

 Michael G. DeGroot
SCHOOL OF MEDICINE

Department of
Pathology and
Molecular Medicine

2008

STATUS REPORT

McMaster
University 
HEALTH SCIENCES

Table of Contents

OVERVIEW	3
A) ORGANIZATION AND PHYSICAL STRUCTURE	4
1. Administrative Organization and Management	4
2. Physical Structure	9
3. Inter/Intra-Department Communication	10
B) OUR PEOPLE	11
1. Faculty	11
2. Career Guidance/Promotion and Tenure	12
3. Awards and Honours	14
4. Recruitment/Departures	15
5. Staff	17
C) DEPARTMENT FINANCIAL STRUCTURE	19
D) EDUCATIONAL ACTIVITIES	21
1. Teaching Activities	21
2. Comparative Data	33
3. Faculty of Health Sciences Education Leadership Roles	34
4. Educational Activities External to the Faculty of Health Sciences	35
E) RESEARCH ACTIVITIES	35
1. Overview	35
2. Description of Research Activities	36
3. External Funding Held	37
4. Comparative Data	45
F) CLINICAL SERVICES AND PROGRAMS	47
G) RELATIONSHIPS AND AFFILIATIONS	49
H) STRENGTHS AND WEAKNESSES	51
I) GOALS FOR THE COMING YEARS	52
J) APPENDICES	
1. Previous 2003 Department Status & Review Report	
2. Faculty Publications	
3. Residency Program Reviews	
4. Special Events	
5. AFP Research Day Abstracts and List of Grants Awarded	
6. HRLMP Strategic Plan & External Review	
7. Part-time Faculty Policy Document	
8. Graduate Expansion Initiative	
9. Promotion & Tenure Review Procedure Schedule	
10. Faculty CVs	
11. Current Faculty List	

OVERVIEW



Dr. Fiona Smail

Department Chair

The Department of Pathology and Molecular Medicine represents a unique integration of basic biomedical science and clinical medicine and is home to the Hamilton Regional Laboratory Medicine Program (HRLMP). The department is recognized locally, nationally and internationally for its excellence in basic and clinical research, outstanding diagnostic and clinical medicine, and for its strong undergraduate, postgraduate and graduate education, all of which illustrate the expertise and diversity of our faculty and staff.

There are 91 full time faculty and 36 part-time members of the department and these numbers have been steadily increasing from 2004 to 2008. Two thirds of the full time faculty have a hospital appointment through the HRLMP. Effective recruitment strategies in both the clinical and basic science areas have ensured new faculty are aligned with our research and educational goals, with further opportunities to be shortly realized with the successful establishment of Research Institutes in Infectious Diseases and Digestive Health.

*Pathology &
Molecular
Medicine ...
advancing
Expertise and
Diversity in
Education,
Research and
Service*

The department includes a number of outstanding research groups with expertise in cancer; immunology; infectious diseases, molecular virology; respiratory and gastrointestinal diseases; cardiovascular diseases; gene therapy and genetics. All disciplines involve basic and translational research approaches and a number of our faculty hold prestigious research Chairs and awards. While research funding has remained relatively stable at around \$16 million per annum (approximately \$5 million in Tri-council funding) over the past five years, important new initiatives and collaborations will ensure the continued growth of our research programs.

Education is a major priority within the department and all faculty members have important roles within the undergraduate, graduate and post-graduate educational programs. Laboratory medicine has a strong presence within the undergraduate MD program and Anatomy is repeatedly recognized for its excellence in teaching. We have four Royal College accredited programs in Laboratory Medicine. Our faculty are very committed to teaching in the BHSc program and we have introduced a successful initiative to support graduate student expansion with an increase the number of students in the department over the past three years.

This report describes the organization of the department, reviews the educational programs and highlights the research achievements.

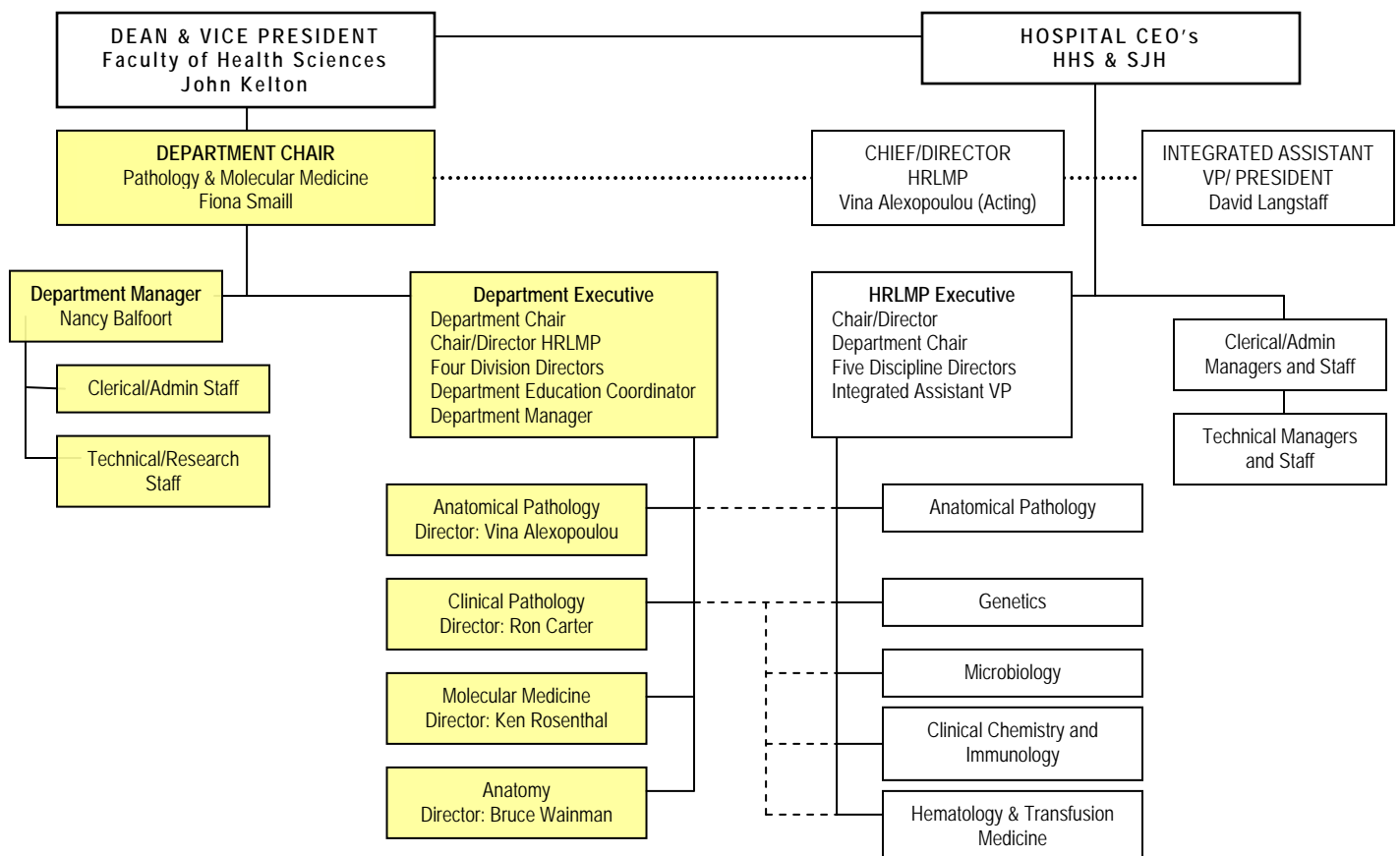
A) ORGANIZATION AND PHYSICAL STRUCTURE

1. Administrative Organization and Management

The Department of Pathology and Molecular Medicine is unique in its organization. Approximately 60% of our full-time faculty members are involved in providing clinical services, through the Hamilton Regional Laboratory Medicine Program (HRLMP) for two hospital corporations over four sites. Most of these members are on hospital payroll, either with Hamilton Health Sciences or St. Joseph’s Healthcare. The remaining members are primarily involved in research and education.

The Chair of Pathology and Molecular Medicine reports directly to the Dean and Vice President, Faculty of Health Sciences and is a member of the Executive Committee of the Faculty of Health Sciences. The Chair is responsible for providing leadership to the department in all areas of activity, which encompass education, research, clinical service and administration.

The organization chart below provides a depiction of the relationship between the academic department of Pathology and Molecular Medicine and the Hamilton Regional Laboratory Medicine Program (HRLMP).

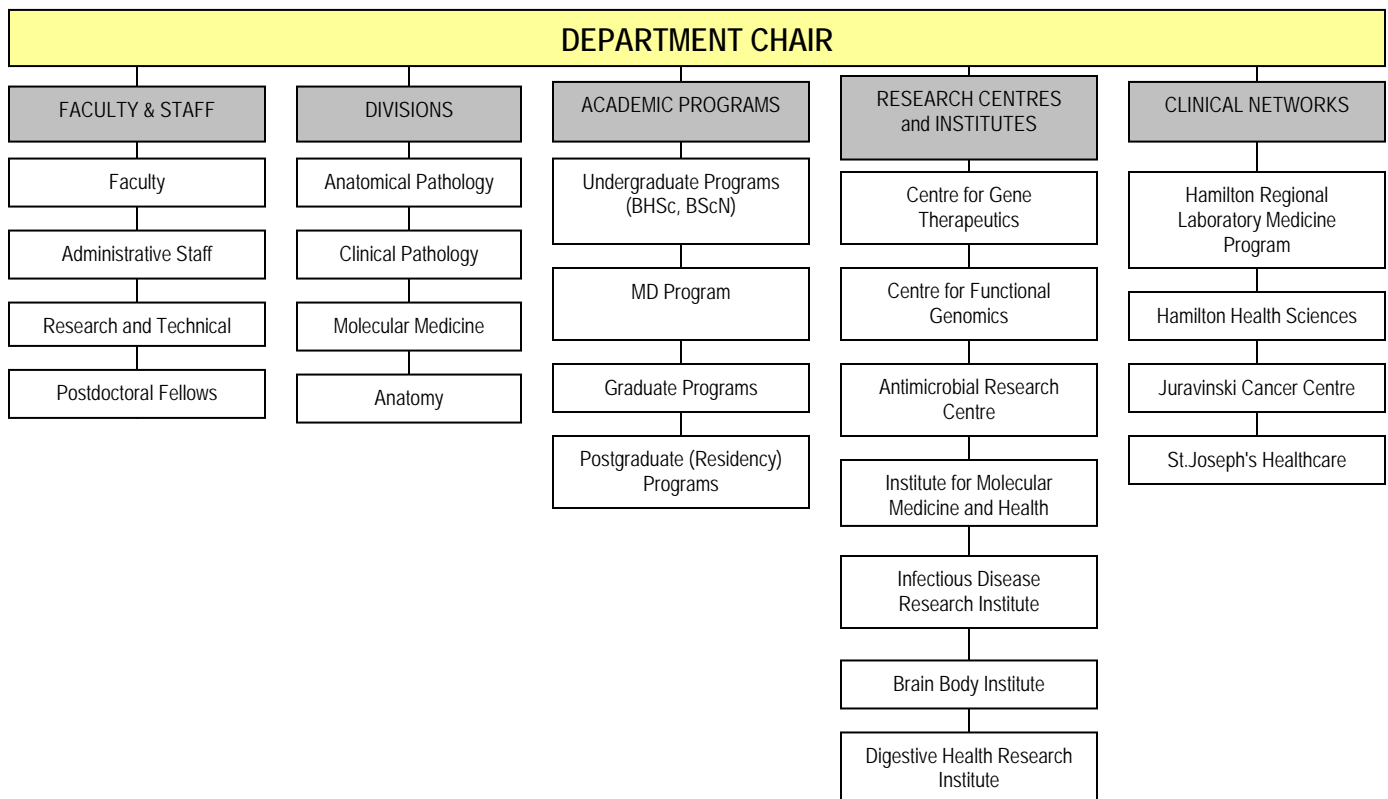


Our current Chair, Dr. Fiona Smaill, replaced Dr. Jack Gauldie in 2004. Over the history of the department, our Chairs have been: 1966-1972, Dr. Fraser Mustard; 1973-1978, Dr. Sean Moore; 1978-1989, Dr. John Bienenstock; 1989-2004, Dr. Jack Gauldie. In 1998, the Department of Pathology was re-named the Department of Pathology and Molecular Medicine to better represent the scope of the department.

The Chair is supported in her responsibilities by a number of committees and administrative groupings which are described in the following pages.

The Chair’s administrative team includes: Nancy Balfoort, Department Manager; Stephanie Cherwinski, Assistant Manager, Human Resources and Finance; Norma Stewart, Executive Assistant to the Chair; Sara DeSilvio, Administrative Assistant; and Leanne Gilbert, Administrative Assistant (part-time). Laura Prentice, Program Assistant, provides administrative support to the Postgraduate Programs.

The following chart provides an overview of the main administrative structures or groupings within and linked to the department.



Department Divisions

The department of Pathology and Molecular Medicine is comprised of four major divisions: Molecular Medicine, Anatomic Pathology, Clinical Pathology and Anatomy. These divisions were created in an effort to increase coordination and communication between the many research, educational and clinical programs within the department. They also serve to optimize resources and increase awareness of our expertise in several areas.

Anatomy

Division Director
Bruce Wainman



The division of Anatomy represents a smaller but well-defined area of activity within the department of Pathology and Molecular Medicine. It is responsible for the anatomy component in all of the educational programs offered in the Faculty of Health Sciences. In addition, members of this division conduct basic research in several different areas, including neurosciences and gene therapy.

Anatomic Pathology

Division Director
Vina Alexopoulou



The division of Anatomic Pathology maintains close ties with hospitals in the Hamilton region through the Hamilton Regional Laboratory Medicine Program (HRLMP). While its focus is on service and education within the area of anatomic pathology, there is a developing research program.

Clinical Pathology

Division Director
Ron Carter



The division of Clinical Pathology encompasses the disciplines of hematology and transfusion medicine, genetics, microbiology, and clinical chemistry, including immunology, and has a very strong profile in education and research. Members of this division are also members of HRLMP.

Molecular Medicine

Division Director
Ken Rosenthal



The division of Molecular Medicine is home to the largest group of faculty members. This division represents the majority of the basic science research conducted within the department and as well its members make major contributions to the undergraduate and graduate educational programs.

The Chair's role is supported by a number of academic positions and committees which serve as advisory groups in her decision-making. The major committees within Pathology and Molecular Medicine follow.

Department Executive Committee	
Fiona Smaill	Department Chair
Vina Alexopoulou	(Acting) Chair/Director HRLMP
Bruce Wainman	Division Director, Anatomy
Vina Alexopoulou	Division Director, Anatomic Pathology
Ron Carter	Division Director, Clinical Pathology
Ken Rosenthal	Division Director, Molecular Medicine
Mark McDermott	Department Education Coordinator
Nancy Balfourt	Department Manager

Appointment, Promotion and Tenure Committee	
Fiona Smaill	Department Chair
Vina Alexopoulou	Member – HRLMP – Acting Director & Department Division Director, Anatomic Pathology
Alexander Ball	Member – Research - Program in Anatomy
Vicky Chen	Member – HRLMP – Anatomic Pathology
Mark McDermott	Member – Department Education Coordinator
Matthew McQueen	Member – HRLMP
Fred Ofosu	Member – Research – Hemostasis and Thrombosis
Carl Richards	Member – Associate Dean, Health Sciences Graduate Program
Ken Rosenthal	Member - Department Division Director Molecular Medicine
Gurmit Singh	Member – Research, Juravinski Cancer Centre
Edward Young	Member – HRLMP, Discipline Director, Clinical Chemistry

Laboratory Medicine Residency Program Directors	
Tariq Aziz	Program Director, General Pathology
Monalisa Sur	Program Director, Anatomical Pathology
Tony Chetty	Program Director, Medical Biochemistry
Cheryl Main	Program Director, Medical Microbiology
Ron Carter	Program Director, Clinical Genetics Fellowship Program
Stephen Hill	Program Director, Clinical Biochemistry Fellowship Program

The department executive committee meets every two months. Issues related to educational programs, recruitment strategies, research programs and budget are discussed in an open and collegial forum.

Hamilton Regional Laboratory Medicine Program (HRLMP) Leadership

Leadership responsibilities related to laboratory medicine within the Hamilton region are shared among three individuals:

1. *The Chair, Department of Pathology and Molecular Medicine*, who is responsible for academic leadership within laboratory medicine and for academic oversight of members of the University Department.
2. *The Chief, Department of Laboratory Medicine* who is responsible in partnership with the Integrated Assistant Vice President for strategy and operations of the HRLMP, for clinical leadership, and for oversight of the laboratories and of the medical and scientific staff.
3. *The Integrated Assistant Vice President, Hamilton Regional Laboratory Medicine Program* who is responsible in partnership with the Chief of the Department of Laboratory Medicine for the strategy and operations of the HRLMP.

The Chair is a voting member of the HRLMP Executive Committee and several other committees within HRLMP. The HRLMP is organized into five disciplines, each with a discipline director who is a full-time or associate member of the department and a member of the HRLMP executive.

2. Physical Structure

Geographic Distribution of Activities and Programs

Most of the basic science faculty in the department, as well as most of our staff, are located on the McMaster campus, either in the Health Sciences Centre or the newly built Michael Degroote Centre for Learning and Discovery. This building provides state-of-the-art research laboratories and technologies to many members of our department and was partially funded through federal CFI monies and provincial matching funds.

Clinical members of the department are located mainly at one of three sites of Hamilton Health Sciences or at St. Joseph's Healthcare on Charlton Street.

MCMASTER UNIVERSITY MEDICAL CENTRE AND MICHAEL DEGROOTE CENTRE FOR LEARNING AND DISCOVERY

1200 Main Street West

79 Faculty members

- **Anatomy**
- **Anatomic Pathology**
Pediatric Pathology
- **Clinical Pathology**
Clinical Chemistry
Cytogenetics
Electron Microscopy
Genetics
Hematology
Hematopathology
Immunology
- **Molecular Medicine**

HAMILTON GENERAL HOSPITAL

237 Barton Street East

13 Faculty members

- **Anatomical Pathology**
Forensic Pathology
Neuropathology
- **Clinical Pathology**
Clinical Chemistry
Hematology
Microbiology

HENDERSON GENERAL HOSPITAL

711 Concession Street

12 Faculty members

- **Anatomic Pathology**
- **Clinical Pathology**
Clinical Chemistry
Hematology
- **Molecular Medicine**

JURAVINSKI CANCER CENTRE

699 Concession Street

2 Faculty members

- **Molecular Medicine**

ST. JOSEPH'S HOSPITAL

50 Charlton Avenue East

22 Faculty members

- **Anatomic Pathology**
- **Clinical Pathology**
Clinical Chemistry
Hematology
Microbiology
- **Molecular Medicine**

3. Inter/Intra-Departmental Communication

The department hosts semi-annual faculty luncheon meetings at the Great Hall of the University Club; one in December and the other in June of each year. This allows us an opportunity to recognize new appointments and departures and update members concerning issues relevant to the department as a whole. With a department of our size and, with such a diverse faculty spread between five sites throughout the city, it is quite a feat to assemble as a whole on a regular basis. Both of these events are consistently and increasingly well-attended with approximately 70 faculty members attending each of these events this year.

Our website (<http://fhs.mcmaster.ca/pathology/index.html>) is our main communication tool and is updated on a daily basis. Our faculty and staff use the website for information on department, Faculty of Health Sciences, McMaster University and external events of interest as well as education, research, and general information. Our department was one of the first to launch the new McMaster brand websites with the transfer and updating of data from our old website to our newly designed one being completed by July of 2007.

We also use e-mail in day-to-day communication with members of the department. Our Chair ensures that pertinent information from Faculty Executive and the Council of the Michael DeGroote School of Medicine is communicated to her Department Executive Committee or to the entire Department, as appropriate. The Department Manager ensures that faculty members are kept apprised of operational information which will impact them, their programs and their activities.

In terms of external communication, many research groups within the department organize seminars and conferences which are attended by members of our department, other departments and individuals from other universities across the country and worldwide. Examples include our Immunology and Infection Seminar Series, our Anatomic Pathology Rounds, a recent International conference in Neuropathology and the Grand Opening of the Institute for Molecular Medicine and Health. In addition, as demonstrated in our publications and presentations, members of the department regularly present their work both nationally and internationally.

Many of our department members hold joint appointments/associate appointments with another academic department (eg: Medicine, Pediatrics, Clinical Epidemiology and Biostatistics, Obstetrics, Biology and Engineering) providing an opportunity for interdepartmental collaboration. These types of appointment and the opportunities they present for collaboration are encouraged.

We are currently in the planning stages of a full department retreat to be held at the end of October of this year. Objectives of this retreat include enhancing communication within the department, increasing collaborations across and outwith the department, and increasing the sense of membership within the department.

B) OUR PEOPLE

1. Faculty

Total Number					
Year	Full Time Hospital/HRMLP	Full Time University	Part Time	Joint & Associate	Emeriti
2004	46	27	26	11	19
2005	52	28	27	13	20
2006	54	29	27	13	20
2007	61	29	22	13	21
2008	60	31	36	13	27

Number by Degrees Held (full-time faculty only)		
	MD	PhD
2004	41	44
2005	46	45
2006	46	49
2007	53	52
2008	51	56

Number by Gender (full-time faculty only)			
	Female	Male	% Female
2004	25	49	34
2005	27	53	34
2006	26	57	31
2007	28	62	31
2008	30	61	33

Number by Rank (full-time faculty only)			
	Assistant	Associate	Professor
2004	23	27	24
2005	26	30	24
2006	19	37	27
2007	23	40	29
2008	23	39	29

Number by Career Path (full-time faculty only)		
	Clinician/Educator	Research/Educator
2004	42	32
2005	47	33
2006	50	33
2007	56	34
2008	56	35

Number by Appointment Type (full-time faculty only)						
	Tenure	Tenure-Track	CAWAR	Special	Contract	Teaching-Track
2004	12	1	35	21	5	n/a
2005	13	2	37	25	3	n/a
2006	13	3	45	19	3	n/a
2007	16	1	46	22	5	n/a
2008	16	1	48	19	4	3

Number by Age (full-time faculty only)								
	30-35	36-40	41-45	46-50	51-55	56-60	61-65	66 +
2004	3	14	16	17	10	7	7	n/a
2005	4	13	21	16	13	6	7	n/a
2006	3	11	21	18	12	10	8	n/a
2007	1	11	24	18	15	10	10	1
2008	3	9	19	22	17	11	9	1

There has been a 20% increase in the number of full-time faculty positions (18 new positions) from 2004 – 2005. The number of women faculty members has stayed relatively stable at approximately 34%.

2. Career Guidance / Promotion and Tenure

In addition to ongoing career guidance, specific career guidance is provided on a yearly basis to full-time faculty members through the department's Annual Career Review Process. Meetings take place in November/December/January of each year with each individual faculty member to discuss career progression and objectives. The appropriate Division Director is also present. Career review for clinical faculty who are members of the Hamilton Regional Laboratory Medicine Program is conducted with the Director of the Program together with the Discipline Director of the clinical specialty.

In preparation for these meetings with the Chair, faculty members are sent electronic forms to complete and return with their current curriculum vitae, Mutually Agreed Responsibilities R4 Form, Educational and Research activity summary which are reviewed by the Chair prior to the meeting. A Clinical Activities Dossier is also required for those faculty identified as Clinician/Educators in addition to the aforementioned material. During the meeting any additions, deletions or changes are made in agreement with the faculty member and if necessary a follow-up meeting is arranged. Specific review and discussion of current and future educational roles is held with the Chair and Department's Education Coordinator.

Prior to the career review meetings, the Chair is provided with a list of those faculty members who are eligible for consideration of reappointment, tenure/continuing appointment for annual review (CAWAR) and promotion to Associate Professor and promotion to Full Professor. At the career review meeting, faculty who will take part in an academic review process are provided with a toolkit determined by their review category containing documentation to assist them with the process and applicable timelines. The criteria for tenure and promotion are discussed at that time and any questions regarding the process are addressed to ensure that each member is informed of the timelines and process.

The department has a well defined process to facilitate the reappointment, promotion and tenure process in the department. The department's tenure and promotion committee meets twice a year, the first meeting to review preliminary documentation and again to make its final recommendation. The process has been further improved upon with the assistance of the following:

- the introduction and implementation of the two streams and their specific review criteria: Clinician Educator and Research Educator (2004);
- the changes and updates captured in the McMaster University Revised Policy and Regulations with Respect to Academic Appointment Tenure and Promotion (2007) document;
- the detailed overview of criteria for promotion from Associate Professor to Professor, particularly for candidates considered in the Clinician Educator category (2007); and
- more recently with the data sources and guide to assist with the preparation of the recommendation for candidates moving from Assistant to Associate Professor in the Faculty Academic Handbook (2008).

The department's academic review process has maintained an excellent success rate.

Process guidelines that are followed by the Department in its delivery of the Tenure and Promotion process are contained in Appendix 9. Please refer to Section A - Organization and Physical Structure, 1. Administrative Organization and Management for the membership of the Department's Tenure and Promotion Committee and their areas of representation within the department.

The Tenure and Promotion process is also facilitated by the academic coordinator who is responsible for managing the Tenure and Promotion process on behalf of the Chair and is available to the faculty to address questions regarding Tenure and Promotion.

In order to improve the department's review of its existing part-time faculty and assist with new applications, a criteria document, "Expectations/Requirements for Appointment and Reappointment" was developed and forms Appendix 7 to this report.

The following table list of the results of the Promotion and Tenure Committee's recommendations for the period 2004 to 2008.

YEAR	Clinician Educator	Research Educator
2004	CAWAR/promotion to Associate Professor	
	Dr. Jacqueline Bourgeois Dr. Pratima Deb Dr. Catherine Ross	Dr. Jonathan Bramson
2005	CAWAR/promotion to Associate Professor	
	Dr. Odette Boutross-Tadross Dr. John Fernandes Dr. Marek Smieja	Dr. Martin Stampfli Dr. Yonghong Wan
	Promotion to Full Professor	
	Dr. Ronald Carter	Dr. Catherine Hayward Dr. Richard Austin
2006	CAWAR/promotion to Associate Professor	
	Dr. Joseph Macri	
	Tenure/Promotion to Associate Professor	
		Dr. Karen Mossman
	CAWAR	
	Dr. Salem Alowami – Associate Professor	
	Tenure	
		Dr. Judith West-Mays
	Promotion to Full Professor	
		Dr. Mark Loeb
2007	CAWAR/promotion to Associate Professor	
	Dr. Tariq Aziz Dr. Gabriela Gohla Dr. Christine Lee	
	CAWAR	
	Dr. Alice Lytwyn – Associate Professor	
	Promotion to Full Professor	
		Dr. Stephen Shaughnessy Dr. Zhou Xing
2008	CAWAR/promotion to Associate Professor	
	Dr. Cynthia Balion Dr. Murray Potter	Dr. Ali Ashkar
	Promotion to Full Professor	
		William Sheffield

Career Progress/Merit

The information gathered for the annual reviews also serves as the basis for the assignment of merit to our full-time University paid faculty through the University's Career Progress/Merit annual process. Those faculty members whose academic activities are above average, as determined by achieving a career award, having an exceptional research portfolio, teaching significantly over and above what is expected, or playing a major educational leadership role would be awarded a CPM of 1.5 to 2; others receive the CPM of 1.0. A subcommittee of the Department Executive committee reviews the recommendations with the Chair.

3. Awards and Honours

The following highlights our members' major awards and honours over the past few years. Many faculty have been recognized for their excellence in education, including Drs Wainman and Stampfli who each received the McMaster Student Union Faculty Award for Teaching in the Faculty of Health Sciences. Dr Loeb is the third member of our Department to receive the Gold Medal in Medicine from the Royal College (previous recipients were Dr Cathy Hayward and Dr John Kelton). The department presently holds three Canada Research Chairs.

Researcher	Award Type	Year
Ashkar, Ali	Research Career Award in the Health Sciences from the Rx&D Foundation.	2005
Draper, Jon	Canada Research Chair, Tier II in Human Stem Cell Lineage Commitment	2008
Freeman, Viola	Co-recipient of John C Sibley Award for part-time Faculty	2007
Grey, Vijay	CACB Award for Outstanding Service to the Profession of Clinical Biochemistry.	2008
Harnish, Del	President's Award for Excellence in Teaching (Course or Resource Design)	2005
Harnish, Del	Alan Blizzard Award, STLHE, for excellence by a group in the scholarship of teaching	2005
Hayward, Catherine	Heart and Stroke Foundation of Ontario Career Investigator Award (<i>renewal</i>)	2005
Hayward, Catherine	Canada Research Chair in Molecular Hemostasis (<i>renewal</i>)	2006
Hill, Stephen	Canadian Academy of Clinical Biochemistry Award for Outstanding Contributions to the Profession of Clinical Biochemistry.	2006
Jordana, Manel	Senior Canada Research Chair in Immunobiology of Respiratory Diseases and Allergy	2006
Kaushic, Charu	Early Researcher's Award, Ministry of Research and Innovation, Government of Ontario. \$150,000 for increasing research capacity	2006
Kaushic, Charu	CIHR New Investigator's Award. \$60,000 per annum for salary.	2007
Kavsak, Peter	National Academy of Clinical Biochemistry Distinguished Abstract Award (American Association for Clinical Chemistry annual meeting)	2008
Kelton, John	Internationally Distinguished Professor 10 th Anniversary, Cleveland Clinic Cancer Centre, Cleveland, Ohio	2006
Kelton, John	Selected by peers as one "Canada's Best Doctors"	2007
Loeb, Mark	Gold Medal in Medicine from the Royal College of Physicians and Surgeons of Canada	2006
McQueen, Matthew	Roman Visiting Lecturer. Australian and New Zealand Societies of Clinical Biochemistry	2005
McQueen, Matthew	International Federation of Clinical Chemistry and Laboratory Medicine Visiting Lecturer, Award, Syrian Clinical Laboratory Association	2006
McQueen, Matthew	Speaker Award of The Royal College of Physicians and Surgeons of Canada at the Annual Meeting of the Canadian Association of Medical Biochemists, Victoria, British Columbia	2006
McQueen, Matthew	Gemmell Morgan Award Lecture. Association of Clinical Biochemists, Scotland Autumn National	2007

Researcher	Award Type	Year
	Meeting, Crieff, Scotland	
Mossman, Karen	International Society for Interferon and Cytokine Research Christina Fleischmann Award	2006
Potter, Murray	SIMD - Travel Award. Annual meeting, Nashville, TN	2007
Potter, Murray	Garrod Association – Travel Award. Annual meeting, Halifax, NS.	2006
Rosenthal, Ken	Career Scientist Award Ontario HIV Treatment Network (OHTN)	2006
Shali, Ari	The Annual David Carr Teaching Award	2005
Shali, Ari	The Annual David Carr Teaching Award	2006
Shali, Ari	The Annual David Carr Teaching Award	2007
Shali, Ari	The Annual David Carr Teaching Award	2008
Singh, Gurmit	Senior Scientist Award - Cancer Care ON	2004
Smieja, Marek	Best Poster Award, Ontario HIV Treatment Network Annual Scientific Meeting	2005
Stämpfli, Martin	Canadian Institutes of Health Research (CIHR) New Investigator Award	2005
Stämpfli, Martin	McMaster Student Union Faculty Award for Teaching in the Faculty of Health Sciences	2008
Wainman, Bruce	McMaster Student Union Faculty Award for Teaching in the Faculty of Health Sciences	2007
Xing, Zhou	CIHR-INSERM International Scientific Exchange Award	2008
Young, Edward	Canadian Society of Clinical Chemists Award for Outstanding Contributions to Clinical Chemistry. American Association for Clinical Chemistry	2005

4. Recruitment and Departures

In 2006, the University approved a new position called teaching track specifically designed for faculty whose activities are primarily devoted to teaching and educational research within an academic environment. Provisions were also created in order to review their teaching and scholarly activities for the purposes of permanence and or promotion.

The department found the teaching track category of appointment very helpful as it provided us with the opportunity to appropriately realign the status of two existing faculty members, Drs. Vian Mohialdin and Ari Shali who were responsible for a large teaching role in the education programs of the Faculty of Health Sciences, in particular the undergraduate medical education program. Both are members of the Education Program in Anatomy and held the appointments in the contractually limited stream. In the fall of 2007, we were successful in converting their appointments to the teaching track stream.

In 2008, the department recruited a third faculty member to a teaching track position, Dr. Bayer. Dr. Bayer was recruited to a new faculty position in Learning Technologies that carries a significant role in the area of learning technologies relating to faculty development in Health Sciences. This role was designed to be largely faculty development with some direct teaching in order to role model the effective use of learning technologies. It was determined that the Department of Pathology and Molecular Medicine was an appropriate home for her given her background in basic science research in the area of arterial disease.

The department's recruitment plan has been further strengthened through the opportunities provided in conjunction with two recently formed institutes, the M.G. DeGrootte Institute for Infectious Disease Research and the Farncombe Family Digestive Health Research Institute as well as positions to be made available through the Ontario Institute for Cancer Research.

With the advent of the regional campus MD expansion together with the creation of the Assistant Clinical Professor (Adjunct) category to provide clinicians in the community who are interested in training and supervising students enrolled in the Michael G. DeGroot School of Medicine, Drs. Satish Chawla, A. Ruth Sellors from the Niagara Health Region and Regional Coroner, and Dr. Jack Stanborough joined the department in 2007 and 2008. All three provide teaching and supervision to our Anatomic Pathology and General Pathology Residency Programs and teaching in the undergraduate MD program.

Through the improvements made by the College of Physicians and Surgeons of Ontario to assist international medical graduates (IMGs) access to a medical license, the department, in conjunction with the Hamilton Regional Laboratory Medicine Program, has recruited excellent candidates to support the academic initiatives of the Anatomic Pathology and Clinical Chemistry disciplines.

The following table shows our new appointments as well as retirements and resignations over the past five years. We have separated them by payroll.

Year	University		Hospital/HRMLP	
	Retirements/ Resignations	New Appointments	Retirements/ Resignations	New Appointments
2004		Dr B Lichty	Dr P Cyr Dr J Xu	Dr T Aziz Dr G Gohla Dr A Lytwyn Dr M Trus Dr C Zhang
2005			Dr M Blajchman Dr T D'Sousa Dr G Luxton	Dr V Chetty Dr JC Cutz Dr C Main Dr D Shaw Dr J Wang
2006	Dr D McKay Dr. M. Hatton	Dr L Burrows (Joint) Dr H Duivenvoorden Dr P Yang Dr B Wainman	Dr K Ceballos Dr A Guzowski (to PT) Dr D Groves	Dr V Alexopoulou Dr P Kavsak Dr K Onuma Dr S Popovic Dr S Tang Dr D Yamamura Dr J Zeidler
2007	Dr A Fletch Dr M Perdue Dr M Buchanan Dr H Groves	Dr A Bayer	Dr AW Luxton Dr D Shaw Dr. M. Karmali (to PT) Dr J Gauldie	Dr S Dale Dr H El-Zimaity Dr A Don-Wauchope Dr R Sornarajah
2008	Dr R Butler Dr B Clarke Dr J Rosenfeld	Dr J Draper	Dr K Chorneyko (to PT) Dr R Sornarajah	Dr J Arredondo Dr A Bane (Joint) Dr J Jansen Dr W Khan Dr D Lukic Dr I El Shinnawy Dr K Weibert (joint)

In March, 2007, the University Provost offered an early retirement incentive program to eligible faculty members. This program was well-received by members of the department, resulting in several retirements. Five were full-time members of Pathology and a sixth was an associate member. We had an additional request which we were not able to approve due to teaching workload issues.

Most of the available positions have been used for faculty renewal. We have used most of the available positions and funds to recruit new faculty to carry the department forward in our educational commitments and research endeavours. Dr Thomas Hawke takes up his appointment in the Anatomy Program in January 2009 and Dr Dawn Bowdish has been recruited to the Institute for Infectious Diseases research and starts in February 2009. Where we encounter funding shortages we have collaborated with the newly formed institutes as well as our own educational programs (eg: BHSc) to leverage these into fully-funded positions.

5. Staff

The department boasts a strong, productive staff complement, supporting education, research, service and administration within the department. Most staff (99%) are members of the CAW Local 555 Union, and most (95%) are funded through research grants and work on research programs. Only eight FTE's are paid from MTCU funds. Clinical faculty are supported administratively through hospital-paid clerical services.

During 2006 and 2007, the Union and the University jointly developed a new job evaluation system which had a devastating affect on many staff in the department. Most of the administrative staff were 'demoted', meaning their grades on the salary grid actually went down by at least one pay grade. On the other hand, research assistants and technicians on average increased by a pay grade. Several positions increased by two or three pay grades. This has resulted in hardship to researchers who now have to pay significantly more for their research lab support. Some researchers have reduced the staff complement in their labs as a result, in order to manage the increased costs of technical staff.

The University has also recently upgraded its payroll system, which has resulted in improved reporting, tracking and accountability. Significant additional staff resources have had to be allocated to this system within the department.

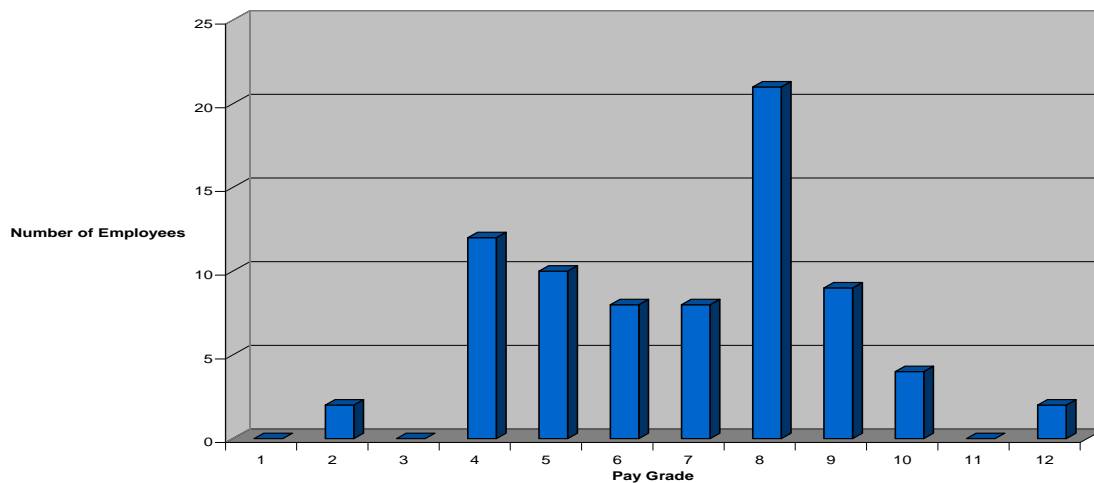
Full-time research staff total 68, while the administrative group totals 13 full-time equivalents. We also have approximately 98 staff that are paid on a temporary/casual/part-time basis, and 22 postdoctoral fellows. Postdoctoral fellows in other faculties recently elected to join a union; however those in the Faculty of Health Sciences remain outside the union.

The tables that follow further describe our staff complement.

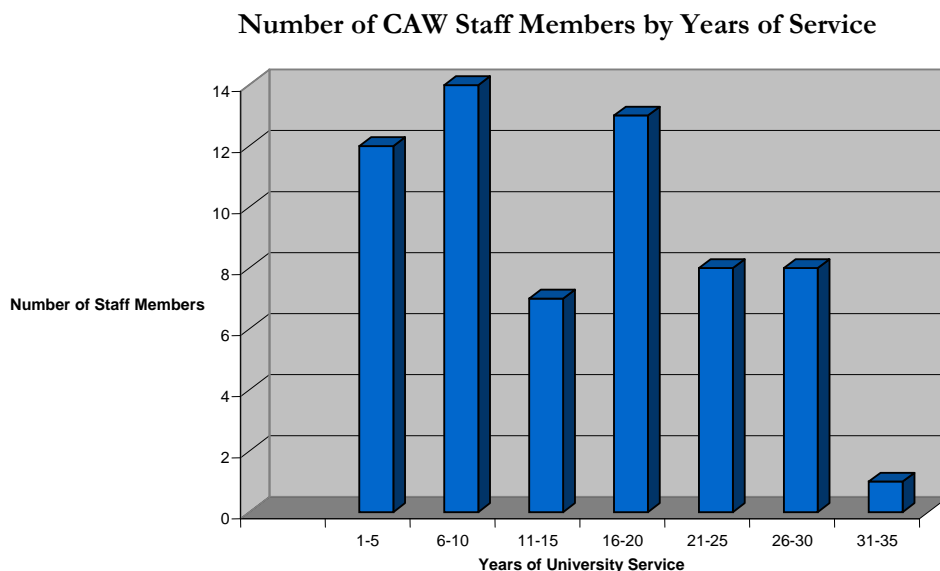
Administrative, Technical and Research				
Total Number	CAW	TMG	Other	TOTAL STAFF
Executive Assistant	1			
Administrative Assistant	9			
Program Assistant	1			
Data Manager	1			
Program/Facilities Coordinator	2			
Project Manager	3			
Research Assistant	35			
Research Coordinator	4			
Research Nurse	2			
Research Scientist	2			
Research Technician	11			
Senior Research Assistant	2			
Research Associate	2			
Glassware Technician	2			
TMG Staff		4		
Temporary/Casual Research Staff			98	
Postdoctoral Fellows			22	
TOTALS	77	4	120	200

The graph below indicates where our staff are situated in the University’s new job evaluation system. CAW positions in the department range from grade 2 to grade 12. The majority of our positions fall into grade 8, although the majority of our administrative staff positions are now in grade 4 under the new job evaluation system.

Number of CAW Employees by Pay Grade



The following graph will illustrate that we have an appropriate mix of new staff and those with a longer seniority at the University.



C) DEPARTMENT FINANCIAL STRUCTURE

Pathology and Molecular Medicine’s financial structure involves a multitude of funding sources, both direct and indirect. The following table provides summary information concerning the department’s operating budget for 2008/09. Research Grant funding is addressed in another section of this report.

2008/09 Operating Budget				
Budget Item	MTCU	Research	Chairs/Hospital/ Other Recoveries	Total
Faculty Salaries	2,247,392	696,855	1,176,931	4,121,178
Faculty Fringe	521,121		296,175	817,296
Staff Salaries	428,477		205,310	633,787
Staff Fringe	108,912		55,434	164,346
Leadership Stipends	54,000			54,000
Graduate Expansion	320,000			320,000
Operating Expenses	112,000			112,000
Total	3,791,902	696,855	1,733,850	6,222,607

In addition to the above, there are 63 full-time faculty members (46 physicians and 17 scientists) who are paid by the hospitals through HRLMP and not represented in the numbers above. We also have a number of scientists funded directly through Canadian Blood Services, also not included in the numbers above.

As is the case with most departments in the Faculty, Pathology and Molecular Medicine's financial structure is complex, mainly due to the variety of sources and the lack of certainty from year to year of certain sources. Most of Pathology's operating funds (92%) are allocated to faculty and staff salaries, and annual increases to these salaries are negotiated outside the department. Income on the other hand is not directly increased to cover the salary increases. Given the size of our salaries budget, an average salary increase of 5% would result in a total cost increase of \$286,830. It is a challenge to find this level of money in a relatively stable budget, and over the past few years funding for some of our vacant faculty positions had to be reallocated to cover these salary increases. We are working to collaborate with institutes, centres and programs to utilize these positions effectively.

Alternate Funding Plan (AFP)

We were fortunate that for a period of three years, from July 2004 to June 2007, our members, through Laboratory Medicine Associates (LMA) and the Hamilton Academic Health Sciences Organization (HAHSO) were able to participate in the alternate funding plan for the Hamilton area. This resulted in a portion of the AFP money being allocated to enhance the academic mission of the department. Some of these funds were used to establish research grant competitions for our clinical faculty members. Over the three year period, LMA income was close to 5 million dollars. This provided funds for the following endeavours:

- \$750,000 was allocated to research projects for members. Through a rigorous competition process, there were 46 research grants awarded to 36 faculty members. We have held three research days where faculty have presented the results of their findings on these projects. The abstract documents and funding details are attached as Appendix 5.
- Laboratory Medicine Associates also awarded close to 1 million dollars of AFP funds to purchase equipment to benefit the educational activities in the department. All hospital sites benefited from new equipment which included digital cameras, multiheaded teaching microscopes, LDC projectors, digital grossing equipment and computers.
- \$300,000 was utilized to fund a number of clinical fellowships. Some were fully funded through AFP funds, while others, particularly the clinical genetics and clinical chemistry fellowships, were funded for fringe benefits only, as they came with salary funding from the Ontario Ministry of Health and Long Term Care. One of the funded fellows was later recruited to a faculty position in pediatric pathology.
- We were also able to provide extra educational funding for technologist staff and laboratory managers to develop their expertise and to represent us at a number of conferences. \$50,000 was invested in this area.
- \$300,000 was invested to fund an anatomical pathology locum which allowed us to free up some academic time for our anatomic pathology residency program director as well as a number of other pathologists in support of their research initiatives.
- \$2 million was paid directly to members as signing bonuses and payments for academic deliverables.
- \$200,000 was allocated to increase the professional development funds of members.
- Some of the AFP funds were invested in lectureships and educational events for the department.
- A few faculty members benefited from a professional development competition which provided them with an opportunity to pursue further training opportunities in a number of areas.

Overall, our participation in the AFP was very successful and we regret that these opportunities had to be discontinued when the Ministry of Health and Long Term Care (MOHLTC) made a decision to negotiate a new alternate funding plan through the Laboratory Medicine Funding Framework Agreement (LMFFA) which allocated funds directly to Laboratory Medicine Physicians. There are problems with this new agreement because it does not

adequately address compensation for the academic activities of physicians in Academic Health Sciences Centres nor allow for the establishment of new positions and the present contract is being renegotiated.

Our only sources of 'soft' funds available to the department are our research overhead and our income from foreign residents and IMG's. Research overhead dollars are reinvested in research in the form of start-up funds, graduate student support and bridging for faculty who find themselves in difficulty 'between' grants. The resident funds are discussed below.

Postgraduate Education Program

This is an opportunity to summarize our financial investment in our residency education programs.

The department has access to a significant amount of funding which comes in as a result of foreign residents and IMG's. All of this money has been to date reinvested into the residency education programs and as a result we have been able to completely renovate resident rooms at the MUMC site, and upgrade equipment and furniture at the remaining hospital sites. This includes digital grossing station equipment for an additional dissection area for residents at MUMC and the Henderson, LCD projectors, digital cameras, microscopes, computers, etc. Our most recent investments have totaled close to \$200,000. This is in addition to the equipment and furniture purchased from AFP funds over the past five years, which has been in excess of \$350,000. This included several multi-headed teaching microscopes as well as teaching equipment in conference rooms at various hospital sites. We are also able to provide a generous travel allowance for each resident to allow them to attend major conferences. We also provide a research fund which awards, through competition, small grants to residents to encourage them to become involved in research.

Hamilton Regional Laboratory Medicine Program (HRLMP)

While Pathology and Molecular Medicine is not responsible for the Hamilton Regional Laboratory Medicine Program's operations, we can provide a few numbers which demonstrates the enormity of the regional program to which we are so closely linked. The total operating budget is approximately \$62 million. HRLMP's workforce is in the neighbourhood of 588 FTE's and the program performs approximately 9.8 million tests annually. HRLMP is the largest Academic Health Sciences Centre laboratory service in Ontario, on a Patient Care Workload Unit (WLU) basis, with an output of approximately 43% more than the next largest centre.

D) EDUCATIONAL ACTIVITIES

1. Description of Teaching Activities

The Department of Pathology and Molecular Medicine is a major contributor to the education programs of the Faculty of Health Sciences. Our contributions to the Graduate Programs in Health Sciences, as well as the Bachelor of Health Sciences Program, are consistently the highest of any department in the Faculty.

Undergraduate Education

Bachelor of Health Sciences (BHSc)

The BHSc Program uses a unique interdisciplinary approach to the study of health, wellness and illness. It offers students an understanding of health from biological, behavioural and population-based perspectives. This program utilizes the inquiry process to facilitate learning both within and beyond the program. Members of our Department play a very significant role in the BHSc Program. The Assistant Dean, Dr. Delsworth Harnish, is a member of our department. Other faculty perform roles such as course instructor, course coordinator, project supervisor, inquiry supervisor, inquiry instructor and thesis supervisor. In addition to supervising inquiry courses and senior projects, the courses our faculty have had a major role in developing and contribute most of the teaching include:

Course #	Course	Course #	Course
2F03	Human Physiology and Anatomy I	3K03	Introductory Virology
2FF3	Human Physiology and Anatomy II	4I13	Advanced topics in Immunology
3D03	Genetics in Health Sciences	4J03	Biochemical immunology
3I03	Introductory Immunology	4KK3	Human Physiology
3J03	Health, Injury and Pathology	4O03	Principles of virus pathogenesis

Michael G. Degroote School of Medicine MD Program

Pathology and Molecular Medicine faculty contribute regularly to the MD undergraduate program, both in the pre-clinical and clinical portions. In addition to tutoring and presenting large group sessions, Pathology and Molecular Medicine faculty take on leadership roles in the program, including MF 1-4 coordinator roles, and longitudinal discipline planners. Historically the clinical faculty, including the laboratory scientists, have played an important role as tutors and our new clinician educators are encouraged to attend the relevant tutor workshops before taking on this responsibility.

For the current MD curriculum, a pathologist representative has been involved at its inception participating on the Compass Committee. This person oversees the appropriate input of Pathology in pre-clinical teaching, both in Anatomic Pathology and different areas of Clinical Pathology. Each Medical Foundation has two pathologists assigned to design teaching around the clinical scenarios; altogether there are 10 pathologists involved. Some of them are also responsible for writing clinical case scenarios for the curriculum. There was a period of adjustment after the new curriculum was rolled out, as the previous faculty roles were no longer recognized, but a laboratory medicine presence is now firmly established in the undergraduate MD curriculum. Anatomic Pathologists at the St. Joseph's site are also responsible for teaching clinical surgical clerks Anatomic Pathology

Much of the actual delivery takes the form of Clinico-Pathology Conference (CPC), block or horizontal electives and didactic lectures. All laboratory specialties are represented. CPCs are given by pathologists with the appropriate clinician and sometimes with radiologists and other healthcare professionals. Lectures in Pathology are given by Anatomic Pathologists, Hematopathologists, Medical Biochemists, Medical Microbiologists and Cytogenetists. The teachers include both physicians and PhD scientists. Many of them also serve as tutors in the pre-clinical year. In addition, the section of Anatomy plays a significant role in teaching both Morbid Anatomy and Clinical Skills.

The MD coordinator is responsible for overseeing and coordinating all these activities through liaison with the staff from different disciplines and with the Compass Committee. Curriculum changes are on-going, modulated by assessing the feedback from students each year.

There are regular MD education retreats each year involving the teaching community at large. Pathologists are represented in these meetings. The MD Coordinator is also responsible for relating messages back to the faculty in the Department of Pathology and Molecular medicine.

In addition, Dr. Tony Chetty and Dr. Andrew Don-Wauchope, along with other members of the department, have been working to review the compass curriculum to ensure that clinical chemistry and medical biochemistry are covered adequately in the curriculum. This may also lead to improving recruitment of residents to laboratory medicine specialties. The faculty in our Clinical Chemistry division also teach pediatric and internal medicine clinical clerks various areas of medical biochemistry through a number of tutorial sessions.

Microbiology is taught during MF4. Dr. Cheryl Main co-wrote one of the PBL cases for MF4 and created an electronic microbiology teaching tool which is included in the MF4 orientation material. Several department members provide lectures in various areas of microbiology during MF4. Microbiology reading electives are also provided by our microbiology members during MF4. They also provide lectures, rounds and electives to clinical clerks.

Hematology is taught during MF3 in the MD program. While most of the faculty who participate are from the department of medicine, certain members in our Hematology discipline also contribute, particularly the morphology component.

The educational contributions of our clinical faculty provide students with an important introduction to the role of the laboratory physician and the potential career options in laboratory medicine. It is recognized that the laboratory-based disciplines can have difficulty establishing a profile within the program, but interested students are encouraged to do electives in the department and information provided about career choices.

Anatomy Education Program

The Education Program in Anatomy was initially chaired by Dr. Richard Butler, followed by Dr. Hallie Groves, and then Dr. Alexander Ball. Dr. Bruce Wainman began his tenure as Chair of the Education Program in Anatomy in July of 2005. All are members of the Department of Pathology and Molecular Medicine.

The Education Program in Anatomy serves a growing number of students and educational programs, from undergraduate students in Health Sciences and Kinesiology to the Rehabilitation Sciences, Medicine, Nursing, Midwifery and Biomedical Engineering. With the different curricula of these new programs and the growing number of learners in the lab, the Education Program in Anatomy has already begun an ambitious investigation into how best to present anatomy to each program. With more students in clinical placements away from the main campus and entire undergraduate classes studying off campus, we are beginning to address the enormous need for on-line anatomy material while maintaining and improving the Lab's existing physical set-up. The current solution for physical space involves an on-campus satellite lab in IAHS 451 and two facilities chiefly for undergraduate MD students. The satellite lab for undergraduate MD in Waterloo is housed with, and shares resources with, the Gross Anatomy Lab at University of Waterloo. The facility for the undergraduate MD students in Niagara will be freestanding and will be housed in the Greater Niagara General Hospital.

The Education Program in Anatomy is also playing a central role in developing a Surgical Skills Centre for both undergraduate and graduate training. This new space located in McMaster University Medical Centre across the hall from both the current Center for Simulation Based Learning and it contiguous with Anatomy Program facility which will allow for sharing of the facilities. With the addition of the Surgical Skills Centre to the Education Program in Anatomy we will have a complete a suite of one-stop allied health training labs. We will be the first school in North America to integrate surgical skills training directly with anatomy teaching. This suite of training labs would add enormously to the wide range of excellent medical training at McMaster University.

We have had to deal with a number of retirements in Anatomy. One of the positions, held by Bryan Clarke, is only funded at 0.5 by the Department and we are seriously concerned about the gap left in the Anatomy education program by Bryan's exit. The concern arises chiefly because we have had large increases in undergraduate numbers in the last 10 years and the addition of three additional Anatomy lab satellites but a decrease in the number of faculty. We are attempting to identify new sources of funds for the second half of this position in order to fully replace the Anatomy education contributions required of this position and maintain a viable anatomy teaching and research group. We are anticipating the arrival of Dr. Thomas Hawke a new researcher/anatomist who will be the first new faculty hire in Anatomy in several years. He will replace a recent retiree, Dr. Richard Butler. In the next two years we anticipate the retirement of Dr. Larry Belbeck who has been a stalwart teacher among teaching faculty and are hopeful that we will be able to recruit an anatomist/researcher in what is a very competitive market for anatomy educators.

Graduate Programs in Health Sciences

Graduate education is another area in which our members carry a significant responsibility. More than 50% of the Medical Sciences students are supervised by members of Pathology and Molecular Medicine. We also contribute to several other graduate areas, such as Health Research Methodology and Behavioural Neurosciences. The Assistant Dean, Dr. Carl Richards, is a member of our department, as is the Assistant Dean of Medical Sciences, Dr. Martin

Stampfli, and the Coordinator of Neuroscience and Behavioural Science, Dr. Laurie Doering. Many course coordinators, instructors, thesis committee members etc., are members of Pathology and Molecular Medicine.

The University determined a few years ago that graduate expansion was to be a priority. In an effort to support the Faculty of Health Sciences' commitment in this regard, Pathology and Molecular Medicine invested some one-time funds available from temporarily open faculty positions, to encourage faculty to take new replacement and expanded graduate students into their laboratories. Appendix 8 provides a description of this program. The Department's investment in this regard has been significant over a two-year period (approximately \$550,000 over two years) while we will only receive \$60,000 per year in graduate expansion dollars, but the initiative overall was successful in supporting the Faculty of Health Sciences in meeting its expansion targets. We supported a total of 15 new 'replacement' students and 14 new 'expanded' students in 2007/08. To date we have committed to support another 17 new students for 2008/09. These numbers are expected to increase with the January 2009 intake. We worked with the Department of Medicine to establish a similar program for their faculty.

We have also initiated a travel scholarship program which will help with travel costs for graduate students to attend conferences with their faculty supervisors. This also alleviates some costs which supervisors would normally have to cover. The following table lists those graduate students who have received these awards to-date:

Graduate Travel Scholarships Awarded		
Award Recipient	Year	Conference Attended
Maria Diamandis	2007	XXI Congress of International Society on Thrombosis and Haemastasis, Geneva, Switzerland
Carla Bauer	2007	Keystone Symposium on Viral Immunity, Colorado, United States
Erin Bassett	2008	Association for Research in Vision and Ophthalmology 2008: Annual Meeting – Eyes on Innovation, Florida, United States
Tracy Chew	2008	7 th Joint Conference of the International Society of Interferon and Cytokine Research and International Cytokine Society, Montreal, Canada
Cale Zavitz	2008	European Respiratory Society Congress, Berlin, Germany

We cannot discuss graduate education without addressing the challenge of funding. Graduate students at McMaster are funded through a mixture of scholarships (internal and external), and teaching assistantships, and the balance must come from the supervisor's own grant funds. This puts quite a burden on supervisors in taking on these students, who will be with them for two to five years. A further problem occurs in laboratory-research based graduate education. In Pathology and Molecular Medicine, most graduate students must make use of lab supplies, central facilities and animals in their work at a cost of approximately \$2,000 per month over and above the salary stipend. An increasing number of faculty are finding it difficult to take on additional graduate students due to the high cost of having an extra student in the laboratory. Some of our very capable supervisors have had to refuse new students this year due to the significant cost to their research grants. We have faculty members who are at risk of actually not having the funds to continue with students who are in mid program. This is a serious matter which concerns our department as well as other departments with major basic science research programs.

Postdoctoral Fellows

Over the past five years faculty members in Pathology and Molecular Medicine have been responsible for the training and supervision of over 33 postdoctoral fellows. All of the trainees have received McMaster University Postdoctoral Certificates in recognition of the completion of their period of study.

Number of Postdoctoral Certificates Awarded by Year in P&MM			
Year	# of Certificates	Year	# of Certificates
2004	3	2006	11
2005	6	2007	13

There are currently 22 individuals undertaking postdoctoral training fellowships in Pathology and Molecular Medicine.

Postgraduate Residency Education

The Department of Pathology and Molecular Medicine Residency Training Program is dedicated to excellence in education. Our program provides an opportunity to develop the skills, knowledge and experience necessary for a medical career in the disciplines of Laboratory Medicine. The Program Coordinator is Laura Prentice who works from MUMC. Currently, post-graduate medical training is offered in the following four areas:

1. Anatomic Pathology
2. General Pathology
3. Medical Microbiology
4. Medical Biochemistry

The Residency Training Program is accredited by the Royal College of Physicians and Surgeons of Canada and is structured to meet the College's high standards of education. The areas of study within the program are designed to ensure the flexibility necessary to meet individual career needs.

Residents are provided ample opportunities for basic research related to their area of training. In addition, both Doctor of Philosophy (PhD) and Master of Science (MSc) degrees are available through the Faculty of Health Sciences Graduate Program.

The Program holds an annual Resident's Research Day. The following table highlights award winners from the 2007 and 2008 events.

Residents' Research Day awards		
2008	Anatomical & General Pathology	Best Paper Presentation (Platform) – Juan Morenu AP
		Best Case Report Presentation (Platform) – Anil Misir AP
	Clinical Pathology	Best Paper Presentation (platform) – Bill Ciccotelli MM
	Lab Med Best Poster	First Place – Tim O'Shea MM; Second Place – Jorge Arrendondo AP; Third Place – Amir Samani GP
	Fellowship Program (AP & Clin Path)	Best Paper Presentation (platform) or Poster (includes all specialties) Yun Huang MB
2007	Anatomical & General Pathology	Hosam Al Ardati AP - Best Paper Presentation (Platform)
		Abdelrazak Meliti AP - Best Case Report Presentation (Platform)
	Clinical Pathology	Jocelyn Srigley MM - Best paper presentation (platform)
	Laboratory Medicine Best Poster	Jorge Arrendondo AP - 1st Place; Adell Elsharif AP - 2nd Place; Juan Moreno AP - 3rd Place
	Fellowship Program (AP & Clin Path)	Lufang Yang MB - Best Paper Presentation (Platform)

Resident Training Sites

Since 1970, Hamilton has pioneered a model of regionalization for Laboratory Medical Services. Residents are scheduled rotations at the two teaching institutes in the area: Hamilton Health Science (HHS) and St. Joseph's Healthcare. In total, the bed complement exceeds 1800.

Hamilton Health Sciences includes the following three major hospitals:

- Henderson General Hospital
- Hamilton General Hospital
- McMaster University Medical Centre

Henderson General is closely associated with the Juravinski/Hamilton Regional Cancer Centre, which functions primarily as a screening and treatment centre for cancer. The McMaster University Medical Centre includes the Children's Hospital, which focuses on child healthcare. Hamilton General is the regional centre for trauma, cardiovascular surgery, neurosurgery and forensic pathology. Chedoke is a non-acute care hospital in which many of HSC's rehabilitation programs are located, including the Acquired Brain Injury Program and a leading Prosthetics and Orthotics Department. McMaster's Children's Hospital also has a number of outpatient services at Chedoke.

St. Joseph's Healthcare includes an active downtown hospital, an ambulatory care centre at the east end of the city and the Mountain Campus for mental health. St. Joseph's Healthcare is the regional centre for chest disease, renal transplantation, head and neck surgery and mental health.

Educational Activities

Within each training program, academic half days are scheduled into the curriculum to provide an opportunity for discussion and educational development, with a focus is all the CANMEDS competencies. During this time, information is presented on an array of relevant topics, including biomedical ethics, critical journal appraisal and laboratory management. In addition, the Faculty of Health Sciences Post-Graduate Office routinely organizes academic half days, which are open to all residents within the Faculty of Health Sciences. Speakers are invited to discuss topics that are of interest to residents of all programmes. There are many clinical and clinicopathological rounds at different sites for interested residents.

Residents are also encouraged to pursue research project throughout the four years. Papers are presented at the annual residents' research day. An award for the best paper is presented usually during the evening dinner for residents and faculties. These papers are generally presented subsequently in provincial, national or international meetings. Some research activities may also be nominated for other awards within McMaster University.

In 2007/08 our resident numbers by program were as follows:

Resident Program	# of Residents	Resident Program	# of Residents
Anatomical Pathology	19	Medical Microbiology	7
General Pathology	8	Medical Biochemistry	2

We also supervise a small number of clinical fellows each year. The following numbers of fellows have completed clinical specialty training with our faculty during the past five years:

Year Completed	# of Fellows	Year Completed	# of Fellows
2004	2	2007	3
2005	1	2008	3
2006	4		

Our residency programs are to undergo a Royal College Survey in March 2009. As part of the internal review process, several weaknesses in our residency programs were identified and an initial provisional accreditation status recommended for the Anatomic Pathology, General Pathology and Medical Biochemistry Programs. The program directors, supported by the residency training committees have worked diligently to address the weaknesses and in a follow-up review, all the residency programs have been given full approval (Appendix 3).

The following is an overview of our Residency Training Programs:



Anatomic Pathology –Program Director: Dr. Monalisa Sur

The Anatomic Pathology Residency Training Program at McMaster University offers an intensive and integrated approach to preparing residents for careers in academic and/or clinical practice. The program is designed to fulfill the specialty requirements of the Royal College of Physicians and Surgeons of Canada, but is sufficiently flexible to be tailored to individual needs of each resident.

The length of the program is five years: a PGY1 year of basic clinical training followed by four years (PGY2-5) of residency training in anatomic pathology.

The basic clinical training year includes two-month block rotations in each of Internal Medicine, General Surgery, and Obstetrics/Gynecology. Some flexibility in the choice of clinical rotations is available. The remaining 6 months is an elective period. Students without previous experience in Laboratory Medicine are advised to spend the portion of their elective period in one or more of the laboratory specialties.

Residents are trained in autopsy pathology and all areas of surgical pathology during the first two years. Training in forensic pathology, diagnostic cytopathology, neuropathology, molecular pathology, pediatric pathology, and electron microscopy usually takes place in senior years. Specialty rotations such as pulmonary pathology, hematopathology, GI pathology, and renal pathology are available and can be arranged according to need.

The training objectives are listed for review on the Royal College of Physicians and Surgeons of Canada web site for specialty certification in anatomical pathology.

Evaluation – Residents are evaluated midway through and at the completion of each rotation. Resident progress is monitored and residents meet at least twice per year with the program director for formal progress discussion. Informal discussion with the program director throughout the rotation is also encouraged. In addition, each resident will be assigned a mentor to assist them during their training period. An in-house practical pathology examination is held annually for all residents. Residents also have the opportunity to write the American Society for Clinical Pathology Resident Exam during the year.

Anatomical Pathology/General Pathology Education Committee Members		
Dr. M. Sur, Co-Chair	Dr. T. Aziz, Co-Chair	
Dr. J. Bourgeois	Dr. J. Fernandes	Dr. C. Rao
Dr. S. Chawla	Dr. P. Jayaratne	Dr. C. Ross
Dr. V. Chen	Dr. S. Hill	Dr. S. Tang
Dr. JC. Cutz	Dr. S. Popovic	Dr. J. Walsh
Dr. A. Don-Wauchope	Dr. J. Provias	
Resident Representatives		
Dr. N. Ursani, Anatomical & General Pathology Chief Resident		
Dr. S. Tauqir, Anatomical & General Pathology Chief Backup Representative		
Dr. A. Amer, General Pathology Resident Representative		
Dr. L. Edwards, Anatomical Pathology Resident Representative		

**General Pathology** – *Program Director: Dr. Tariq Aziz*

The General Pathology training program encompasses four areas of laboratory medicine, including Anatomic Pathology, Medical Biochemistry, Medical Microbiology and Laboratory Hematology. Residents are trained as consultants for both laboratory services and clinical professions. This team-oriented approach provides residents with superior methods of interacting with patients and health care professionals alike.

The first year (PGY1) is a basic clinical year. The resident is exposed to a broad spectrum of clinical experience including rotations in general medicine, general surgery, pediatrics, and neonatology and obs/gyn. An elective in pathology is highly recommended.

- The PGY2 year of training is spent in anatomical pathology, rotating through different hospitals so that residents may have an understanding for all areas of anatomical pathology. They are trained to become comfortable with routine performance of autopsy and surgical pathology, including writing of reports.
- They will have an idea about what subspecialty they may choose for an elective during their senior years.

The PGY3 year is split into three, two month blocks to be spent in each of the clinical pathology areas and one, six month block in anatomical pathology. Residents rotate through different hospitals to obtain maximum benefit from the regionalized laboratory system. The training during this period is intended to familiarize them with the many laboratory procedures. Residents study and try to understand the theoretical background of the laboratory procedures and consolidate their knowledge in the pathophysiology of disease. A lot of the teaching is provided by technical staff at this point.

From the PGY4 year on, although the residents are expected to refine their basic techniques and knowledge, the main thrust is in training them to be a consultant. Emphasis is in discussion with clinicians, teaching of junior residents/ students, trouble-shooting with technologists, attendance of relevant hospital committees and presentation of rounds. They will have a further four month block in each of the clinical pathology areas. The training in diagnostic cytology, forensic pathology, and a short rotation through a community hospital are mandatory.

Throughout the four year period, residents are kept in touch constantly with all four laboratory subspecialties during the compulsory Academic Half Day. In addition to sessions in anatomical pathology and clinical pathology, core topics such as immunology, cytogenetics, critical appraisal, laboratory management, laboratory safety, quality assurance, and biomedical ethics are presented and discussed. All topics are planned in more or less a two-year cycle, although the actual speakers or presentations may be different. Other more general topics such as CMPA issues, interpersonal relationships and stress management are covered in the multidisciplinary Academic Half Days.

An in-house practical pathology examination is held annually for all residents. Residents also have the opportunity to write the American Society for Clinical Pathology Resident Exam during the year.

**Medical Microbiology** – *Program Director: Dr. Cheryl Main*

The Medical Microbiology Program, in conjunction with the Infectious Diseases Program, provides training in basic science microbiology, clinical microbiology, infection control, laboratory management and clinical infectious diseases. Residents will carry out research in association with faculty which will also allow for more formal research training.

Residents are strongly encouraged to demonstrate self-directed problem-based learning. Qualified applicants will have completed an under-graduate MD program from a Canadian medical school or core training in internal medicine or pediatrics, and must be eligible for certification in those disciplines by the Royal College of Physicians and Surgeons of Canada.

Curriculum – There are two pathways, which can be taken to meet the RCPSC requirements and be eligible for the RCPSC examination. Candidates pursuing microbiology residency directly after completing the MD program will undergo a five-year training program. The first year consists of clinical rotations in various fields of medicine. During the remaining 4 years, the residents will participate in infectious diseases service rotations, bacteriology, virology, mycology, mycobacteriology, molecular microbiology, infection control, laboratory management, public health microbiology and research projects. The residents, who have completed core training in internal medicine or pediatrics may pursue microbiology residency in conjunction with infectious diseases residency. The combined infectious diseases and medical microbiology residency is a three year program. The successful candidates will participate in infectious diseases service rotations for 12 months, and complete rotations in bacteriology, virology, mycology, mycobacteriology, molecular microbiology, infection control, laboratory management, public health microbiology. The residents also have numerous opportunities to participate in research projects. Upon completion of the combined Medical Microbiology/ Infectious Diseases (MM/ID) residency, the candidates will be qualified to participate in both medical microbiology and infectious diseases RCPSC examinations.

Resources – Microbiology laboratories are currently in the process of being centralized at St. Joseph's Healthcare. These labs, along with the Regional Public Health Laboratory of the Ontario Ministry of Health, function as integrated entities within the Hamilton Health Sciences Microbiology Programme. These laboratories serve the daily diagnostic needs of hospitals, in addition to housing regional reference laboratories for virology and chlamydiae, anaerobic bacteriology, parasitology, mycology, mycobacteriology, mycoplasma, and the central medial laboratory. Residents have the opportunity to rotate through each laboratory. There are 15 faculty members, including medical microbiologists, clinical microbiologists and infectious diseases physicians available to assist residents in their training.

Educational Activities – A weekly basic science and clinical microbiology seminar series are available. There are weekly plate rounds attended by residents and faculty. Regional Infectious Diseases Rounds are held weekly, and MM/ID Research-In Progress Rounds occur monthly. Residents are required to design and carry-out a series of research projects.

Evaluation – Performance appraisal is on-going and in-course training assessment in the format of written, oral and practical examinations are given annually. Residents will also have the chance to participate in faculty evaluations.

Medical Microbiology and Infectious Disease Residents Education Committee Members	
Dr. C. Main, Co-Chair	Dr. P. El-Helou, Co-Chair
Dr. C. Lee	Dr. M. Smieja
Dr. N Singal	Dr. S. Haider

Medical Biochemistry –*Program Director: Dr. Tony Chetty*

Medical Biochemistry is that branch of medicine concerned with the study and measurement of biochemical abnormalities in human disease. The medical biochemist is trained in the operation and management of hospital biochemistry laboratories, and acts as a consultant in all aspects of their use. As an academic specialist, the medical biochemist develops and integrates a basic research program with clinical practice in a field of biochemical interest, and maintains an active role as a teacher of clinically applied biochemistry.

The Medical Biochemistry Programme is fully accredited by the Royal College of Physicians and Surgeons of Canada. The first postgraduate year (PGY1) will be based in Internal Medicine - the four years of specialty training includes:

- Two years of approved training in a medical biochemistry laboratory preferably spent in one university centre. At least one of these two years must be spent in the biochemistry laboratory of a general hospital. The second year may be spent in a similar manner or in an improved university department of biochemistry that has an active affiliation with the university teaching hospitals.

- One further year of approved training that may be:
 - One year of additional training as described above
 - One year of basic training and/or research in a university department and/or hospital laboratory in which the work is clearly oriented to medical biochemistry
- One year of training that may be:
 - One year of approved resident training in Internal Medicine up to six months of which may be spent in a subspecialty of Internal Medicine or in Paediatrics
 - Six months of approved resident training in Internal Medicine or Paediatrics and six months of approved resident training in other branches of Laboratory Medicine

The Medical Biochemistry Programme is highly flexible permitting residents to develop a course of studies tailored to individual needs. Residents are able to incorporate up to eighteen months of clinical training into their programmes which is attractive to those seeking to qualify in a clinical specialty, for example, internal medicine or pediatrics along with medical biochemistry. Residents seeking a career in research may choose to spend up to two years doing research.

While this flexibility provides considerable opportunity for individuals to meet specific career goals, it is best suited to those who have previously acquired self-directed learning skills. Residents rotate through each of the hospital clinical chemistry laboratories providing a broad educational experience, not only in terms of laboratory technique but also exposure to a variety of management styles and clinical consultation patterns. The Programme consists of two years of laboratory rotations, twelve to eighteen months of clinical rotations in specialties having a major clinical chemistry interface and six to twelve months are devoted to a research project. Throughout the four-year Programme, residents are encouraged to participate in specialty Outpatient clinics for up to a half day per week enabling them to maintain clinical skills and enhancing their opportunities to interact with clinical faculty and with resident colleagues in the various clinical services. Residents are involved from the outset in the clinical consultative activities of the faculty.

Integration of the Medical Biochemistry Programme with the post doctoral training programme in Clinical Biochemistry and the medical biochemistry component of the General Pathology Programme provides the residents with an opportunity to work with colleagues in these closely related fields. Residents carry the Clinical Biochemistry pager when they are ready acting as front-line consultants for Medical Biochemistry. Although responsibility for delivery of analytical services is limited, residents are involved in all aspects of selecting and instituting new pieces of instrumentation or new procedures. Residents are expected to follow such a project to its introduction into the laboratory routine providing expertise and acting as a resource for laboratory personnel. Whenever possible, residents are involved in management team decisions regarding staff selection, quality control surveillance, budget review, etc. Trainees are, from the outset, regular members of the Clinical Chemistry and Immunology Advisory Committee and as such attend all meetings and participate as full members along with their faculty colleagues. Each of the Clinical Biochemistry laboratories is organized to ensure that quality service can be provided independently from resident activity thus ensuring that educational events have the highest priority and residents never forgo academic sessions in order to provide service.

All residents are expected to present a research project at Regional, National or International meetings and funding is provided for attendance at the National meeting of the CSCC each year. Residents are evaluated at the completion of each rotation, however, it is expected that they will develop self-evaluation skills, an integral component of the self-directed learning which is strongly emphasized in the Programme.

Programme Goals – This programme aims to provide the resident with the opportunity to become knowledgeable and competent medical biochemists with the skills required being both an effective consultant for clinical colleagues and a capable Clinical Biochemistry laboratory professional. This requires, and the programme provides the environment necessary for the individual resident to develop skills in self-evaluation, self-directed learning and critical appraisal enabling the medical biochemist to proficiently pursue life-long learning. Individuals completing the programme should be equipped to adapt to the changes that will occur in the profession throughout their careers. At the completion of the training period, the resident will be able to:

- Discuss normal biochemical pathways and the etiology and pathogenesis of the biochemical disorders of disease
- Act as a consultant in the selection of appropriate laboratory tests
- Understand the interpretation of biochemical data and its integration with the clinical practice of medicine
- Understand the principles of selection of laboratory equipment
- Establish and maintain a quality control programme
- organize an analytical biochemistry laboratory and assume responsibility for its administration
- Demonstrate an ability to develop research protocols and interpret research data
- Demonstrate an ability to teach medical biochemistry

During PGY 2, 3 and 5 residents are expected to undertake a research project which will result in a presentation at residents' research day in laboratory medicine and in most cases an abstract submitted to the annual general meeting of the Canadian Society of Clinical Chemistry and/or submission of a paper for publication in an appropriate journal. Skills with specific analytical instrumentation are often acquired during the research project, e.g. HPLC, mass spectrometry or a PCR. They are from the outset regular members of the Clinical Chemistry and Immunology Discipline Committee and as such attend all regular meetings and participate as full members, carrying out various responsibilities on behalf of the committee in addition to attending the annual general meeting of the CSCC/CAMB. Arrangements are made for trainees to attend all local Medical Biochemistry related conferences, meetings and new instrument presentations.

Evaluation – Performance appraisal is on-going and in-course training assessment in the format of written, oral and practical examination is given annually. Residents will also have the chance to participate in faculty evaluations.

Medical Biochemistry Residents Education Committee Members	
Dr. V.T. Chetty, Co-Chair	Dr. S. Hill, Co-Chair
Dr. C. Balion	Dr. M. McQueen
Dr. A. Don-Wauchope	Dr. M. Potter
Dr. V. Grey	Dr. E. Young
Dr. P. Kavsak	



Clinical Investigator Program – *Department Representative: Dr. J-C Cutz,*

For many years Dr. Cathy Hayward of our department was Director of the Clinical Investigator Program. She was also responsible for the start-up of this program at McMaster. This program provides structured training for future academic clinicians planning to do research as a key component of their medical career. The training provides an individualized framework for mentorship and integration of research with specialty or subspecialty training and promotes the development of broad and specialized research knowledge, skills and attitudes that are important for future clinician investigators. All our residents are encouraged to participate in research, and are given an opportunity to consider this program. Departmental funding is available to support residents in this program.

In addition to the above training programs, we offer the two fully-accredited fellowship programs:

Clinical Biochemistry Training Program –*Program Director: Dr. Stephen Hill*

The Department of Pathology and Molecular Medicine offers a two-year post doctoral training program in Clinical Biochemistry. This program, accredited by the Canadian Academy of Clinical Biochemistry (CACB), trains PhD graduates in biochemistry, chemistry, cell biology, molecular biology or other similar disciplines for a career in clinical laboratory medicine.

Our program is unique in Canada in that we train both MD graduates in the Medical Biochemistry residency program and PhD graduates in our clinical biochemistry program in a completely integrated program. At McMaster, we follow a self-directed learning program, similar to our undergraduate MD program. Students, in consultation with the faculty are asked to set their learning objectives and formulate a plan to meet them. Our students generally meet twice a week in a tutorial setting to discuss topics and learn together. Our PhD post-docs and MD Medical Biochemistry residents work and learn together, so there is lots of opportunity for small group learning. We encourage students to take on several small research projects in the clinical laboratory. These are presented at our national meeting each year. Students may also want to take on a longer-term research project in one of the research laboratories.

Most students are funded through a scholarship from the Ontario Ministry of Health and Long Term Care. There are three positions available each year, two at the University of Toronto and one at McMaster.

At the end of the training program students are eligible to sit the national certification examinations of the CACB. Career opportunities in clinical biochemistry exist in hospital laboratories academic health care centres and in large community hospitals, in community laboratories, and in the diagnostic industry.

Over the past five years, five trainees have completed the program. There are currently four students in the program.



Clinical Genetics Training Program –*Program Director: Dr. Ron Carter*

A full re-accreditation was awarded to McMaster University, Credit Valley and Hamilton Hospitals by the Canadian College of Medical Geneticists for a Joint Comprehensive Centre for Clinical Genetics Service and Training. We are approved for MD or PhD post-doctoral training programs in clinical genetics, biochemical genetics, cytogenetics, and molecular genetics. Over the last five years, seven PhD post-doctoral candidates have proceeded to Canadian and/or American certification examinations in the laboratory disciplines. Currently, two fellows are registered in laboratory disciplines and one fellow in clinical genetics. Although the primary intent is to accept trainees who intend to complete the full CCMG training curriculum and proceed to examination and certification by the CCMG, we also accept trainees for shorter periods of study equivalent to diplomas or visiting fellowships.

2. Comparative Educational Contribution Data

The following table shows the relative education contributions by department in the Faculty of Health Sciences for 2003/04 to 2005/06. 2005/06 is the most recent year that complete data is available from Education Services.

Education Program	Pathology & Molecular Medicine	Anaesthesia	Family Medicine	Medicine	Obstetrics & Gynecology	Pediatrics	Psychiatry	Radiology	Surgery	CE&B	Biochemistry	Nursing	Rehabilitation Sciences
July 1, 2003 - June 30, 2004													
BHSc	8,148	16	48	233	24	140	3,162	12	8	1,726	63	0	388
Undergraduate/ Grad Biochemistry	771	0	0	1,256	0	196	0	0	0	0	17,349	0	0
Graduate*	9,330	113	734	6,989	396	1,505	2,935	170	209	10,907	170	6,728	2,691
Occupational Therapy	712	0	47	12	0	60	22	0	0	16	0	24	13,357
Physiotherapy	731	0	90	0	0	0	55	0	0	0	0	24	12,357
Nursing	100	8	0	37	0	0	354	0	8	368	200	49,331	224
Midwifery	0	25	4,174	0	2,429	12	8	0	0	349	0	13	0
Undergrad MD	13,467	4,601	13,857	34,383	13,872	5,286	15,288	2,616	10,686	1,521	78	181	233
Postgrad MD	7,856	11,637	24,907	44,710	6,354	10,463	15,881	682	32,209	891	0	102	0
Other HS Programs**	2,446	400	2,414	2,016	1,802	3,086	7,858	400	612	2,357	584	976	924
July 1, 2004 - June 30, 2005													
BHSc	7,416	24	32	265	24	120	3,842	40	16	1,412	16	16	292
Undergraduate/ Grad Biochemistry	1,143	0	0	650	0	222	0	0	0	0	17,386	0	0
Graduate*	12,288	22	764	6,834	346	1,067	3,544	236	240	10,965	199	9,580	3,976
Occupational Therapy	105	0	0	12	0	92	166	0	0	64	0	0	13,137
Physiotherapy	802	0	0	0	0	0	24	0	0	80	0	0	14,319
Nursing	590	0	30	122	0	0	96	0	0	204	100	50,000	0
Midwifery	145	0	6,122	0	1,689	168	406	0	0	37	0	133	113
Undergrad MD	14,929	8,882	14,840	34,426	13,719	9,940	18,297	2,890	15,243	2,053	45	1,226	184
Postgrad MD	7,548	11,546	39,059	53,364	8,528	12,440	16,301	614	23,840	1,004	0	0	0
Other HS Programs**	3,083	410	2,494	3,473	1,906	2,190	7,451	400	1,624	1,847	400	807	851
July 1, 2005 - June 30, 2006													
BHSc	9,147	24	44	961	72	107	5,877	261	112	1,072	463	24	376
Undergraduate/ Graduate Biochemistry	1,338	0	0	774	0	274	0	0	0	0	16,198	0	0
Graduate*	11,454	127	605	5,930	388	1,284	2,467	227	451	10,120	170	9,720	3,601
Occupational Therapy	60	0	12	0	0	60	62	0	60	68	0	53	12,331
Physiotherapy	677	0	0	15	0	20	30	0	0	86	0	0	14,918
Nursing	222	96	36	143	40	8	161	0	18	27	100	47,942	129
Midwifery	181	13	4,363	64	1,953	288	238	0	0	349	0	13	0
Undergrad MD	11,461	7,918	23,607	34,017	10,564	9,108	17,506	2,260	19,667	2,136	353	772	1,154
Postgrad MD	6,868	11,535	34,691	41,068	1,400	13,964	15,410	5,125	4,200	600	0	308	0
Other HS Programs**	2,127	435	2,338	3,638	2,452	2,359	7,739	412	1,750	1,430	0	731	520

* Includes HRM, Rehab, Nursing, Medical Sciences

** Includes Diploma Programs (CBS, Child Life, OHS), Bio/Pharm, Continuing Education, Faculty Development, PERD, Cross Program Portfolios

The table below provides education contribution data by hours per faculty member. Pathology and Molecular Medicine is consistently in the top four departments in terms of education contribution hours per faculty member.

Total Faculty						
	2003/04		2004/05		2005/06	
DEPARTMENT	Hours per Faculty	Rank	Hours per Faculty	Rank	Hours per Faculty	Rank
Anaesthesia	285	5	274	7	262	5
Family Medicine	168	12	180	12	188	11
Medicine	283	6	289	6	235	7
Obstetrics & Gynecology	505	2	468	2	277	4
Pediatrics	241	10	268	8	262	5
Psychiatry	218	11	227	10	229	8
Radiology	60	13	66	13	136	13
Surgery	261	9	226	11	143	12
CE&B	275	8	239	9	215	10
Path & Molecular Med	379	3	378	4	343	3
Biochemistry	852	1	864	1	751	1
Nursing	276	7	297	5	228	9
Rehabilitation Sciences	347	4	402	3	398	2
TOTAL	267		269		236	

Data provided by Education Services – 2005/06 was the most recent year available

3. Education Leadership Roles within the Faculty of Health Sciences

Education leadership roles held by members of our department are numerous. The following table summarizes the major education leadership roles held by members of Pathology and Molecular Medicine within the past five years.

Name	Title	Section	Program
Dr. Delsworth Harnish	Assistant Dean		Bachelor of Health Sciences Program
Dr. Carl Richards	Assistant Dean (Acting)		Graduate Programs in Health Sciences
Dr. Martin Stampfli	Assistant Dean	Medical Sciences Program	Graduate Programs in Health Sciences
Dr. Jack Gauldie	Coordinator	Infection and Immunity	Medical Sciences Program
Dr. Laurie Doering	Coordinator	Neuroscience and Behavioural Science	Medical Sciences Program
Dr. Judy West-Mays	Coordinator	Cancer and Genetics	Medical Sciences Program
Dr. Steve Shaughnessy	Coordinator	Metabolism and Nutrition	Medical Sciences Program
Dr. Bruce Wainmann	Director	Anatomy	Education Program
Dr. Jean-Claude Cutz	Coordinator	Clinical Investigator Program	Pathology and Molecular Medicine
Dr. Fred Ofofu	Coordinator	Clinical Investigator Program	Medical Sciences Graduate Program
Dr. Monalisa Sur	Program Director	Anatomic Pathology	Residency Program
Dr. Cheryl Main	Program Director	Medical Microbiology	Residency Program

Name	Title	Section	Program
Dr. Tariq Aziz	Program Director	General Pathology	Residency Program
Dr. Tony Chetty	Program Director	Medical Biochemistry	Residency Program
Dr. Ari Shali	Chair	Professional Skills	MD Program
Dr. Cathy Ross	Co-Coordinator	MF1 Pathology	MD Program
Dr. Vicky Chen	Co-Coordinator	MF1 Pathology	MD Program
Dr. Odette Boutross-Tadross	Co-Coordinator	MF2 Pathology	MD Program
Dr. Franko DeNardi	Co-Coordinator	MF2 Pathology	MD Program
Dr. Gabriella Ghola	Coordinator	MF3 Pathology	MD Program
Dr. Tariq Aziz	Co-Coordinator	MF4 Pathology	MD Program
Dr. Leela Elavathil	Co-Coordinator	MF4 Pathology	MD Program
Dr. John Provias	Co-Coordinator	MF5 Pathology	MD Program
Dr. Rick Butler	Co-Coordinator	MF5 Pathology	MD Program
Dr Gabriella Ghola	Planner	Longitudinal Disciplines: Pathology	MD Program
Dr. Bruce Wainman	Planner	Longitudinal Disciplines: Anatomy	MD Program
Dr. Rick Butler	Coordinator	MF 5 Pathology	MD Program

4. Summary of Educational Activities External to the Faculty of Health Sciences

Our faculty provide educational services at McMaster faculties other than the Faculty of Health Sciences, including the Arts and Sciences, Business, Engineering and Science, where they perform a variety of roles including: supervisor, committee representative, lecturer, instructor, and coordinator. Faculty also participate in educational sessions in our local community, presenting to elementary, high schools, and our local police department, as well as taking on roles as PhD examiners and thesis committee members for various universities (eg: Dalhousie, Toronto, South Africa).

E) RESEARCH ACTIVITIES

1. Overview

McMaster is known to be a research intensive University, and research is a major focus in the department of Pathology and Molecular Medicine. Our research projects and programs encompass a wide range of interests, including:

Biomaterials and tissue engineering
 Blood and vasculature
 Cancer and cancer vaccines
 Gene based vaccines
 Gene delivery methodology
 Immunology
 Infectious diseases
 Inflammation

Intestinal diseases
 Mucosal Immunity
 Respiratory diseases and allergy
 Rheumatoid arthritis
 TB vaccines
 Tissue and molecular pathology
 Viral vaccines

2. Description of Research Activities

We have a number of Institutes and Centres which are collaborative in nature and include members from Pathology and Molecular Medicine as well as other departments. These include

Faculty Name	Role	Program
Dr. Jack Gauldie	Director	Institute for Molecular Medicine and Health
Dr. Jack Gauldie	Director	Centre for Gene Therapeutics
Dr. John Hassell	Director	Centre for Functional Genomics
Dr. Gerry Wright	Director	Institute for Infectious Diseases
Dr. John Wallace	Director	Intestinal Disease Research Program
Dr. John Bienenstock	Director	Brain Body Institute
Dr. Gerry Wright	Director	Anti-Microbial Research Centre

We have three Canada Research Chairs in the Department. These have been held by:

Dr. Cathy Hayward, CRC in Molecular Hemostasis (Tier II, Junior)

Dr. Manel Jordana, CRC in Immunology of Respiratory Disease (Tier I, Senior)

Dr. Jonathan Draper, CRC in Human Stem Cell Lineage Commitment (Tier II, Junior)

We have one endowed Chair, the John Bienenstock Chair in Molecular Medicine. This Chair is currently held by Dr. Jack Gauldie.

Researchers in the department have access to several facilities which support their work and are closely affiliated with our department. The Flow Cytometry Facility, headed by Dr. Denis Snider, provides access to a wide spectrum of investigators at McMaster as well as outside users. The MOBIX central facility, headed by Dr. Jack Gauldie, provides molecular biology expertise and services to the research community. Assistance in oligonucleotide synthesis and DNA sequencing is available. The Histopathology Laboratory provides technical and theoretical assistance to members conducting research in the area of molecular immunology, virology and inflammation. The Robert E. Fitzhenry Vector Laboratory, managed by Dr. Maria Medina, is the only one of its kind at an academic centre in Canada. It has been established to provide McMaster researchers the capacity to ensure the identity, potency, safety and purity of pharmaceutical products, and to produce vectors safe for use in clinical trials. The Integrated Microscopy Facility, headed by Dr. Larry Arsenault, provides an inter-disciplinary approach to the investigation of biological, biochemical and medical areas of research. We also have a Clinical Trials Research Laboratory which provides laboratory analysis and other services for researchers. This facility, led by Dr. Matthew McQueen, operates at the Hamilton General and houses a biological sample bank for the study of cardiovascular disease with over 1.4 millions samples that is the largest of its kind in the world.

Other state-of-the art facilities available to our researchers include Bioimaging, a Level 3 facility which allows our researchers to work on level three pathogens, a High Throughput Screening Lab, a Gnotobiotic Mouse Facility, a High Speed DNA Sequencing Facility, an Ancient DNA Centre and a Centre which provides access to mathematical modeling of diseases.

The Michael Degroote Centre for Learning and Discovery opened in 2004 and provides excellent state-of-the art research laboratories for many of our researchers. An expansion on the second floor will house the new Institute for Infectious Diseases Research.

Our members have had significant success in securing research funding. We rank second in the faculty in total research dollars as well as Tri-Council Funding. We have a number of large collaborative projects within the department.

- Dr. Mark Loeb is the PI on a \$15 million dollar NIH study on the West Nile Virus. Several members of the department are co-principal investigators on this project. Dr. Loeb also leads a team grant looking at the transmission of pandemic diseases using the unique Hutterite population, and he is a PI on a CIHR New Emerging Team grant looking at antibiotic use and resistance in seniors.
- Dr. Jack Gauldie and Dr. Ken Rosenthal held CANVAC funds of close to \$2 million in total over several years to work on the development of vaccines against cancer and chronic viral infections including HIV, Hepatitis C and SARS.
- Dr. Jack Gauldie leads a recently funded CIHR Team grant in Mucosal Innate Immunity. This team of 12 individuals, with the majority from the department, will study the communication between the innate immune systems at different mucosal sites (e.g. gut, lungs, respiratory tract, etc.) with the goal to uncover novel ways to manipulate the mucosal innate response to treat acute and chronic respiratory disorders, GI diseases, and sexually-transmitted infections. This project was awarded \$6.5 million over seven years.

Many of our faculty are well-funded and well known for their research work. These include:

- Jonathan Bramson who holds funding from NCI to do research in cancer immunotherapy and vaccines.
- Jack Gauldie's work in dendritic cell based vaccine research has made significant contributions to the knowledge in this area.
- Cathy Hayward, one of our CRC Chairholders, has made major contributions in the area of human platelet research.
- Karen Mossman is doing some interesting work using viruses as cancer therapy agents.
- Manel Jordana, another of our CRC Chairholders, is doing work in the study of asthma and allergic reaction.
- Ken Rosenthal's work in HIV and mucosal immunity is well known.
- Martin Stampfli studies the impact of cigarette smoke on immune inflammatory response.
- Zhou Xing is well funded to study lung mucosal immunity and TB vaccine development.
- Gurmit Singh holds major CIHR funds to do work in the development and testing of drugs against cancers.
- Judy West-Mays studies the role of certain genes in the development of the eye and eye diseases.
- Anita Bane has a joint appointment with the Department of Oncology and is developing a research program in breast cancer funded by the Ontario Institute for Cancer Research
- Jonathon Draper, a Canada Research Chair recipient, is a member of the Stem Cell and Cancer Research Institute, working with Dr Mick Bhatia on transcription factors in human embryonic stem cells

Rick Austin moved from our department to the department of Medicine in April 2008 to take up the Amgen Canada Endowed Research Chair in Nephrology. Dr. Austin's research interests are in atherothrombotic disease and coagulation.

3. External Funding Held by Department Faculty – 2004-2008

Faculty Name	Source of Funding	Period of Funding		Dollars Awarded	Project Title
Arsenault, AL	CIHR	4/1/2003	3/31/2008	452,747	Operation and Maintenance of the Integrated Microscopy
Ashkar, AA	CIHR	7/1/2005	6/30/2010	187,500	Rx&D/CIHR Research Career Award
	HRF	7/1/2005	6/30/2010	187,500	Rx&D/CIHR Research Career Award
	CIHR	4/1/2007	3/31/2012	627,505	Role of IL-15 & NK cells in defense of viral infection
	CBCRA	7/1/2007	6/30/2010	411,490	Role IL-15 NK Cells in Innate Defense Against Breast Tumor
	CIHR	3/1/2004	3/31/2007	311,600	Role IL-15 NK Cells in Innate Defense
	CIHR	3/1/2004	3/31/2004	100,000	Study of Human Leukocyte Function in A lymphoid RAG-

Faculty Name	Source of Funding	Period of Funding		Dollars Awarded	Project Title
					2/Gamma
	SIKID	6/1/2004	5/31/2006	121,750	Innate Immunity Against Genital HSV-2 Infection Via TLR3
Austin, RC	CIHR	4/1/2005	3/31/2008	248,766	ER stress in the develop & Prog of atherothrombotic diseas
	HSFO	7/1/2006	6/30/2011	439,750	Career Investigator (1st Renewal)
	CLF	9/1/2006	8/31/2008	40,000	CLF Graduate Studentship Award - Stephen Colgan
	HSFO	7/1/2006	6/30/2008	36,000	HSFO Master's Studentship Award - S. Basseri
	HSFO	7/1/2007	6/30/2010	262,539	Inhibition of Tissue Factor Coagulant Activity by GRP78
	HSFO	7/1/2007	6/30/2010	284,652	Role of SREPBS in Macrophage Foam Cell Formation
	CIHR	4/1/2007	3/31/2012	623,135	Role of TDAG51 to atherothrombotic disease.
	HSFO	7/1/2007	6/30/2008	18,000	HSFO Master's Studentship - J. Caldwell
Ball, AK	GRSC	4/1/2007	3/31/2008	8,000	The role of microglia in retinal ganglion cell death
	GRSC	4/1/2007	3/31/2008	7,000	Optineuron & Retinal Ganglion Cell Survival
	NSERC	4/1/2008	3/31/2013	135,00	Retinal Ganglion Cell Survival After ET-1 Injury
Bienenstock, J	CCFC	7/1/2004	6/30/2007	374,139	Effect of Nerve Growth Factor and Probiotics in Models
	ELI BROAD	9/1/2004	2/28/2007	266,717	Is There A Neurophysiological Basis for Immunoregulation?
	ALRGN	4/1/2005	3/31/2006	70,000	Oral Probiotics Inhibits Murine Model of Allergic Airways
	AHL	8/1/2005	4/30/2007	155,555	Respiratory Allergies
	USDOI	6/30/2006	6/29/2007	357,131	Thinking With The Gut
	ALRGN	7/1/2007	6/30/2009	100,000	Mind-Body - Perinatal Stress and Programming
	ALRGN	2/1/2008	1/31/2009	40,000	CanGoFar
Blajchman, MA	MACOPHARMA	1/1/2007	4/30/2007	50,600	In Vivo Study of the MacoPharma Triple Bag
	MACOPHARMA	3/15/2007	1/14/2008	120,000	Studies on Pathogen Reduction in Platelet Concentrates
	NIH	9/1/2007	8/31/2008	23,328	Transfusion Medicine/Hemostasis Clinical Trials Network
Bramson, JL	CIHR	4/1/2001	9/30/2007	345,941	Gene Therapy of Muscle
	CIHR	10/1/2003	9/30/2006	348,558	Immunobiology of Genetic Vaccination
	CRSI	9/1/2004	8/31/2005	120,000	Lymphopenia on Genetic Vaccination Against Cancer
	OCRN	4/1/2005	3/31/2008	612,504	Interaction Between Cancer Therapy and Gene-Based Vaccines
	CIHR	10/1/2006	9/30/2011	626,384	Immunobiology of recombinant adenovirus vaccines.
	NCI	7/1/2007	6/30/2010	172,296	Cancer Immunotherapy Program
	NCI	7/1/2007	6/30/2010	108,300	Cancer Immunotherapy Program
	NCI	7/1/2007	6/30/2010	440,014	Cancer Immunotherapy Program
	NCI	7/1/2007	6/30/2010	213,100	Cancer Immunotherapy Program
	NCI	7/1/2007	6/30/2010	76,084	Cancer Immunotherapy Program
	NCI	7/1/2007	6/30/2010	142,066	Cancer Immunotherapy Program
	CBCRA	4/1/2007	3/31/2008	98,448	Developing vaccines based on antibody mimotopes
	CIHR	9/1/2007	8/31/2010	66,000	CIHR Doctoral Research Award - J. Bassett
	OICR	1/1/2008	3/31/2008	324,969	Biotherapeutics
	OICR	1/1/2008	12/31/2008	438,425	Seed funding for Ontario Regional Biotherapeutics program
Brash, JL	CIHR	10/1/2004	9/30/2007	444,676	Blood Material Interactions & Development of Blood Material
	INTERFACE	3/1/2006	7/6/2007	14,091	In vitro studies : Material evaluation for blood interaction
Carter, RF	MOHLTC	7/1/2006	6/30/2008	67,000	Ontario Laboratory Genetics Fellowship - B. Murphy

Faculty Name	Source of Funding	Period of Funding		Dollars Awarded	Project Title
Clarke, BJ	HSFO	7/1/2006	6/30/2008	167,101	Factor VII as an Inhibitor of Coagulation, Sepsis & Cancer
Daya, AD	HAHSO	4/1/2007	3/31/2008	13,025	Pathology AIF Fund - "Immunohistochemical markers"
Doering, LC	NSERC	7/1/2007	6/30/2008	23,700	Enhancing the efficacy of neural stem cell transplants
Draper, J	CRCP	7/1/2008	5/31/2013	500,000	CRC Chair in Human Stem Cell Lineage Commitment
Duivenvoorden, H	PCRFC	6/1/2006	6/30/2007	17,579	Bone-Related Proteins in Prostate Cancer
	CIHR	4/1/2006	3/31/2007	150,494	Role of PSA Invasion and Bone Metastasis
Elavathil, L	ROCHE	5/1/2006	10/31/2006	25,000	01806C: HER2/neu Testing in Breast Cancer
Foley, RS	CBCRA	7/1/2003	6/30/3007	1,717,850	Therapeutic Cell Genetic Immunization for Breast Cancer
	CANVAC	4/1/2004	3/31/2007	176,000	Autologous CD34+-Derived Dendritic Cells
	NCI	7/1/2005	6/30/2007	95,000	Terry Fox Foundation Fellowship
Gauldie, J.	HF	7/1/2000	6/30/2010	500,000	Edith H. Turner Fdn. Fund Res. Fellowship in Mol. Medicine
	CIHR	3/1/2003	3/30/2008	743,600	Pathogenic Mechanisms Involved in Pulmonary Fibrosis
	CANVAC	4/1/2003	3/31/2004	75,000	Adenovectors Expressing N & S Genes for the SARS Virus
	OCRN	5/1/2004	4/30/2008	688,284	Dendritic Cell Based Vaccine for Therapy of CLL
	CANVAC	4/1/2004	3/31/2007	195,000	Adenovectors Expressing N & S Genes for the SARS Virus
	CANVAC	4/1/2004	3/31/2007	185,000	Modifying Adenovectors
	MSFHR	2/1/2004	6/30/2004	315,816	Murine and Ferret Immunogenicity and Evaluation of SARS
	CIHR	4/1/2004	3/31/2006	126,750	Postdoctoral Fellowship
	SCIOS	4/1/2005	6/30/2005	138,865	Delayed SD-208 in a Chronic and Inflammation independent
	NIH	4/1/2005	3/31/2010	165,887	Molecular Basis of Lung Morphogenesis Injury and Repair
	DCBC	3/29/2005	3/28/2007	481,487	A Phase I/II Study Investigating Multiple Injections
	MSFHR	4/1/2005	8/31/2005	10,000	SARS CoV Immunisation AD vs WKD
	MEDI	9/9/2005	9/8/2006	108,480	Subclone CDNA Sequences
	TRANSTECH	6/12/2006	6/11/2007	80,000	Brief Protocol for Using RAGE Reagents in TGFB Transgenic
	SIGNAL	9/11/2006	7/10/2007	92,400	Protocol for Using JNK Inhibitors in TGFB Transgenic Model
	ANON	1/1/2006	12/31/2008	100,000	Robert Fitzhenry Vector Laboratory
PHILIP	7/1/2006	6/30/2007	48,871	Philip Morris Post-Doc Fellowship Grant	
HC	4/1/2007	5/31/2007	5,750	Scientific Practice Committee	
	GENZYM	3/28/2008	3/27/2009	74,200	Dose/efficacy of 1D11 when delivered intravenously
	CIHR	4/1/2007	12/31/2007	36,750	CIHR Post Doctoral Fellowship Award - C. LI
Grey, VL	CCFF	4/1/2004	3/31/2006	148,200	Vitamin D & K Levels and Bone Status in Pediatric Patients
Hatton, MWC	HSFO	7/1/2005	6/30/2008	211,355	Hemostasis and Tumor Growth
Hayward, CPM	CIHR	6/1/2005	3/31/2008	33,291	Focus on Stroke Rx&D Doctoral Research Award - D. Veljkovic
	HSFC	7/1/2004	3/31/2008	28,333	Focus on Stroke Rx&D Doctoral Research Award - D. Veljkovic
	HSFC	7/1/2005	6/30/2010	439,750	Career Investigator (First Renewal)
	HSFO	7/1/2006	6/30/2009	322,071	Structure-Function Analysis of Multimerin-1 Proadhesive
	HSFO	7/1/2006	6/30/2009	244,132	Profibrinolytic and Antifibrinolytic Human Platelets
	CIHR	1/1/2006	3/31/2011	703,815	Characterization of MMRN1 as binding protein for coag. FV
	CRCP	1/1/2006	12/31/2010	500,000	CRC in Molecular Hemostasis

Faculty Name	Source of Funding	Period of Funding		Dollars Awarded	Project Title
	CIHR	9/1/2006	8/31/2009	66,000	CIHR Doctoral Research Award - S. Jeimy
Hill, SA	MOHLTC	8/1/2005	7/31/2007	70,008	MOHLTC Postdoctoral Training Fellowship - L. Yang
	MOHLTC	7/1/2006	3/31/2008	61,265	Post-Doc Program in Clinical Biochem - K. Roriguez-Capote
	MOHLTC	7/1/2007	3/31/2008	26,259	Clinical Biochem Post-Doc Training Fellowship - Y. Huang
Hortelano, G	CHSOC	5/1/2006	4/30/2008	99,000	FVIII capsules
	BAYER	9/1/2006	8/31/2008	212,200	Oral DNA Nanoparticles for FVIII Delivery
	BAYER	10/1/2007	9/30/2009	180,000	Bayer/CBC/Talecris/HemaQuebec- "Therapeutic Strategies"
Jordana, M	CRCP	7/1/2002	6/30/2009	1,400,000	CRC in Immunology of Respiratory Disease - Tier 1 (Senior)
	CIHR	4/1/2003	3/31/2008	565,400	Immune Regulation of Experimental Asthmatic Inflammation
	OLA	7/1/2004	6/30/2006	79,606	Continuous Exposure to House Dust Mite in Mice
	CIHR	9/1/2004	8/31/2006	70,000	Canada Graduate Scholarships Doctoral Award
	ASTRAZEN	9/1/2004	8/31/2006	184,025	Impact of Budesonide/Formoterol on Chronic Airway
	CIHR	9/1/2004	8/30/2007	66,000	Doctoral Research Award - Jill Johnson
	CAAIF	4/1/2005	12/31/2005	27,500	CIHR/Rx&D Research Fellowship
	CIHR	4/1/2005	12/31/2005	27,500	CIHR/Rx&D Research Fellowship
	FOOD	6/1/2005	5/31/2006	136,400	Development of an Algorithm to Predict Responsiveness
	ASTRAZEN	1/1/2006	12/31/2007	334,950	Impact of Budesonide/Formoterol on the Prevention
	PAINCEPT	9/1/2006	11/30/2006	37,800	Model of Peanut-induced Anaphylaxis and Model of HDM
	MEDI	12/1/2006	11/30/2007	170,940	Interaction Between Influenza A Infection and Aeroallergen
	CALISTOGA	9/1/2007	11/30/2007	13,300	Effect of a P13K Inhibitor in House Dust Mite Mediated
	ALRGN	1/1/2008	12/31/2008	50,000	Effector Mechanisms of Peanut-Induced Anaphylaxis
	CAAIF	4/1/2008	3/31/2009	25,000	Impact of Receptor Blockade in Peanut-Induced Anaphylaxis
	ASTRAZEN	4/1/2008	9/30/2008	14,560	Measuring Short-Term Effects of Budesonide on Established
	ANAPHYLAX	4/1/2008	3/31/2009	220,000	Clinical and Basic Research Studies in Peanut Allergy
Kaushic, C	CIHR	10/1/2005	9/30/2008	335,115	Mechanism of sex hormone on immune response HSV-2 infection
	OHTN	9/1/2005	8/31/2007	44,000	Studentship
	OMRI	9/1/2006	8/31/2011	140,000	Understanding the interaction of sexually transmitted
	CIHR	9/1/2007	8/31/2012	300,000	CIHR New Investigator Award
	CIHR	10/1/2007	9/30/2012	335,000	Role of Common Co-infections in HIV Susceptibility
Kavask, PA	CIHR	4/1/2006	9/30/2009	294,909	PreFACE Study
	CIHR	3/1/2006	3/31/2006	99,997	BARC
	BCC	11/7/2007	11/6/2009	26,675	High-sensitivity Troponin I and PAPP-A measurements
Lichty, BD	LLS	7/1/2005	6/30/2007	58,333	Vesicular Stomatitis Virus as a Therapeutic for Myeloma
	SIKID	11/1/2005	10/31/2007	122,002	Examination of Respiratory Coronavirus Group-Specific Genes
	NCI	7/6/2006	7/5/2009	319,392	VSV Matrix to Improve Viral Oncolysis & Tumour Vaccines
	CRSI	9/1/2006	8/31/2007	60,000	Investigation of Vesicular Stomatitis as a Potential
	OMRI	2/1/2008	4/30/2008	22,000	Inhibition of Collagen Synthesis to Treat Cancer
Loeb, MB	CIHR	4/1/2003	3/31/2008	1,154,360	CIHR New Emerging Team in Anti-Microbial Use
	CIHR	7/1/2004	6/30/2005	30,000	CSRC SARS Research Consortium
	CIHR	9/1/2004	9/30/2008	378,244	Long Term Impacts of Severe West Nile Virus Infection

Faculty Name	Source of Funding	Period of Funding		Dollars Awarded	Project Title
	NIH	9/1/2004	9/30/2009	9,521,694	Population Genetics Analysis Program on West Nile Virus
	NIH	9/1/2006	8/31/2007	183,870	Randomized Trial of Flu Vaccination of Hutterite Children
	PSI	9/1/2006	8/31/2008	164,000	Performance on Adherence to Hygiene Among Healthcare Workers
	CIHR	10/1/2007	9/30/2010	575,000	Team-Transmission & prevention of influenza among Hutterites
	HRF	10/1/2007	9/30/2010	994,624	Team-Transmission & prevention of influenza among Hutterites
	PHAC	4/1/2008	3/31/2009	446,397	Surgical Masks vs N95 Respirators to Prevent Influenza
Lytwyn, A	MERCK	12/1/2004	3/31/2005	10,000	Human Papillomavirus
	PHAC	6/1/2007	12/31/2007	4,989	Randomized controlled trial of vaginal self sampling for HPV
Macri, J	NSERC	4/1/2005	3/31/2010	135,000	Mechanisms regulating hepatic apolipoprotein B production
Mahony, JB	TMBC	6/1/2005	5/31/2006	127,200	Development of a Respiratory Viral Panel Assay
	CIHR	4/1/2005	3/31/2007	150,000	CIHR RFA-Viral Entry Inhibitors to SARS-CoV
	HRDC	5/1/2006	8/31/2006	3,259	HRDC Summer Student
	CIHR	4/1/2007	3/31/2009	196,500	Novel type III secretion inhibitors.
	HRDC	5/1/2007	8/31/2007	1,800	Canada Student Job Program - C. Stone
	HRDC	5/1/2007	8/31/2007	1,800	Canada Student Job Program - D.C. Blair
	NEKTAR	2/1/2008	5/31/2008	10,000	Test antiviral of drug combinations on sensitive
Mossman, KL	MEOI	9/1/2003	8/31/2008	100,000	Premier's Research Excellence Awards
	CIHR	7/1/2003	6/1/2008	187,500	Rx&D Research Career Award in Health Sciences
	HRF	7/1/2003	6/30/2008	187,500	Rx&D Research Career Award in Health Sciences
	USARO	9/1/2004	3/31/2007	98,836	Molecular Characterization of Prostate Cancer Cell Oncolysis
	CRSI	9/1/2004	3/31/2007	120,000	Use of Herpes Simplex Virus Type 1 Mutants
	PHILIP	6/1/2005	5/31/2008	895,601	Impact of Cigarette Smoke on the Innate Immune System
	CFI	11/1/2003	10/31/2008	55,508	Operations and Maintenance
	CIHR	10/1/2005	9/30/2010	491,474	Characterization of innate immune responses virus particle.
	CBCF	7/1/2006	6/30/2009	411,000	Herpes virus based oncolytic viruses for cancer therapy
	OICR	1/1/2007	12/31/2009	175,500	Herpes virus based oncolytic viruses for cancer therapy
Ofosu, FA	HSFO	7/1/2007	6/30/2009	140,796	Platelet-derived Serine Proteases and Platelet Activation
	KINGPH	6/1/2007	5/31/2008	94,115	Identification of Factor Va Fragment in Topical Bovine
	GRIFOLS	1/31/2008	1/30/2009	126,000	Characterization of FVIII fractions that do not bind
Perdue, MH	CIHR	4/1/2003	3/31/2008	655,905	Regulation of Transepithelial Antigen Transport
Potter, MA	CIHR	10/1/2005	9/30/2010	1,178,410	CIHR RFA 200411RML Regen. Med. & Nanomed.:Innov. Approaches
	MOHLTC	7/1/2006	6/30/2008	67,000	Laboratory Genetic Fellowship - S. Pattison
	CSMRD	4/1/2007	3/31/2008	40,000	Brain-targeted MPS II therapy
	HRDC	5/1/2007	8/31/2007	840	Canada Student Job Program - B. Howarth
	HRDC	5/1/2007	8/31/2007	840	Canada Student Job Program - J. Schwindt
Richards, CD	HSFO	7/1/2006	6/30/2008	187,094	Oncostatin M & IL-15 in Generation of Ath. Plaque Formation
	CIHR	10/1/2006	9/30/2009	302,264	Oncostatin M/IL-15 in generation of atherosclerotic plaque.
	CIHR	1/1/2007	3/31/2007	100,000	Control of Bone Metabolism Through Osteoblast/Adipocyte
Rosenfeld, JM	OMRI	1/1/2008	12/31/2008	18,700	Automation of Solid Phase Analytical Derivatization

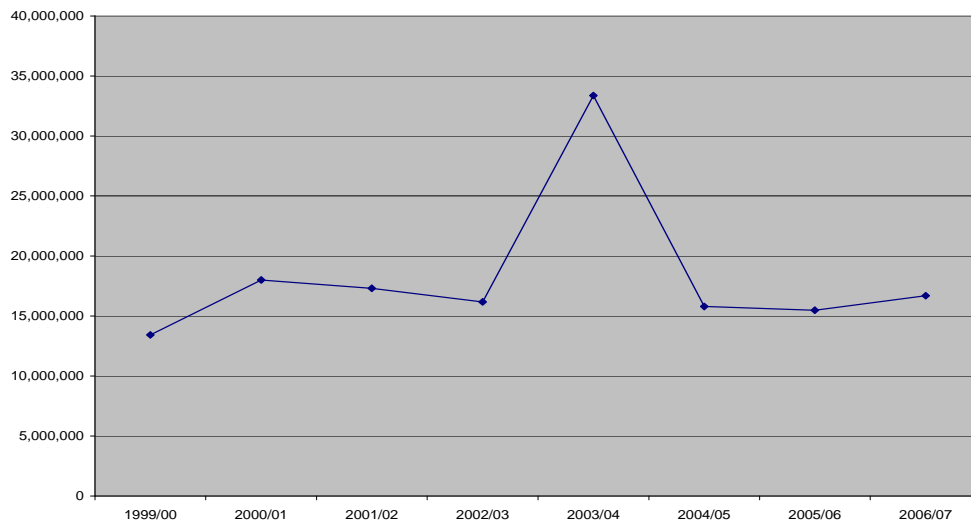
Faculty Name	Source of Funding	Period of Funding		Dollars Awarded	Project Title
Rosenthal, KL	CIHR	10/1/2002	9/30/2007	2,143,710	Group Grant Program - Mucosal Immunity
	CANVAC	4/1/2004	3/31/2007	265,000	Comparison of Vectors in a Mouse Model
	OHTN	9/1/2004	8/31/2006	44,000	Studentship Award
	CIHR	10/1/2004	9/30/2007	361,458	Effect of Toll-Like Receptor Activation on HIV
	OHTN	4/1/2005	3/31/2007	263,880	CASS as a Novel Vaccination Strategy for HIV-1
	CIHR	10/1/2005	9/30/2010	714,595	Characterization of mucosal memory immune response.
	CVTECH	10/1/2006	12/31/2008	137,200	Assessment of CVT-E002 ability to stimulate innate immune
	GATESFOUND	7/1/2006	6/30/2009	273,600	Immunity Not Luck: Mechanisms of HIV Resistance
	GATESFOUND	1/1/2007	5/31/2011	1,234,845	Collaboration for AIDS Vaccine Discovery - CAVIMC
	GATESFOUND	6/1/2006	5/31/2011	642,359	CTC-VIMC Research Consortium
	OHTN	9/1/2007	8/31/2009	44,000	OHTN Studentship - Sumiti Jain
	OHTN	9/1/2007	8/31/2009	44,000	OHTN Studentship - Anna Drannik
Shaughnessy, SG	CIHR	4/1/2005	3/31/2008	324,627	Mechanism(s) of Unfractionated and LMW Hep-Induced Bone Loss
	HSFO	8/1/2007	6/30/2009	155,914	Mechanisms of Vascular Calcification in Diabetes Mellitus
Sheffield, WP	CBSV	7/1/2004	6/30/2007	223,896	Protein Engineering of Injected Recombinant Factor IX
	HSFO	7/1/2005	6/30/2008	194,765	Building Novel Antithrombotic Serpins
	HSFO	7/1/2005	6/30/2006	33,900	Improving Antithrombotic Proteins and Peptims
	CBSV	4/1/2005	3/31/2010	100,881	CBS Quality Monitoring Program for Plasma
	CBSV	11/1/2005	10/31/2007	155,904	Natural and Artificial Colloids: Comparative Analysis
	HSFO	7/1/2006	6/30/2009	245,991	Clot-Targeting Properties of Natural Engineered Antiplasmins
	CHSOC	4/1/2007	3/30/2009	100,000	Factor VII(a) Clearance Behaviour in Model of Hemophilia A
	CIHR	10/1/2007	9/30/2008	27,967	Development of a Long Acting ANF Analogue
Singh, G	NIH	4/1/1998	12/31/2007	824,264	Photodynamic Therapy Project #3
	CBCRA	7/1/2004	6/30/2007	443,847	Therapeutic Role of Doxycycline in Breast Cancer
	CBCF	7/1/2005	6/30/2007	70,000	Fellowship
	CIHR	10/1/2005	9/30/2010	714,380	Mitochondria: A target for drug development in cancer.
	HRDC	5/1/2006	8/31/2006	1,901	HRDC Summer Student
	CBCF	7/1/2006	6/30/2007	35,000	Fellowship
	CIHR	1/1/2008	3/31/2013	602,000	Reactive oxygen species: Link between hyperglycemia-cancer.
Smaill, FM	CHTN	4/1/2001	3/31/2007	490,904	Canadian HIV Trials Network Services Studies
	B-I	4/1/2004	3/31/2007	200,579	Antiviral Efficacy and Safety of Treatment with Tipranavir
	GSK	2/1/2005	3/31/2007	77,250	GW87340 in Combinations with KaletraR in HIV-1 Subjects
	PFIZER	4/1/2005	3/31/2007	78,439	CCR5 Antagonist, UK-427, 857 in Combination with Therapy
	CONJUCHEM	4/1/2006	12/31/2006	31,129	CJC-1295 Administered for 12 Weeks in HIV-Infected Patients
	CHTN	5/1/2006	4/30/2008	3,388	CTN 173 Vaccine
	MERCK	12/1/2006	1/31/2008	15,600	021-00: L-0518 vs Efavirenz
	CANFAR	1/1/2008	12/31/2008	500	WCH/CANFAR TOR H20-2268752: 07-069 Smaill HIV Fertility
	THERA	1/1/2008	5/31/2009	1,300	TH9507-CTR-1012: Growth hormone releasing factor analog
	PFIZER	3/1/2008	3/31/2008	4,000	EAP A4001050: Maraviroc

Faculty Name	Source of Funding	Period of Funding		Dollars Awarded	Project Title
	SCHERING	12/1/2007	6/30/2009	1,300	PO4889-93: VICTOR-E4 (SCH417690)
Smieja, MJ	CIHR	1/1/2005	3/31/2010	656,348	The Canadian HIV Vascular Study
	B-MSPRI	11/1/2005	3/31/2006	25,000	Canadian HIV Vascular Study: Atazanavir Sub-Study
	GILEAD	11/1/2005	10/31/2007	323,378	Canadian HIV Vascular Study: Tenofovir Sub-Study
	FSORC	1/1/2005	12/31/2010	250,000	Father Sean O'Sullivan Career Award
	OHTN	4/1/2006	3/31/2008	198,952	Ontario HIV Treatment Network (OHTN) Cohort Study
	CIHR	9/1/2006	8/31/2011	275,000	New Investigator Award
	HSFO	7/1/2007	6/30/2008	18,000	HSFO Master Studentship Award - G. So
Snider, D	CIHR	4/1/2004	3/31/2007	168,931	CIHR Multi-User Equipment/Maintenance Grant
Stampfli, MR	ASTRAZEN	6/2/2004	6/1/2009	902,879	Modelling COPD Exacerbations
	PHILIP	7/1/2004	6/30/2007	559,437	Cigarette Smoke Exposure on Tumor Immune Surveillance
	OLA	7/1/2004	6/30/2005	34,974	Impact of Mainstream Cigarette Smoke Exposure
	CIHR	7/1/2005	6/30/2011	288,401	New Investigator
	OTS	7/1/2005	6/30/2007	93,505	Impact on Mainstream and Environmental Tobacco Smoke
	OMRI	9/3/2003	3/31/2008	140,000	Role of Bacterial Infections
	CIHR	10/1/2006	9/30/2011	634,870	Impact of cigarette smoke on innate respiratory host defence
	OTS	7/1/2007	6/30/2008	47,950	Impact of Cigarette Smoke on Immune Inflammatory Processes
Trus, MR	M&C	10/16/2007	10/15/2008	51,804	Development of a Selective Microarray to Identify Genes
	CIHR	7/1/2008	6/30/2009	145,000	Identification of targets for novel acute myeloblastic leukemia treatments
Wan, Y	CIHR	7/1/2002	6/30/2007	293,509	CIHR - New Investigator Award (CBCRI Partnership)
	CIHR	3/1/2004	3/31/2007	417,949	Investigator of Mechanisms of Anti-Cancer Vaccines
	CIHR	3/1/2004	3/31/2004	100,000	Development of Safe and Effective Cell-Based Tuberculosis Vaccine
	CANVAC	4/1/2004	3/31/2006	140,000	Dendritic Cell Vaccination Against Self-Antigens
	GSK	9/1/2006	8/31/2007	12,880	PF4/Heprarin Reactivity Antibodies
	CIHR	4/1/2007	3/31/2012	672,245	Tumour immunotherapy with oncolytic virus and cancer vaccine
Warkentin, TE	HSFC	7/1/2004	6/30/2007	271,745	High-Molecular Weight Von Willebrand Factor Multimers
	GENE	4/1/2005	3/31/2006	106,290	Raptiva Epidemiologic Study: Thrombocytopenia Sub-Study
	HSFO	7/1/2007	6/30/2010	305,274	Heparin-Induced Thrombocytopenia
	GSK	4/1/2007	3/31/2009	100,624	Matisse-DVT Trial and Matisse-PE Trial
West-Mays, JA	NIH	6/1/2003	5/31/2008	1,075,298	Role of AP-2 Genes in Development of the Lens
	CFI	4/1/2005	3/31/2006	9,060	Operation and Maintenance in Support of
	NIH	3/1/2006	2/28/2011	1,078,704	Role of Matrix Metalloproteinases in Subcapsular Cataract
	RVX THER	4/1/2006	7/31/2006	29,566	Use of an AdTGFbeta Ocular Fibrotic Model for Testing
	CIHR	4/1/2006	3/31/2011	199,290	Role of TGFbeta signaling in ocular fibrotic disease.
Whyte, P	NSERC	4/1/2008	3/31/2010	64,000	Regulation of Cellular and Viral Functions by the Adenovirus
Xing, Z	CIHR	4/1/2003	3/31/2008	505,195	Host Immune Responses to Mycobacterial Infection
	NIH	7/1/2004	6/30/2006	128,925	Role of DAP12 in Type 1 Anti-Mycobacterial Immunity
	ALRGN	4/1/2005	3/31/2009	210,000	Regulation of lung mucosal immune responses.
	CCFF	4/1/2005	3/31/2009	15,000	Regulation of lung mucosal immune responses.

Faculty Name	Source of Funding	Period of Funding		Dollars Awarded	Project Title
	CIHR	1/1/2006	12/31/2008	426,375	Regulation of lung mucosal immune responses.
	CIHR	4/1/2006	3/31/2011	883,960	Respiratory mucosal immunization against TB.
	CIHR	4/1/2006	3/31/2008	39,600	Immunotherapy for TB
	OTS	12/1/2007	11/30/2008	2,724	OTS Block Term Grant - Equipment Fund
	CIHR	4/1/2008	3/31/2013	577,625	Regulation of Type 1 Immunity by Immunoreceptor DAP12
Yang, P	CIHR	1/1/2006	3/31/2009	175,806	Immune mechanisms food allergy induced exposure microbial
Young, E	HSFC	7/1/2004	6/30/2006	149,642	Anti-Inflammatory Role of a Low Molecular Heparin
Zhang, C	CIHR	10/1/2004	9/30/2007	311,322	Human & Animal Cellular Receptors for SARS Coronavirus

The graph below demonstrates Pathology and Molecular Medicine’s total research funding over the past five years. Note that the 2003/04 amount included a major CFI/OIT award for the building of the research laboratories in the Michael Degroote Centre for Learning and Discovery.

Pathology and Molecular Medicine Research Funding



4. Comparative Data on Research Activities

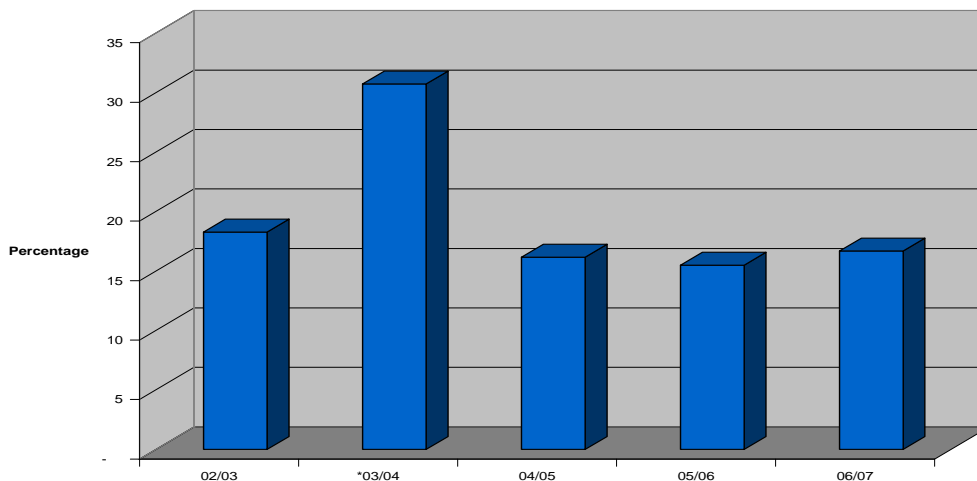
The following table shows Pathology's research funding compared with other departments in the Faculty for the five year period, 02/03 to 06/07. There has been only a slight increase in our total research dollars from 2002/03 to 2006/07, however when looking at average funding per full-time faculty member (which includes the clinical members of the department), Pathology consistently ranks in the top five. Pathology ranks second in total research dollars.

Faculty of Health Science Research Support Overview by Department					
	2002/2003	*2003/2004	2004/2005	2005/2006	2006/2007
\$ Awarded - CIHR	23,386,209	22,188,833	22,835,033	25,782,216	25,953,018
		-5.1%	2.9%	12.9%	0.7%
		decrease	increase	increase	increase
\$ Awarded - All Sources	88,546,578	108,584,909	97,757,858	99,911,723	100,041,615
		22.6%	-10.0%	2.2%	0.1%
		increase	decrease	increase	increase
Faculty of Health Science Research Support Overview by Department					
\$ Awarded - by Department	2002/2003	*2003/2004	2004/2005	2005/2006	2006/2007
Anaesthesia	2,195,773	169,148	298,658	350,848	201,264
Biochem & BS	6,034,046	7,478,624	11,284,716	12,039,771	8,527,792
CE&B	13,086,197	14,478,104	12,094,248	11,409,827	9,671,627
Family Medicine	1,347,248	3,186,092	4,520,101	3,716,740	1,650,065
FHS Admin	137,938	123,522	105,098	118,602	147,707
Medicine	30,890,643	31,728,923	37,536,916	36,174,142	41,965,851
Obs & Gyn	1,904,613	1,185,060	869,237	927,393	797,710
Oncology	-	-	-	-	168,741
Path & Mol Med	16,180,372	33,367,747	15,796,034	15,480,625	16,689,809
Pediatrics	3,569,164	3,764,807	3,628,170	3,699,184	4,569,835
Psych & BN	3,877,876	5,588,461	4,846,038	6,797,220	4,866,398
Radiology	329,202	416,307	314,933	338,973	354,794
Rehab Sci.	2,243,454	1,528,736	1,508,720	1,909,332	2,326,943
Nursing	5,575,296	5,089,233	4,142,075	4,860,906	6,047,748
Surgery	1,174,756	480,145	812,914	2,088,160	2,055,331
TOTAL	88,546,578	108,584,909	97,757,858	99,911,723	100,041,615
* \$16M reported for Path & MM from CFI & OIT in 03/04					

Our members also hold research funds within our partner hospitals throughout the city which are not captured in these reports. Over the past two years funds at Hamilton Health Sciences have totaled more than \$1 million. A significant amount of research funds are also held by our members at St. Joseph's Healthcare.

Pathology and Molecular Medicine Research Funding

as a Percentage of the Total Faculty of Health Sciences
2002/03 to 2006/07



* 16M reported for P&MM from CFI & OIT in 2003/04

Average Research Funding Support per Full-time Faculty Member						
	2004/05		2005/06		2006/07	
Department	Average \$ per FT Faculty	Rank	Average \$ per FT Faculty	Rank	Average \$ per FT Faculty	Rank
Anesthesia	37,332	10	43,856	10	18,297	12
Biochemistry and Biomed Science	564,236	1	463,068	1	341,112	1
CE&B	355,713	2	325,995	2	284,460	2
Family Medicine	167,411	4	128,163	5	58,931	8
Medicine	212,073	3	182,698	3	235,763	4
Obs & Gyn	29,974	11	30,913	12	29,545	11
Oncology	---		---		4,963	14
Pathology and Molecular Medicine	161,184	5	151,771	4	160,479	5
Pediatrics	82,458	7	72,533	9	91,397	6
Psychiatry and BN	83,552	6	125,874	6	86,900	7
Radiology	11,248	13	12,106	13	9,589	13
School of Nursing	60,913	9	74,783	8	36,936	9
School of Rehab Sciences	68,578	8	83,014	7	251,990	3
Surgery	18,905	12	43,503	11	36,058	10

F) CLINICAL SERVICES AND PROGRAMS

Approximately 60% of the full-time faculty in the Department of Pathology and Molecular Medicine also provide clinical services through the Hamilton Regional Laboratory Medicine Program (HRLMP). All clinical faculty in the department are members of HRLMP. This organization is the primary provider of laboratory services to the two hospital corporations in Hamilton, Hamilton Health Sciences and St. Joseph's Healthcare. In addition, HRLMP provides services on a referred in and consultation basis to many hospitals, long-term care facilities, private sector laboratory companies, and researchers in the Central South Region and across Canada through its Laboratory Reference Centre. HRLMP is a large, well established service that enjoys an excellent reputation both locally and well beyond the borders of the Region. HRLMP has been fully accredited for five years by the Quality Management Program – Laboratory Services.

The Chair of Pathology and Molecular Medicine and the Chief of Laboratory Medicine maintain close links. There has been a change in the management structure and a new Integrated Vice-President has been recruited to replace the outgoing Administrative Director.

The mission of HRLMP is: "To provide leadership in all aspects of Laboratory Medicine, including service, education and research, with the pursuit of excellence, encouragement of innovation and adherence to exemplary professional standards. The mission of the Program shall be supportive of the missions of the participating hospitals and of McMaster University."

HRLMP is organized into five disciplines, each with its own director. The program is headed by a joint Director, HRMP and Chief of Laboratory Medicine position. Dr. Matthew McQueen had been in that role since 1999, and stepped down in 2008. Dr. Vina Alexopoulou is currently acting director as well as Director of the Anatomic Pathology Discipline. The director works closely with the newly created position of Integrated Assistant Vice President. David Langstaff was recruited in 2007 to fill that role, on the retirement of Brenda Grant, who filled the position of Administrative Director for the program.

HRLMP was fully accredited for five years by the OMA's Quality Management Program, Laboratory Services, in September 2007. A brief summary of each discipline follows.



Anatomical Pathology –Dr. V. Alexopoulou, Director

Anatomical Pathology provides the gross, microscopic and ultra structural or molecular analysis of tissues and cells. Clinical Services are currently offered at all four major hospital sites in the city, and they provide testing and consultation for all Hamilton Hospitals as well as for physicians outside the hospital setting and for researchers. Testing and interpretative services are also provided to areas outside Hamilton, throughout LHIN4 and beyond, through the Laboratory Reference Centre. The discipline of Anatomical Pathology includes the subspecialties of surgical pathology, cytopathology, immunohistochemistry, electron microscopy, neuropathology and forensic pathology. Members participate in research projects related to tissue pathology as well as clinical trials. Education is also an important component of this discipline, and members take significant responsibility for the teaching of residents and MD students and for curriculum content in this discipline.

As of January 2008 the discipline implemented testing for Her2/neu gene amplification by fluorescent in-situ hybridization (FISH). This test provides critical information in the treatment of breast cancer patients. Prior to this, cases were sent for external testing and reporting. By August, 2008, almost 200 tests were performed and reported.

**Clinical Chemistry – Dr. E. Young, Director**

This discipline consists of a team of three medical biochemists, six clinical chemists, two immunologists and one toxicologist who provide clinical service in clinical biochemistry and immunology to the four acute care hospital sites in Hamilton. Over 10 million clinical chemistry/immunology tests are performed yearly in the Core, Satellite and Special Chemistry/Immunology laboratories of the HRLMP. In addition to highly automated routine tests (electrolytes, enzymes, urinalysis, blood gases etc), our laboratories offer expertise in a wide range of specialty tests in areas such as allergy, immunohistochemistry, lipidology, toxicology, tissue typing and special hormone assays. Our Medical Biochemists also provide patient care through the Lipid Clinic, Diabetes Clinic and the Bariatric Clinic.

The professional staff is actively involved in basic, translational and/or collaborative research in a variety of areas. These include cardiovascular disease and risk factors, lipid disorders, obesity, pediatric clinical chemistry, immunology, thrombosis, aging and proteomics. The research is supported in part by a number of external and internal grants.

Through the Department of Pathology and Molecular Medicine, the professional staff actively participates in undergraduate, graduate and post-graduate education. Our members act as tutors in the undergraduate medical program and train MSc and PhD students in the Medical Science Graduate Program. In addition, we have one of the most active residency programs in Medical Biochemistry and Clinical Chemistry in Canada. Finally, our staff also participates in the training of Medical Laboratory Technologists and in a number of Continuing Education activities.

In the past year, we said goodbye to Dr. Jack Gaudie who has retired from our Discipline and welcome Dr. Waliul Khan as the replacement Immunologist. We also welcome back Dr. Matthew McQueen as a Medical Biochemist following his tenure as Chief of Laboratory Medicine and Director of the HRLMP. We also congratulate Dr. Vijay Grey for receiving the Award for Outstanding Contribution to the Profession of Clinical Biochemistry from the Canadian Academy of Clinical Biochemistry.

**Microbiology – Dr. C. Lee, Director**

Microbiology has a team of 6 medical, 5 PhD microbiologists and 3 technical specialists working closely to develop and implement innovative microbiology diagnostics, including advanced molecular techniques. There are currently two microbiology laboratory sites; one is located at the Hamilton General and the other at St. Joseph's Healthcare on Charlton with the ultimate goal to centralize to one site at St Joseph's. Service is provided in the areas of bacteriology, mycology, virology and the increasingly important area of molecular diagnostics. Because of work flow and staffing changes, the laboratory no longer is able to provide diagnostic services in the areas of parasitology and mycobacteriology and these samples are now referred out. The laboratory is at the forefront of the introduction of new diagnostic tests and quality improvement initiatives. Members of the department played a pivotal role in the laboratory diagnosis of SARS and have developed a number of new diagnostic tests for the rapid detection of respiratory viruses. Research and education are major components of this discipline. Significant work is done in infectious disease research by members of this discipline and members play an important role in the regional Infection Control Programs.

**Genetics – Dr. R. Carter, Director**

The clinical genetics program provides expert services, quality education and innovative research in pediatric and adult clinical genetics, prenatal genetics and cancer genetics. Services include genetic counseling to families affected with, or at risk for the development of, inherited diseases. Our program is funded and services are rationalized provincially through a network of genetic service laboratories. Ours is the only genetics testing and counseling facility in the LHIN4 region and provides services to a population of over 2.2 million people. Faculty in this discipline participate in many of the FHS education programs and carry out research in the development of diagnostic tools and procedures as well as cellular microencapsulation as a form of gene therapy.

Hematology and Transfusion Medicine – Dr. M. Crowther, Director

This discipline provides transfusion medicine services and comprehensive diagnostics using immunophenotyping, cytochemistry and state-of-the-art morphology techniques to healthcare facilities in Hamilton and across southwestern Ontario, including St. Catharines and Niagara. Faculty in this division contribute to our medical education programs and conduct research in heparin-induced thrombocytopenia, molecules important to blood clotting and vascular repair, bleeding problems and platelet disorders.

Laboratory Medicine Strategic Plan (Appendix 6)

Recently the Strategic Plan was revisited, followed by an external review. Some of the major objectives still to be implemented which were a result of this planning and review include:

Governance

While management is part of a single organizational structure, managers report to two hospital corporations, and employees remain members of either of the corporations. Currently governance models are being evaluated with the expectation that SJH will take a significant leadership role in operations. Movement to a single governance model and a single employer for the HRLMP is a high priority.

The Chair of Pathology and Molecular Medicine is responsible for academic leadership within HRLMP.

Consolidation of Services

Many laboratory specialty areas are spread over several sites. The following specialties are slated for consolidation at a single site, although a full operational review including functional planning will be undertaken for each specialty prior to implementation of this plan.

- Special Chemistry/Toxicology – to be consolidated at the General site
- Morphology to be consolidated from four core labs to Special Hematology
- Microbiology – to be consolidated at SJH (currently General and SJH)
- Transfusion Medicine – 5,000 sq.ft. required, location to be determined
- Anatomical Pathology – to be consolidated at SJH

Management Structure

The current management structure is being reviewed and improvements will continue to be made.

Professional Shortages

It is well known in the laboratory industry that there has been a shortage of pathologists for several years. Canada has a poor record for producing pathologists and has relied for many years on foreign recruitment. Recent statistics from the Canadian Resident Matching Service demonstrate that Canada's record is not improving. There are few applicants for pathology residencies and 25% of those who do accept positions typically did not choose the profession as their first choice.

The HRLMP has made very significant efforts to fill existing pathologist vacancies. The MOHLTC recently introduced the Academic Health Sciences Centre, Alternative Funding Plan (AFP) Project. The project was intended to provide resources to assist in overcoming issues particular to AHSC and the recruitment, retention and compensation of academic physicians. A separate Laboratory Medicine Funding Framework Agreement was established for the province's laboratory physicians. While there was an improvement in compensation which made Ontario competitive with other provinces for recruitment and retention, the LMFFA however did not address the issues unique to AHSC and academic laboratory physicians, but rather treated all pathologists in the province uniformly with no regard for teaching or research responsibilities or for seniority. By doing so, there is concern that

incentives to accept the additional duties required in an Academic Health Sciences Centre have been lost, further exacerbating the recruitment issues already felt by the HRLMP.

Based on work-load and academic roles, there remains a need for more anatomic pathologists to meet the current service and academic demands, but this need for additional positions cannot be met currently through the hospital and ministry budgeting process.

In recent years the HRLMP has also felt the pressure of shortages of Medical Laboratory Technologists and an aging workforce.

Volume Increases

A formal system to forecast and fund increases in volume due to expansion of clinical programs, introduction of new programs, addition of tests, and changes in clinical practice needs to be developed.

Physicians

HRLMP Physicians also hold a full-time faculty appointments with Pathology and Molecular Medicine.

Technical/technologist staff and laboratory managers generally do not hold appointments in Pathology and Molecular Medicine, although there are a few exceptions when educational or research contributions warrant an academic appointment.

Full Time HRLMP Faculty by Discipline and Site							
Site	Anatomical Pathology	Clinical Chemistry	Hematology	Microbiology	Genetics	Immunology	Medical Biochemistry
General	3	3	1	2	0	0	1
Henderson	8	2	2	0	0	0	0
McMaster	9	2	1	2	5	1	1
St. Joseph's	8	1	1	7	0	0	1

G) RELATIONSHIPS AND AFFILIATIONS

Our relationships and affiliations have become apparent throughout this document. We have a very close relationship with all of our Hamilton Hospitals through the Hamilton Regional Laboratory Medicine Program. This includes Hamilton Health Sciences (McMaster University Medical Centre, Hamilton General Hospital, Henderson General Hospital, Chedoke Hospital and the Juravinski Cancer Centre), St. Joseph's Healthcare and St. Peter's Hospital. Our members maintain links with many organizations with whom they interact on a regular basis, from Research Granting Agencies, our Locally Integrated Health Network (LIHN4), the Ministry of Health and Long Term Care, the Ministry of Training, Colleges and Universities, the Royal College of Physicians and Surgeons of Ontario, the Chief Coroner's Office, the Judicial System and Police Services through our Forensic Pathology activities. Our faculty are also members of boards and professional groups related to the specialty areas in which they practice or do research.

H) STRENGTHS AND CHALLENGES

Our department has many strengths and opportunities.

- The department boasts significant research strengths in a number of University strategic priority areas
- We have a healthy level of research funding
- We have had an opportunity to recruit several young new basic science faculty to replace a number of retirees who took advantage of the Provost's Retirement Incentive Program
- We have strengthened the clinical faculty with new recruitments in Anatomic Pathology, Medical Biochemistry, Hematology and Medical Microbiology; a stand-alone pediatric pathology service with 3 full-time pediatric pathologists has been developed to enhance the service and academic profile.
- We are proud of our graduate education contributions and our successful efforts to support graduate education expansion in the Health Sciences Graduate Programs
- We have a solid relationship with our hospital partners and in particular the Hamilton Regional Laboratory Medicine Program, where most of our clinical faculty are employed.
- Our residency programs in Laboratory medicine attract excellent applicants and we offer outstanding learning opportunities in all disciplines of laboratory medicine.
- We have developed collaborative relationships with many new Institutes in the faculty, and are able to work jointly with these institutes in the recruitment of new faculty members, to the benefit of the department and the institutes.
- Our faculty are recognized locally, nationally and internationally as leaders in their field

There are a number of areas we have identified which we would like to develop in the department. We have a very diverse group of faculty: our basic science bench researchers, our members with major educational portfolios and our clinicians who spend a major amount of their time in clinical activities. Our challenge is to highlight common interests and collaborative opportunities within the department to increase the sense of belonging to the Department and to this end we have a department retreat planned for the end of October.

Another issue for members, particularly within anatomical pathology, is the clinical workload which has limited involvement in any meaningful research activity. We are working with HRLMP's new leadership to identify solutions to this and have recently made a joint appointment with the Department of Oncology with funding provided by the Ontario Institute for Cancer Research to support a position.

We had challenges in our Postgraduate Program related to resources, updating documentation in CANMEDS format and the learning environment, but these have been in large part addressed. Community rotations for residents, protected time for the Program Directors and renovations to the autopsy facilities at the Hamilton General remain issues, but we anticipate a favourable review from the upcoming Royal College Survey.

Another concern is that we have a few members of the department who have spent the majority of their time in research with adequate funding; however, of late it seems to be more difficult for them to be successful in securing new funding. Not only is their research in jeopardy, but also these individuals usually have graduate students in their labs that need access to supplies and animals to continue their studies. The department has provided some financial assistance but we do not have the resources to continue to do this. We believe the University needs to look at the overall funding of graduate students who do their thesis work in research laboratories.

We need to strengthen overall our research activity. Given the size of our department, our research funding should be among the highest in the faculty and we need to work to develop a strategy to enhance our success in peer-reviewed grants. While in the current funding climate it is good to see our research funding stable, we do need new recruitment in strategic areas to strengthen our research funding opportunities.

I) GOALS FOR THE COMING YEARS

The Department of Pathology and Molecular Medicine has a number of goals it would like to achieve over the next few years:

- To bring the department together into a more unified group. We have scheduled a retreat for October 31, 2008, and believe that this will provide a step in this direction. We also plan to use this opportunity when members of the department are together to develop our department goals for the future. Our theme for the day is 'Future Focus'.

DEPARTMENT OF PATHOLOGY AND MOLECULAR MEDICINE

❖ October 31, 2008 ❖ Liuna Gardens ❖

FUTURE FOCUS
 Collaborative Department Planning Day

OBJECTIVE: To collaboratively build on our strengths, recognize our challenges and together develop a plan for achieving a desired and envisioned future for our department

MORNING PROGRAM	AFTERNOON PROGRAM
8:00 Continental Breakfast and Meet & Greet 8:30 Welcome and Introductions 9:00 Affirming the objectives and setting the context ❖ Exploring the positive attributes of our Department ❖ Begin a process of identifying directions that will reinforce unified and united actions 10:15 <i>Refreshment Break</i> 10:45 In plenary, review the outcomes of the previous discussions In small groups, based on these outcomes and using pre-defined key questions as triggers, identify priority directions, new initiatives and/or potential collaboration opportunities As a plenary, identify possible action directions Ideas will be posted for participants to review during lunch 12:15 <i>Lunch Break</i>	1:15 As a plenary, determine the top five suggestions for further development 1:45 Self-select into breakout groups and: ❖ Articulate a focus for action: why, what ❖ Explore the scope and depth: who, where, how ❖ Develop a vehicle to present your group's idea to the full gathering (poster, etc) 2:45 <i>Refreshment Break</i> 3:00 Full Plenary Marketplace - each group will present their Action Template including: ❖ Action Title ❖ Group membership ❖ Synopsis statement of idea ❖ Objectives and desired outcomes ❖ Suggested action steps with potential timelines 4:00 Final Plenary ❖ Next steps ❖ Reflections on the day ❖ Closing Remarks

- With the opportunities provided by the new Institute for Infectious Diseases Research, the Digestive Health Research Institute, and the Population Genomics Program and funding from the Ontario Institute for Cancer Research, recruit new faculty members who will strengthen and grow our research programs.
- Through a strategy of identifying research mentors and focusing on strategic areas for research collaboration, enhance our success in peer-reviewed funding.
- Work with our hospital partners to ensure adequate resources to meet the service and academic needs of our teaching hospitals and an environment within our clinical laboratories that fosters excellence in service, teaching and research.
- Enhance the quality and reputation of our Laboratory Medicine residency programs.

J) APPENDICES

APPENDIX 1	2003 Department Status and Review Report
APPENDIX 2	Faculty Publications
APPENDIX 3	Residency Program Reviews
APPENDIX 4	Special Events
APPENDIX 5	Research Day Abstracts and AFP Grants Awarded
APPENDIX 6	HRLMP Strategic Plan and External Review
APPENDIX 7	Part-time Faculty Policy Document
APPENDIX 8	Graduate Expansion Initiative
APPENDIX 9	Promotion & Tenure Review Procedure Schedule
APPENDIX 10	Faculty CVs
APPENDIX 11	Current Faculty List