expression of the tail-anchored membrane protein SLMAP leads to defective muscle and neuronal development&quot;</td>
</tr>
<tr>
<td>Thursday, April 26, 2007</td>
<td><strong>The Fifth Irene Uchida Lecture</strong>&lt;br&gt;<strong>Charles R. Scriver, MDCM, FRS.</strong>&lt;br&gt;Alva Professor Emeritus of Human Genetics&lt;br&gt;McGill University, Montreal&lt;br&gt;Children’s Hospital Research Institute, Montreal, Quebec</td>
<td>Pediatric Grand Rounds&lt;br&gt;“PKU: A Paradigm Shift in Medical Thinking” and Pediatric Research Rounds&lt;br&gt;“The PAH locus is full of surprises”</td>
</tr>
</tbody>
</table>

## BMG Seminar Series

<table>
<thead>
<tr>
<th>Date</th>
<th>Speaker</th>
<th>Title/Topic of Presentation</th>
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<tbody>
<tr>
<td>Jan. 10/07</td>
<td>Anton Uvarov</td>
<td>Activation of Endoplasmic Reticulum Associated Degradation pathway in calreticulin deficient cells</td>
</tr>
<tr>
<td>Jan. 17/07</td>
<td>Shauna Loewen</td>
<td>Dlc-1 and Dlc-2, Studies of RhoGAP Genes and Etoposide Resistance</td>
</tr>
<tr>
<td>Jan. 24/07</td>
<td>Jacqueline Ching</td>
<td>Pyrenophora tritici-repentis ToxA on the chloroplast proteome</td>
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<tr>
<td>Jan. 24/07</td>
<td>Duy Truong</td>
<td>Genes Affecting Transformation Efficiency in Saccharomyces cerevisiae</td>
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<tr>
<td>Jan. 31/07</td>
<td>Iran Rashedi</td>
<td>DNase-X</td>
</tr>
<tr>
<td>Jan. 31/07</td>
<td>Anoushe Sekhavat</td>
<td>The mechanism of Histone deacetylase inhibition by different HDAC inhibitors</td>
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<tr>
<td>Feb. 7/07</td>
<td>Shannon Baxter</td>
<td>Mechanisms of Prox1 mediated target gene regulation</td>
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<tr>
<td>Feb. 7/07</td>
<td>Yongyao Tan</td>
<td>Dlx and Pax genes in forebrain development</td>
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<tr>
<td>Feb. 14/07</td>
<td>Josette Douville</td>
<td>Merox1 and Merox2 in vascular cells</td>
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<tr>
<td>Feb. 14/07</td>
<td>Melanie Durston</td>
<td>eNOS and Calreticulin</td>
</tr>
<tr>
<td>Feb. 21/07</td>
<td>Nicolle Bristow</td>
<td>BNIP3 mutations in breast cancer</td>
</tr>
<tr>
<td>Feb. 21/07</td>
<td>Jimin Guo (Alex)</td>
<td>Shifting the balance between coding and non-coding Steroid Receptor RNA Activator isoforms in T5 cells</td>
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<tr>
<td>Feb. 28/07</td>
<td>Allison Chatel</td>
<td>Hyaluronidase in C. elegans</td>
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<tr>
<td>March 7/07</td>
<td>Ellert Nichols</td>
<td>single molecule enzymology</td>
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<tr>
<td>March 14/07</td>
<td>Evan Booy</td>
<td>Bystander Effect</td>
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<tr>
<td>March 21/07</td>
<td>Meghan Webb</td>
<td>Hypoxia-Induced Autophagy</td>
</tr>
<tr>
<td>March 28/07</td>
<td>Yanmin Yang (Victor)</td>
<td>Characterization of cardiac ischemia and myocardial infarction with near infrared light</td>
</tr>
<tr>
<td>April 4/07</td>
<td>Ludivine Coudiere</td>
<td>genetics with worms (C. elegans)</td>
</tr>
<tr>
<td>Date</td>
<td>Name</td>
<td>Title</td>
</tr>
<tr>
<td>------------</td>
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<tr>
<td>April 4/07</td>
<td>Yi Heng (Henry)</td>
<td>The role of TRIM32 in limb-girdle muscular dystrophy type 2H (LGMD2H)/sarcotubular myopathy(STM)</td>
</tr>
<tr>
<td>April 11/07</td>
<td>Hongmei Zeng</td>
<td>the function of TLS</td>
</tr>
<tr>
<td>April 11/07</td>
<td>Sumit Sandhu</td>
<td></td>
</tr>
</tbody>
</table>
### Undergraduate

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Co-ordinator</th>
</tr>
</thead>
<tbody>
<tr>
<td>BGEN 3020</td>
<td><em>Introduction to Human Genetics</em>&lt;br&gt;Principles necessary to understand and study genetically controlled malformations and diseases and variation in individuals and in populations. Two terms. Lectures, tutorials and assignments. Held at Fort Garry Campus.</td>
<td>Dr. D. Merz</td>
</tr>
<tr>
<td>BGEN 4010</td>
<td><em>Project Course in Human Genetics</em>&lt;br&gt;A research project chosen in consultation with and supervised by a Faculty member. A written report is required. The course is available primarily to final year Honors student in the Honors Genetics program</td>
<td>Dr. D. Gietz</td>
</tr>
</tbody>
</table>

### Graduate

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Co-ordinator</th>
</tr>
</thead>
<tbody>
<tr>
<td>BGEN 7000 (M.Sc.)&lt;br&gt;BGEN 8000 (Ph.D.)</td>
<td><em>Research Seminar</em>&lt;br&gt;A one credit pass/fail course. Consists of the presentation on the student's current research. All registered graduate students in Biochemistry &amp; Medical Genetics MUST present (“writing” is no longer an exemption) 1 Credit Hour</td>
<td>Dr. E. Leygue</td>
</tr>
<tr>
<td>BGEN 7020</td>
<td><em>Proteins</em>&lt;br&gt;Three hours per week held in one term. Course includes purification, bioinformatics, characterization, expression, structure, folding and engineering of proteins. 3 Credit Hours</td>
<td>Dr. S. Pind</td>
</tr>
<tr>
<td>BGEN7090</td>
<td><em>Principles and Practice of Human Genetics</em>&lt;br&gt;Lectures, tutorials and assignments designed to review major topics in human genetics and give practical experience in the analysis and interpretation of human genetics data and critical review of published work. 3 Credit Hours</td>
<td>Dr. B. Chodirker</td>
</tr>
<tr>
<td>BGEN 7210</td>
<td><em>Topics in Biochemistry 2</em>&lt;br&gt;Advanced study and reading on two topics chosen by the course director in consultation with the student's supervisor. Topics include but are not limited to Neurochemistry, Lipids, Carbohydrates, Biomembranes, Inborn Errors, Cystoskeleton Proteins. 3 Credit Hours</td>
<td>Dr. G. Arthur</td>
</tr>
<tr>
<td>BGEN 7260</td>
<td><em>Cellular and Molecular Biochemistry</em>&lt;br&gt;Three hours per week, one term. Recent research advances on the study of cellular components, assembly and organization of plasma membrane components, cell signaling, and cell cycle. 3 Credit Hours</td>
<td>Dr. G. Arthur</td>
</tr>
<tr>
<td>IMED 7090</td>
<td><em>Cell Biology</em>&lt;br&gt;Comprehensive introduction to the structure and function of cells. Prerequisite: consent of instructor. 6 Credit Hours</td>
<td>Dr. R. Shiu</td>
</tr>
<tr>
<td>IMED 7200</td>
<td><em>Cancer Biology</em>&lt;br&gt;One hour per week on the basic (cellular and molecular) and clinical (diagnostic and treatment) aspects of cancer. Students will give one seminar and submit an essay on an assigned topic. Prerequisite: consent of instructor. 3 Credit Hours</td>
<td>Dr. M. Mowat</td>
</tr>
<tr>
<td>Course</td>
<td>Description</td>
<td>Co-ordinator</td>
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<tr>
<td>------------</td>
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<td>--------------</td>
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<tr>
<td>BGEN 7070</td>
<td><strong>Principles of Microscopy and Imaging</strong>&lt;br&gt;A one credit pass/fail course. Consists of the presentation on the student's current research. All registered graduate students in Biochemistry &amp; Medical Genetics MUST present (“writing” is no longer an exemption)  3 Credit Hours</td>
<td>Dr. Sabine Mai</td>
</tr>
<tr>
<td>IMED 7180</td>
<td><strong>Molecular Approaches in Medical Research</strong>&lt;br&gt;Three hours per week held in one term. Course includes purification, bioinformatics, characterization, expression, structure, folding and engineering of proteins. &lt;br&gt;*Student has to register for PHYG 7190 (L04 advance lecture session offered by the Dept. of Physiology) when they register for IMED 7180. On successful completion of the workshop course, the student gets 6 Credit Hours (3 Cr. Hrs. for IMED 7180 &amp; 3 Cr. Hrs. for PHYG 7190).</td>
<td>Dr. Sabine Mai</td>
</tr>
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Review of Operations

Operating Budget

- **SALARIES**: 1,778,861
- **BENEFITS & PAY LEVY**: 279,569
- **OPERATING COSTS**:
  - Service contracts, central equipment replacement, building/equipment repairs and maintenance, courier, freight, printing, postage, telephones, parking, etc.

**Distribution of Operating Funds**:
- Salaries*: $1,778,861
- Benefits: $279,569
- Operating Costs: $104,272

*Includes Academic and Support Salaries

Research Funding

**Distribution of Research Funding**:
- CIHR: 1,886,224
- CRC: 500,000
- NCIC: 664,475
- NRC: 183,021
- NSERC: 38,750
- GC: 564,816
- Other*: 678,745

*Other: see table "Grant Support by Faculty Member and Source"
<table>
<thead>
<tr>
<th>PRINCIPAL INVESTIGATOR</th>
<th>CIHR</th>
<th>CRC</th>
<th>NCIC</th>
<th>NRC</th>
<th>NSERC</th>
<th>GC</th>
<th>Other*</th>
<th>TOTAL PER P.I.</th>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td>10,000</td>
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<tr>
<td>ARTHUR</td>
<td>98,403</td>
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<td>8,750</td>
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<td>(UMSPD)</td>
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<td>174,886</td>
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<td>DAVIE</td>
<td>124,406</td>
<td>200,000</td>
<td>118,059</td>
<td>183,021</td>
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<td>(CBCF, CCMB)</td>
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<td>DING</td>
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<td>GIBSON</td>
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<td>(CP, AP, HE, MFS, HSFM)</td>
<td>310,538</td>
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<td>GIETZ</td>
<td></td>
<td>30,000</td>
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<td>30,000</td>
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<td>HICKS</td>
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<td>100,000</td>
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<td>LEYGUE</td>
<td>80,414</td>
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<td>(MHRC)</td>
<td>86,849</td>
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<td>MESAELI</td>
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<td>43,500</td>
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<td>(MHRC, HSFM)</td>
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<td>(MDC, ALS, FSMA)</td>
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<td>256,768</td>
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<td>51,648</td>
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<td>(MHRC, HSFM)</td>
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<td>131,451</td>
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<td><strong>Total per Agency:</strong></td>
<td>1,886,224</td>
<td>500,000</td>
<td>664,475</td>
<td>183,021</td>
<td>38,750</td>
<td>564,816</td>
<td>678,745</td>
<td><strong>4,516,031</strong></td>
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</table>

**Federal:**
- CIHR  Canadian Institute of Health Research
- CRC   Canada Research Chair
- NCIC  National Cancer Institute of Canada
- NSERC Natural Sciences and Engineering Research Council of Canada
- GC    Genome Canada

**Other:**
- ALS   Amyotrophic Lateral Sclerosis Society of Canada
- AP    Astra Pharma
- BI    Boehringer Ingelheim
- CBCF  Canadian Breast Cancer Foundation
- CCMB  Cancer Care Manitoba
- CP    Cronus Pharma
- EUPF  Elsa U. Pardee Foundation
- FSMA  Families of Spinal Muscular Atrophy
- HE    Husky Energy
- HSFM  Heart and Stroke Foundation of Manitoba
- LLSC  Leukemia and Lymphoma Society of Canada
- LLSA  Leukemia and Lymphoma Society of America
- MDC  Muscular Dystrophy of Canada
- MFS   Merck-Frosst-Schering
- MHRC  Manitoba Health Research Council
- UMSPD University of Manitoba Strategic Program Development
- URGCC University Research Grants Committee
Mission Statement

The department’s fundamental mission is to provide scholarship in teaching, innovative research, and best practices in patient care. This mission includes advancing the frontiers of knowledge in biomolecular research, dedication to research underpinning the prevention and treatment of genetic and other diseases, and disseminating our knowledge, discoveries, and inventions. Our activities are pursued in a respectful and collaborative learning environment with the aim to better the health of Manitobans, Canadians and individuals worldwide.