

A detailed electron micrograph of a cell, showing a complex network of filaments and organelles. The image is in grayscale and serves as the background for the text.

**Departmental Annual Review
2008-2009**

**Department of
Microbiology and Immunology**

Prepared by: Malcolm Baines, Chair 2009-2010

Department of Microbiology and Immunology.

Annual Report June 1, 2008 to May 31, 2009

Section I

Description of the Department of Microbiology and Immunology:

The mission of the department is to promote training and research in the science of Microbiology and Immunology in the context of the Faculty of Medicine. The department supports all its members in their undertaking of outstanding cutting edge research involving molecular biology, the pathogenesis of infectious diseases, the discover and application of new treatments and methods for the prevention of infectious diseases that will have a major impact on global health. Based on the currency of their knowledge in their scientific research subjects, our departmental members directly engage in the teaching and training of undergraduate medical and science students in the science of microbiology and immunology in Liberal, Major, Honours and Medical programs in which they learn both the theory and practical laboratory scientific skills to prepare them for post-graduate studies and careers in research. The members of the department of Microbiology and Immunology also provide opportunities for graduate training to masters, doctoral and post-doctoral research trainees.

There are 15 tenure stream Professors in the department with expertise in bacteriology and (5), immunology (4), virology (3), parasitology (2) and mycology (1) including three Assistant, seven Associate and five Full Professors (Table-1). Assistant Professor Ciriaco Piccirillo was promoted to Associate Professor with tenure in 2009 based on his exceptional academic performance in teaching, service and research in immunology. Overall, the academic staff in the department obtained \$2,875,582 in research funding (Section 2: Research) and published 42 scholarly articles in peer-reviewed publications in 2008-2009 (Appendix II). In addition, there are currently 38 Associate Members of the department and 14 Adjunct Professors who contribute to the teaching and research mission of the department (Table-2). All of the undergraduate and graduate courses are entirely taught by full, associate or adjunct academic members of the department of Microbiology and Immunology.

While the Department of Microbiology and Immunology is currently below its normal strength in terms of the numbers of faculty members appointed to the Department, the quantity and quality of their teaching and research productivity remains at a very high level.

Section I - Faculty

A. List of Faculty Members Appointed in the Department

Dr. Malcolm Baines (Interim Acting Chairman, 2009-present)

Dr. Greg Matlashewski (Chairman, 2000-2009) – on leave of absence to 2011

Dr. Zafer Ali-Khan

Dr. Dalius Briedis

Dr. James Coulton

Dr. Benoit Cousineau

Dr. Sylvie Fournier

Dr. Matthias Götte

Dr. Samantha Gruenheid

Dr. Herve Le Moual

Dr. Shan-Lu Liu

Dr. Greg Marczynski

Dr. Robert Murgita

Dr. Ciriaco Piccirillo

Dr. Donald Sheppard

A.1. List of Faculty Members Cross-Appointed in the Department

Dr. Albert Berghuis

Dr. John Hiscott

Dr. Silvia Vidal

Dr. Mark Wainberg

B. List of Other Faculty with appointments in the Department

Adjunct Professors:

Dr. Vibhuti Dave

Dr. Albert Descoteaux

Dr. Elias Haddad

Dr. David Hugh Jones

Dr. George Kukulj

Dr. Peter Lau

Dr. Andrew Makrigiannis

Dr. Allan Matte

Dr. Clement Rioux

Dr. Yoong-Kyung Suh

Associate Members:

Dr. Jack Antel

Dr. Amit Bar-Or

Dr. Marcel Behr

Dr. Miguel Burnier

Dr. Shan Cen

Dr. Nicholas Christou

Dr. Andre Dascal

Dr. Anne Gatignol

Dr. Sabah Hussain

Dr. Armando Jardim

Dr. Antonis Koromilas

Dr. Lawrence Kleiman

Dr. Arnold Kristof

Dr. Richard Lalonde

Dr. Byong Lee

Dr. Chen Liang

Dr. Vivian Loo

Dr. Ameer Manges

Dr. Jack Mendelson

Dr. Mark Miller

Dr. Andrew Moulard

Dr. Jay Nadeau

Dr. Marianna Newkirk

Dr. Martin Olivier

Dr. Roger Palfree

Dr. Kostas Pantopoulos

Dr. Arnim Pause

Dr. Joyce Rauch

Dr. Michael Reed

Dr. Paula Ribeiro

Dr. Stephane Richard

Dr. Maya Saleh

Dr. Christos Tsoukas

Dr. Bernard Turcotte

Dr. Brian Ward

Section II - Summary of the achievements in 1 June, 2008 to 31 May, 2009

Teaching and learning (undergraduate and graduate)

Undergraduate:

The disciplines of microbiology and immunology are natural partners in research in the context of infectious diseases, and both fields use the modern methods of cell and molecular biology and genetics to study basic life processes. The Department of Microbiology and Immunology consists of scientists who study viral and microbial physiology, microbial genetics and pathogenesis, cell and molecular immunology, mycology and parasitology. Students registered in the Department are therefore exposed to these interrelated areas and receive an excellent background in basic biology and chemistry as well as in the more applied areas of biotechnology and medicine. The Microbiology and Immunology programs continue to attract students of outstanding quality to our undergraduate programs where they receive a comprehensive science education together with opportunities for direct involvement in fundamental laboratory based research. There are currently 320 undergraduate students registered in our departmental programs and 1015 other science students are registered in our courses as part of their science education (Table-1). In 2008-2009, a total of 98 students graduated with an average CGPA of 3.43, attesting to the outstanding quality and performance of our students. The practical laboratory component in each academic year provides basic training in medical microbiology, molecular biology, immunology and parasitology (MIMM212, MIMM386D1/2 and MIMM413). Our honours programs in Microbiology and Immunology (MIMM502D1/2, 21 students) and Immunology (PHGY419D1/2, 18 students) provides our research oriented students with a full-year of intensive (12 credit) training in research with a Professor-supervisor. In 2008, MIMM502D1/2 course was split into MIMM502D1/2 "Microbiology honours research project" and MIMM501D1/2 "Immunology honours research project" to separate the research disciplines and optimize university grant support. The Honours students graduated with a CGPA 3.82. The recent introduction of MIMM396/397 provides many other science students with opportunities to obtain practical research experience in a 3-credit course with Professors as supervisors. The enrolment of students in these introductory research courses continued to be strong in the past year, and convinced many students to continue into graduate programs. The quality of teaching over the 15 courses taught in Microbiology and Immunology averaged 4.00/5.00. Upon graduation, a significant fraction of our graduates enter medical and graduate schools including those at McGill. Feedback from their supervisors demonstrates that they appreciate the excellent preparation we give to our students for subsequent graduate training and research. Ms Laura-Isobel McCall graduated from our honours program in 2009 with a perfect 4.0 CGPA and was awarded the Major Hiram Mills Medal in science, the Sigma Xi award, the McGill Alumnae Society Prize and the E. G. D. Murray Prize in Microbiology and Immunology. The NSERC Summer Undergraduate Research Award recipients were Xiao Guo, Daniel Ting, Yuxin Mei, Ernuo Cheng and Stanley Kwan.

Graduate:

We have established an excellent graduate program that provides state-of-the-art research training, with an emphasis on the molecular aspects of viral, microbial, mycological and parasitic infections and host defences against disease. Each program is tailored to fit the needs and backgrounds of individual students. The numbers of students have increased from an average of 76.5 over the past four years to 85. The average CGPA of newly admitted students is 3.49. Most students begin as M.Sc. candidates in September or January. M.Sc. students who wish to

transfer into the Ph.D. program are considered for promotion to the Ph.D. program after completion of three academic terms. Applicants with a M.Sc. degree are eligible for direct admission to the Ph.D. program. The department received \$32,500 of funding from the Principal's Graduate Fellowship program, representing a total of 13 graduate fellowships. In addition we received one Max Stern Fellowship of \$10,000. These fellowships were given to outstanding graduate students on the basis of academic achievement. All students admitted to a program of graduate studies receive a graduate stipend of at least \$15,000 plus a differential fee adjustment. Together with competitive graduate studentships, our students receive an average annual stipend of \$20,578 in support of their living expenses.

Our goal is to help each graduate student become an independent research scientist. This is achieved through focused research training coupled with broad exposure to current scientific discoveries in graduate seminars, advanced special topics courses, and discipline specific journal clubs. In addition to supervised research in a Professors laboratory, our graduate students receive training in effective lecture preparation and the teaching of science subjects followed by immediate feedback to identify existing strengths and areas where improvement is needed. In addition to instructions on the use of Power-point presentations in teaching, we have recently added information sessions on recommended standard research practices consistent with the highest principles of integrity in research to ensure that our students' research performance is above reproach. Graduate students also have opportunities as Teaching Assistants in both lecture and laboratory courses to hone their skills as teachers of undergraduate students. The graduate studies tracking system introduced a few years ago continue to pay dividends in terms of more structured student training, better monitoring of progress and timely graduation. In 2008-2009, 9 M.Sc. and 4 Ph.D. students successfully defended their theses and graduated (Table-6). Among many students who received awards, Dr. Karron James defended her PhD thesis on October 2009 and was recognized by the Canadian Bureau for International Education, Ottawa, as International Student of the Year.

The number of Post Doctoral Fellows has also increased from an average of 4 per year to 10 new post-doctoral trainees in 2008-2009.

Research:

Among our 15 Departmental academic staff members, 7 receive salary support from provincial (FRSQ (2)) or national (CIHR (2), CRC (3)) sources reducing the impact of academic salaries on the McGill budget. One (1) Professor receives a Dawson awards to a level approximately equivalent to that of CRC awards. Virtually all our Professors have one or more research grants (FRSQ, NSERC, CIHR, NIH, and private foundations) to support their research programs and trainees totalling \$2,875,582 and published 42 scholarly articles in peer-reviewed publications in 2008-2009 (Appendix II). All presented their research to numerous scholarly meetings, received awards and contributed to their respective academic and research institutions.

APPENDIX SECTION II:

A. DATA ON DEPARTMENTAL ACTIVITIES

TABLE 1. Number of undergraduate students taught in 2008-2009

<u>MIMM Undergraduate course enrolment</u>	1335
Faculty of Science	
Microbiology and Immunology Students:	285
I.H.I.: Students	35
	320
<u>NON MIMM students taught in MIMM</u>	
B.Sc.	209
BA/Sc.	123
Other	22
	354

TABLE 2. Five-year full time equivalent (FTE) enrolment of undergraduate students in Departmental courses:

<u>2004-2005</u>	<u>2005-2006</u>	<u>2006-2007</u>	<u>2007-08</u>	<u>2008-09</u>
465	489	490	451	445

TABLE 3. Enrolment in undergraduate programs in Microbiology and Immunology in 2008-2009

	<u>U1</u>	<u>U2</u>	<u>U3</u>	TOTAL
Honours			21	21
Major	98	88	70	256
Faculty			5	5
Liberal		1	2	3
TOTAL				285

TABLE 4. Undergraduate students enrolled in Dept. during the past five years

<u>2004-2005</u>	<u>2005-2006</u>	<u>2006-07</u>	<u>2007-08</u>	<u>2008-09</u>
355	306	304	275	285

TABLE 5 a. Microbiology & Immunology Undergraduate Student course evaluation in 2008-2009.

course number	# of students registered	number of completed evaluations	evaluation (1 = poor 5 = excellent)
MIMM 211	237	75	4.4/5.00
MIMM 212	108	69	4.3/5.00
MIMM 323	102	25	3.35/5.00
MIMM 324	122	30	3.8/5.00
MIMM 465	94	21	3.6/5.00
MIMM 314	220	61	3.95/5.00
MIMM 386D	102	43	3.65/5.00
MIMM 387	76	20	4.25/5.00
MIMM 396	8	n/a	n/a
MIMM 413	92	17	3.55/5.00
MIMM 414	37	13	4.15/5.00
MIMM 466	104	21	3.35/5.00
MIMM 499	3	n/a	n/a
MIMM 502D	23	7	4.9/5.00
MIMM 509	7	3	4.7/5.00
TOTAL	1335	405	AVERAGE 4.00

TABLE 5b: Undergraduate student graduations 2008-2009.

Spring	2009
Majors program	49
Honours program	23
Faculty program	3
<u>I.H. S. program</u>	<u>12</u>
	87

Winter	2009
Faculty program	1
Majors program	1
	2
Fall	2008
Faculty program	1
Majors program	8
	9
TOTAL	98

TABLE 6. Total graduate degrees granted over the past five years

	<u>2004-2005</u>	<u>2005-2006</u>	<u>2006-2007</u>	<u>2007-2008</u>	<u>2008-2009</u>
M.Sc.	12	15	9	13	9
Ph.D.	6	4	10	3	4
Registered	77	77	74	75	85

TABLE 7. Graduate student and post-doctoral fellow enrolment and funding

	<u>2004-2005</u>	<u>2005-2006</u>	<u>2006-2007</u>	<u>2007-2008</u>	<u>2008-09</u>
Total Number of:					
Graduate Students	77	77	77	75	85
Post Doctoral Fellows	3	3	4	4	10
Number of New Graduate Students	24	30	18	26	33
Average CGPA of Incoming Students	3.44	3.64	3.60	3.46	3.49
Fellowships/ Scholarships/ Bursaries	\$589,723	\$425,488	482,811	\$697,410	\$747,345
Teaching/ Demonstratorships/ Service	\$71,451	\$99,048	81,693	\$74,104	\$78,877
**Research Assistantships	\$821,631	\$1,005,365	869,850	\$713,350	\$922,900

Total Funding	\$1,482,804	\$1,529,901	1,432,354	\$1,484,863	\$1,749,122
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Average Funding per Registered Trainee	\$15,887	\$19,869	18,602	\$19,798	\$20,578
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**This item is not listed on the forms provided by the Fellowships Office.
 These forms appear under IV Supplementary Information, b) Students.

TABLE 8. Funding of graduate students by source

		Number of Awards	Amount
A.	<u>Departmental Awards</u>		
1.	F.C. Harrison Fellowships	11	\$28,100
	TOTAL	11	\$28,100
B.	<u>Internal Funding</u>		
1.	Alma Mater - Travel Award	1	\$7,000
2.	Differential Fee Waiver	1	\$4,000
3.	Faculty of Medicine Internal Award	1	\$9,000
4.	Max Stern	1	\$10,000
5.	Principals Graduate Fellowship	13	\$32,500
6.	Provost Graduate Fellowship	11	\$30,500
7.	Research Assistants	65	\$922,900
8.	Teaching/Demonstrators/Service	25	\$78,877
	TOTAL	118	\$1,094,777
C.	<u>External Fellowships</u>		
1.	CIHR	14	\$254,412
2.	Commonwealth	1	\$17,100
3.	FRSQ	5	\$90,000
3.	GERPROM	1	\$12,000
4.	Mexican Scholarship	2	\$24,000
5.	MS Society	1	\$18,000
6.	MUHC	8	\$75,711
7.	NCRTP	1	\$25,255
8.	NIH/UCLA	1	\$9,166
9.	NSERC	4	\$90,600
10.	ON-QC Exchange	1	\$10,000
			\$626,244
D.	<u>Loans and Bursaries</u>		
1.	McGill University Student Loan	1	\$1,000
	TOTAL	40	\$627,244
	<u>GRAND TOTAL</u>	<u>169</u>	<u>\$1,750,121</u>

Section II - Honours, Awards, Collaboration, Conferences

For the period covering June 1, 2008 to May 31, 2009

Name:	Professor/Dr. Zafer Ali-Khan
Involvement INSIDE Scholarly Community:	Chair, Graduate Committee, Department of Microbiology and Immunology Ad hoc reviewer of a manuscript submitted to Biochim Biophys Acta- 2009
Name:	Professor/Dr. James W. Coulton
Honours, Awards, Official Positions (held in Professional or Learned Societies)	Fellow, American Academy of Microbiology Academic and Research Microbiologist, Canadian College of Microbiologists Executive Member, Groupe d'étude des protéines membranaires (GEPROM), Université de Montréal (FRSQ) Charter Member, Centre de recherche en infectologie porcine (CRIP), Université de Montréal (FQRNT) Charter member, McGill Center for Structural Biology
Inter-University and/or International Collaboration (teaching/research):	Dr. Mario Jacques: Université de Montréal, St-Hyacinthe; "Membrane proteomics of <i>Actinobacillus pleuropneumoniae</i> "; Dr. Michael Mourez: Université de Montréal, St-Hyacinthe; « Nouvelles initiatives » du CRIP_Le récepteur de AIDA-1 Dr. Christian Baron, Université de Montréal; Projet novateur de GEPROM_Analysis of the type IV secretion system by phage display: complex interactions of core membrane proteins
Conferences/Symposia/	Deme, J.C., Carter, D.M., Hancock, M.A., Coulton, J.W. Interactions entre un dérivé du transducteur énergétique TonB sans région flexible riche en prolines, et FhuD, une protéine périplasmique qui lie le fer. September 21, 2008. 4e Colloque international
Invited Speaker/Sabbatical, etc.	James, K.J., Hancock, M.A., Gagnon, J-N., Coulton, J.W . TonB interacts with BtuF, the Escherichia coli periplasmic binding protein for vitamin B12. Canadian Society of Microbiologists 58th Annual Conference, Calgary, AB, Canada, June 12, 2008.
Involvement INSIDE Scholarly Community:	<ul style="list-style-type: none"> • Member, Advisory Committee, Sheldon Biotechnology Center • Member, Health Sciences Library Advisory Committee, Faculty of Medicine • Member, Undergraduate Committee, Department of Microbiology and Immunology • Member, Seminars Committee, Department of Microbiology and Immunology
Name:	Professor/Dr. Benoit Cousineau
Honours, Awards, Official Positions (held in Professional or Learned Societies)	William Dawson Scholar Award (McGill) (2003-2008) (2008-2013) Chercheur Boursier Junior 2 (2003-2008) Hugh and Helen McPherson Memorial Award (McGill) (2008-2009) Member of the American Society for Microbiologists (ASM) Member of the Canadian Society of Microbiologists (CSM) Member of the Eastern Ribo-Club (guest lab) Member of the Canadian Society for Ecology and Evolution (CSEE)
Inter-University and/or International Collaboration (teaching/research):	Collaborative research project with Dr. Michel Moisan, Département de Physique, Université de Montréal. Molecular basis for the inactivation of <i>B. subtilis</i> spores by plasma irradiations.
Conferences/Symposia/	Cousineau, B. (2008). The LI.LtrB group II intron: a bacterial retroelement. Department of Microbiology and Immunology, McGill University, Montreal,

	Quebec
Invited Speaker/Sabbatical, etc.	Cousineau, B. (2008). The LI.LtrB group II intron: a bacterial retroelement. Canadian Society of Microbiologists 58th Annual Conference, University of Calgary, Alberta, Canada.
Scholarly Community:	Chair of the Equipment Committee Member of the Graduate Studies Committee Member of the Undergraduate Studies Committee Member of the Fellowships Committee Microbiology and Immunology Academic Adviser Microbiology and Immunology Study Away/Exchange Adviser for Micro & Immuno Numerous Academic Committees (MSc, PhD, Comprehensive exams, MSc to PhD switch, thesis defence)
Involvement OUTSIDE Scholarly Community:	Host 2 students from John Abbott College for 2 days
Name:	Professor/Dr.Sylvie Fournier
Honours, Awards, Official Positions (held in Professional or Learned Societies)	Member Canadian Society for Immunology
Inter-University and/or International Collaboration (teaching/research):	CIHR Strategic Training Program: Integrated Training Program in Basic and Clinical Aspects of Neuroinflammation (U. Montreal, U. McGill, UQUAM) Quebec-Ottawa Regional Research and Training Centre of the MS Research and Training Network
Conferences/Symposia/	9 th International Congress of Neuroimmunology, Fort Worth, Texas, USA, October-26-30, 2008.
Invited Speaker/Sabbatical, etc.	World Congress on Treatment and Research in Multiple Sclerosis (ACTRIMS, ECTRIMS, LACTRIMS). Centre des congrès de Montréal, Montreal, QC, Canada, September 17-20, 2008.
Scholarly Community:	Graduate Studies Committee, Department Micro & Immuno Awards Committee: CIHR Strategic Training Program Academic Adviser U2, Department Micro & Immuno UACC Training and Qualifications Subcommittee Advisory Committees: Lee-Hwa Tai (Dr. A. Makragiannis) Philippe Saikali (Dr. J. Antel) Candidacy exams: Erin Fortier (Dr. N. Cermakian) Rabia Tahir Khan (Dr. Malo) Louis Leroux (Dr. F. Dzierszinski) M.Sc. Thesis evaluation: Aja Michelle Rieger (Dr. A. Bar-Or) Samantha Li (Dr. V. Dave) PH. D. Thesis defence: Jason Millward (Dr. T. Owens) Philippe Pouliot (Dr. M. Olivier)
Involvement OUTSIDE Scholarly Community:	Member Committee: Chercheurs boursiers et cliniciens "volet fondamental" Senior

Name:	Professor/Dr. Matthias Götte
Honours, Awards, Official Positions (held in Professional or Learned Societies)	Career award (Chercheur-boursier Senior) - Fonds de la recherche en santé (FRSQ) Career award (New Investigator) - Canadian Institutes of Health Research (CIHR)
Inter-University and/or International Collaboration (teaching/research):	1. Universities and Research Institutes Pennsylvania State University, PA, USA Emory University, GA, USA University of Vermont, VT, USA Rega Institute, Leuven, Belgium Cardiff University, Cardiff, United Kingdom NIH, Bethesda, MD, USA NCI, Frederick, MD, USA 2. Companies Tibotec, Mechelen, Belgium Gilead Sciences, CA, USA Merck, PA, USA GSK, NC, USA
Conferences/Symposia/	Since 2007, International HIV Drug Resistance Workshop, Member of the Scientific Committee Since 2007, HIV DART, Member of the Scientific Committee
Invited Speaker/Sabbatical, etc.	1. Invited Presentation: Merck Frost, Montreal, PQ, Canada, June 18, 2009 2. XVIII International HIV Drug Resistance Workshop, Fort Myers, USA, June 9-12, 2008 3. Invited Presentation: GSK, Chapel Hill, NC, USA, May 4, 2009 4. Invited Presentation: University of Minnesota, Minneapolis, MN, USA, April 29, 2009 5. Invited Presentation: Emory University, GA, USA, March 26, 2009 6. Invited Presentation: Emory University, GA, USA, January 27, 2009 <u>2008</u> 1. HIV DART, Puerto Rico, USA, December 9-12, 2008 2. International meeting on RNase H, Tsuruoka, Japan, Sept. 22-24, 2008 3. XVII International HIV Drug Resistance Workshop, Sitges, Spain, 4. June 4-6, 2008 5. <u>Maryam Ehteshami</u> : XVII International HIV Drug Resistance Workshop, Sitges, Spain, 6. June 4-6, 2007
Scholarly Community:	Journals - ad hoc reviews Journal of Biological Chemistry, Biochemistry, Journal of Molecular Biology, Journal of Virology, Nucleic Acids Research, Virology, Antimicrobial Agents and Chemotherapy, PLoS Medicine, PLoS Pathogens, Journal of Medicinal Chemistry, Structure, Journal of Infectious Diseases
Involvement OUTSIDE Scholarly Community:	Editorial Board Member, Since 2007, Antimicrobial Agents and Chemotherapy Current Grant Panels 2009 NIH site visit 2008 NIH site visit

	<p>2006-2009 CIHR – Fellowship, Member Since 2004 The Ontario HIV Treatment Network, Member Since 2003 NIH (AIDS Related SBIR & STTRs), Member</p> <p>Since 2003 NIH (AIDS Discovery and Development of Therapeutics), ad hoc Since 2002 Member of the College of Reviewers for the Canada Research Chairs Program Since 2002 CIHR – external reviewing</p>
Name:	Professor/Dr. Samantha Gruenheid
Honours, Awards, Official Positions (held in Professional or Learned Societies)	<p>member, Canadian Association of Gastroenterology member, Canadian Society for Microbiology member, McGill association of University Teachers Tier 2 CRC; Canada Research Chair in Bacterial Pathogenesis</p>
Inter-University and/or International Collaboration (teaching/research):	<p>Collaboration: Gail Hecht, University of Illinois at Chicago Collaboration: Jinh Kim, UC Davis Collaboration: Nathalie Strynadka, UBC Collaboration: Tony Pawson, Samuel Lunenfeld Institute, Toronto</p>
Conferences/Symposia/	<p>1. Montreal Children’s Hospital seminar series: Montreal, Quebec. Invited speaker: Molecular Dissection of Host:Pathogen Interactions in Pathogenic E.coli Infections. Dec. 2008.</p>
Invited Speaker/Sabbatical, etc.	<p>2. McGill Department of Microbiology and Immunology: seminar series. Montreal, Quebec. Invited speaker: NleA: A Virulence Factor of Pathogenic E. coli: Identification and characterization. Sept. 2008. 3. McGill University: “Soup and Science” presentations for science undergraduates Sept. 2008 4. Canadian Society for Microbiology Annual Meeting Calgary, Alberta. Invited speaker: NleA: A Virulence Factor of Pathogenic E. coli: Identification and characterization. June 2008.</p>
Scholarly Community:	<p>organizing committee, Canadian Society of Microbiology annual conference, Sept. 2009 member: downtown campus Faculty of Medicine Animal Care Committee CIHR: Operating Grants: Genetics panel; external reviewer, September. 08 competition CIHR: Catalyst Grants: Human Microbiome; committee member, Jan. 09 competition reviewer: Nature, Cell Host and Microbe (X 3), JBC, Molecular Microbiology volunteer: McGill Open house</p>
Name:	Professor/Dr. Hervé Le Moual
Inter-University and/or International Collaboration (teaching/research):	<p>Inter-University Research Collaboration: Research collaboration with Dr. France Daigle, Département de Microbiologie et Immunologie, Université de Montréal. This ongoing collaboration led to a published abstract and two published manuscripts.</p>
Conferences/Symposia/	<p>Chair of a symposium on Oral pathogens at the 59th Annual Conference of the Canadian Society of Microbiologists.</p>

Invited Speaker/Sabbatical, etc.	Abstract: Portt, A., Le Sage V., and Le Moual, H. (2009). Degradation of Host Antimicrobial Peptides by Outer-membrane Proteases of Enteric Pathogens. CSM, 59th Annual Conference, Montreal, QC, Canada.
Scholarly Community:	<p>Examiner for Ph.D. Theses: Ms. Valerie Le Sage, Department of Microbiology and Immunology, McGill University. Ligand sensing and signal transduction by the two-component system PhoP/PhoQ. Supervisor: Dr. H. Le Moual, April 21 2009.</p> <p>Examiner for M.Sc. Theses: Mr. Pierre-Paul Gros, Department of Microbiology and Immunology, McGill University. The characterization of PrpZ and PrkY, two eukaryotic-type proteins of <i>Salmonella enterica</i> serovar Typhi. Supervisor: Dr. H. Le Moual, April 2009. Ms. Mayss Naccache, Department of Human Genetics, McGill University. Genetic Analysis of the Effect of Nramp1 on the Host and Pathogen Genomes in the Context of Chronic <i>Salmonella</i> Infection. Supervisor: Dr. Danielle Malo, January 2009.</p> <p>Ms. Reena Patel, Division of Experimental Medicine, McGill University. Mediation of pleiotropic drug resistance by zinc cluster transcriptional regulators in <i>Saccharomyces cerevisiae</i>. Supervisor: Dr. Bernard Turcotte, November 2008.</p> <p>Ph.D. Advisory Committees at McGill University: Mr. David Carter, Department of Microbiology and Immunology, McGill University. Novel interactions between the <i>E. coli</i> siderophore binding protein FhuD and the energy transducer TonB. Supervisor: Dr. J. Coulton, July 11, 2008. Mr. Frédéric Veyrier, Department of Microbiology and Immunology, McGill University. The SigK regulon in <i>Mycobacterium tuberculosis</i>: evolution, regulation, function. Supervisor: Dr. Marcel Behr, October 8, 2008 and May 4, 2009. Ms. Karen James, Department of Microbiology and Immunology, McGill University. Supervisor: Dr. J. Coulton, Nov. 11, 2008. Mr. Justin Deme, Department of Microbiology and Immunology, McGill University. Supervisor: Dr. J. Coulton, Nov. 19, 2008.</p>
Involvement OUTSIDE Scholarly Community:	Fonds de la Recherche en Santé du Québec (FRSQ), Membre du Comité d'évaluation des bourses de Maîtrise, March 2009.
	Réseau de recherché en santé buccodentaire et osseuse (RBSO), comite de pairs pour le concours "Bourses post-doctorales, May 2009.
Name:	Professor/Dr. Shan-Lu Liu
Honours, Awards, Official Positions (held in Professional or Learned Societies)	CIHR operating grant renewed for 5 years Canada Research Chair (CRC) Tier II
Inter-University and/or International Collaboration (teaching/research):	Collaborations with Chinese Academy of Medical Sciences Collaborations with IRCM Collaborations with Harvard University
Conferences/Symposia/	American Society for Virology (ASV) Annual Meeting

Invited Speaker/Sabbatical, etc.	Cold Spring Harbor Retroviruses meeting Invited lectures in several US, Canadian and Chinese Universities or Institutions
Scholarly Community:	ASV membership committee member
Name:	Professor/Dr. Gregory T. Marczynski
Honours, Awards, Official Positions (held in Professional or Learned Societies)	New NSERC operating grant
Conferences/Symposia/	Sabbatical leave, at the University of Illinois at Chicago
Name:	Professor/Dr. Ciriaco Piccirillo
Honours, Awards, Official Positions (held in Professional or Learned Societies)	Canada Research Chair Tier II (CRC): " <i>Regulatory Lymphocytes in the Immune System.</i> " <i>CD4⁺CD25⁺ Immunoregulatory T cell Function in Type 1 Autoimmune Diabetes.</i> \$500,000 (renewal). Colonel Edward T. Renouf Research Fellowship
Inter-University and/or International Collaboration (teaching/research):	<ol style="list-style-type: none"> 1. Department of Microbiology and Immunology (McGill University) 2. Center for the Study of Host Resistance (MUHC) 3. FQRNT- Center of Host-Parasite Interactions (CHPI). 4. Co-Leader, Infection and Immunity Axis, MUHC Research Institute 5. Director, McGill-MUHC FOCIS Center of Excellence 6. Director, MUHC RI Immunophenotyping platform.
Conferences/Symposia/	1. The ins and outs of naturally-occurring CD4 ⁺ CD25 ⁺ regulatory T cells Dept. Microbiology and Immunology, Cornell University (Ithaca, NY) (March 2003).
Invited Speaker/Sabbatical, etc.	<ol style="list-style-type: none"> 2. Control of self-tolerance mediated by naturally-occurring CD4⁺CD25⁺ regulatory T cells Department of Immunology, NYU, NY, USA. (July 2003). 3. Control of self-tolerance mediated by naturally-occurring CD4⁺CD25⁺ regulatory T cells Center for Neurologic Diseases, Harvard Medical School. (Aug 2003). 4. Belkaid, Y., C.A. Piccirillo, S.Mendez, E.M. Shevach and D.L. Sacks. Control of Leishmania major infection by naturally-occurring CD4⁺CD25⁺ immunoregulatory T cells. FASEB J. 16:A1070, 2003 5. Manigold T., C.A. Piccirillo, K.Mihalik, C.M. Rice, S.M. Feinstone, B. Rehermann. CD4⁺ CD25⁺ regulatory T cells control effector function of HCV-specific memory CD8⁺ T cells in HCV-recovered chimpanzees. International Meeting on Hepatitis C Virus and R 6. Manigold T., C.A. Piccirillo, Kathleen Mihalik, C.M. Rice, S.M. Feinstone, B. Rehermann. CD4⁺ CD25⁺ regulatory T cells control effector function of HCV-specific memory CD8⁺ T cells in HCV-recovered chimpanzees. FASEB J. 22(3): A305. 7. Control of self-tolerance mediated by naturally-occurring CD4⁺CD25⁺ regulatory T cells. <i>Keynote speaker</i> at the Annual Immunology and Inflammation colloquium at the Univ. de Sherbrooke. (June 2004). 8. <u>Major Symposium speaker</u> Control of Type 1 Autoimmune Diabetes by

Naturally-occurring CD4⁺CD25⁺ Regulatory T Lymphocytes. 4th International Congress on Autoimmunity, Budapest, Hungary. (Nov. 2004).

9. Regulation of immune responses by CD4⁺CD25⁺ regulatory lymphocytes. Istituto di Ricerche di Biologia Molecolare (IRBM), Rome, Italy. Nov. 2004

10. Ekaterina Iourtchenko and Ciriaco A. Piccirillo. Real-time, Dynamic Imaging of Effector and Regulatory T Lymphocytes *in vivo*. "Regulatory cells" Symposium, 12th International Congress of Immunology. (July 2004).

11. Control of Type 1 Autoimmune Diabetes by Naturally-occurring CD4⁺CD25⁺ Regulatory T Lymphocytes. "Regulatory cells" Symposium, 12th International Congress of Immunology. (July 2004).

12. Chentoufi A.A. and C.A. Piccirillo. Critical requirement for IL-2R signalling in the survival and function of naturally-occurring CD4⁺CD25⁺ regulatory T cells. "Regulatory cells" Symposium, 12th International Congress of Immunology. (July 2004).

13. Control of self-tolerance mediated by CD4⁺CD25⁺ regulatory T cells. Guest speaker at Dept. of Immunology, McMaster University, Hamilton, ON. (January 2005).

14. Invited speaker and chair Tolerogenic functions of naturally-occurring CD4⁺CD25⁺ regulatory T cells. "Regulatory T cells" session at the Keystone symposium "Basic Aspects of Tumor Immunology (C3)" (Keystone, Colorado, March 2005).

15. Major Symposium speaker Tolerogenic functions of naturally-occurring CD4⁺CD25⁺ regulatory T cells. Canadian Society of Immunology (April 2005)

16. Immunosuppressive roles of naturally-occurring CD4⁺CD25⁺ regulatory T cells. Speaker at the Dept. of Surgery, Vancouver Coastal Health Research Center, UBC, Vancouver, BC. (April 2005)

17. Regulation of immunity by naturally-occurring CD4⁺CD25⁺ regulatory T cells. Speaker at l'Institut de Recherche en Immunologie et cancérologie (IRIC) Montreal, Qc. (January 2006)

18. Immunosuppressive roles of naturally-occurring CD4⁺CD25⁺ regulatory T cells: lessons from *in vitro* and *in vivo* models. Speaker at the Dept. of Immunology, Memorial Univ., St-John's, Newfoundland. (March 2006).

19. Major Symposium speaker Functional heterogeneity in Foxp3⁺ regulatory T cells: lessons from mice and men. European Congress of Immunology. Paris, France (September 2006)

20. Major Symposium speaker Homing of CD4⁺Foxp3⁺ regulatory T cells to sites of inflammation: *target for immunotherapy?* AAAI annual meeting. San Diego, USA (February 2007).

21. Impact of Idd3 alleles on the function of naturally occurring CD4⁺ regulatory T cells and resistance to autoimmune diabetes. Invited speaker at the "Regulatory T cells" meeting (Keystone, Vancouver, BC February 2007).

22. Invited chair of "Immune tolerance and regulation" workshop at the Canadian Society of Immunology annual meeting (Lake Louise, Alberta, Canada, March 2007).

23. Role of Foxp3⁺ regulatory T cells in immune responses to commensal and pathogenic microbes. Harvard Medical School. (March 2007)

24. Multi-faceted Functions of CD4⁺Foxp3⁺ Regulatory T Cells in Organ-Specific Autoimmunity: Lessons from Mice and Men. Univ. Western Ontario/Robarts Research Institute. (September 2007).

25. Functional heterogeneity in human FOXP3⁺ regulatory T cells. Major Symposium speaker at the Japanese Society of Immunology. Tokyo, Japan (November 2007)

26. Major Symposium speaker of the "Regulatory T cell" major symposium at the Canadian Society of Transplantation (CST) annual meeting (Mt. Tremblant, Quebec, Canada, February 2008).

27. Invited chair of "Immune tolerance and regulation" workshop at the Canadian Society of Immunology (CSI) annual meeting (Mt. Tremblant, Quebec, Canada, April 2008).

28. Functional Dynamics of CD4⁺Foxp3⁺ regulatory T cells: *in vivo veritas*. UBC/Vancouver General Hospital (May 2008).

	<p>29. Keynote speaker Bell Montreal Regional Science and Technology Fair, Lester B. Pearson High School, Montreal, QC. (March 2008)</p> <p>30. Multi-faceted Functions of CD4⁺Foxp3⁺ Regulatory T Cells in Type 1 diabetes. Univ. of Toronto/Sunnybrook. (September 2008)</p> <p>31. <u>Major Symposium speaker</u> Functional Dynamics of CD4⁺Foxp3⁺ regulatory T cells in vivo. <i>International Congress on Regulatory T cells and Clinical Application in Human Disease</i>. Beijing, China. (October 2008)</p> <p>32. <u>Major Symposium speaker</u> Functional Dynamics of CD4⁺Foxp3⁺ regulatory T cells in autoimmune diabetes. <i>FASEB Summer research conference on Autoimmunity</i>. Vermont, USA. (June 2009)</p>
Scholarly Community:	<ol style="list-style-type: none"> 1. Chair/Director - Departmental Flow Cytometry Steering Committee (2006-2009) 2. Departmental Animal Facilities Committee 3. Departmental Imaging Facility Committee 4. Departmental Equipment Committee (2003-2004) 5. Departmental Fellowship Committee (2007- present)
Involvement OUTSIDE Scholarly Community:	<ol style="list-style-type: none"> 1. CIHR Grant reviewer for the New Discoveries, Invention & Technology panel (<i>June 2004</i>) 2. Grant panel reviewer for the Canadian Diabetes Association (CDA) (<i>2003-2006</i>) 3. Co-chair of Immunology, Genetics and Cell Biology grant review panel of CDA (<i>2006-2008</i>) 4. Chair of Immunology, Genetics and Cell Biology grant review panel of CDA (<i>2008-present</i>) 5. CIHR Grant reviewer for the Immunology and Transplantation panel (<i>2004-present</i>) 6. Committee on Pathogenesis & Functional Genomics, TDR, WHO. (<i>2001-present</i>) 7. Immune Tolerance Special Emphasis Panel, NIDDK, NIH. (<i>2004</i>) 8. Organizing Committee for the 12th International Congress of Immunology. (<i>2003-2004</i>). 9. Immune Tolerance R21 RFA Special Emphasis Panel, NIAID, NIH (<i>2006</i>) 10. Invited chair of CIHR Workshop on <i>Regulatory T cells and Immune Responses</i> (<i>2006-2007</i>) 11. JDRF Grant reviewer for the Innate Immunity RFA panel (<i>2008</i>) 12. Member of the CDA National Research Council (2007- present) 13. Board of Governors for Immunology-Montreal (2008-present) 14. Immune Tolerance U19 RFA Special Emphasis Panel, NIAID, NIH (<i>2009</i>) 15. Montreal Diabetes Research Center (MDRC) (<i>2008-present</i>) 16. Board of Governors, Immunology-Montreal (2008-present)

Name:	Professor/Dr. Donald Sheppard
Honours, Awards, Official Positions (held in Professional or Learned Societies)	CIHR Clinician-Scientist (July 1 2008- Association of Medical Microbiology and Infectious Diseases of Canada American Society of Microbiology
Inter-University and/or International Collaboration (teaching/research):	Course instructor Wood's Hole Course in Molecular Mycology, Marine Biology Laboratories
Conferences/Symposia/	NIH Combined Invasive Models of Aspergillosis and Aspergillosis Technology Consortium Meeting. Bethesda, Maryland.
Invited Speaker/Sabbatical, etc.	<i>Animal Models of Allergic Bronchopulmonary Aspergillosis.</i> 17-Nov-09 <i>Mast Cell Interactions with Aspergillus fumigatus.</i> 30-May-09 Latin American Forum for Infectious Diseases, Santiago, Chile. 1-Nov-08 Invited Seminar, Department of Genetics, Institute Pasteur, Paris France. <i>Developmental regulation of virulence in Aspergillus fumigatus.</i> Hematology Grand Rounds, Sacre Coeur Hospital. <i>Antifungal prophylaxis in GVHD.</i> 13-May-09 University of Ottawa University. <i>Role of Antifungal Prophylaxis, "Ideology" Infectious Diseases Grand Rounds</i> 4-May-09 Hematology Grand Rounds, University of Ottawa. <i>Antifungal Protocols and You!</i> 5-May-09 Infectious Disease Grand Rounds, University of Sherbrooke. <i>New Diagnostic Methods for Invasive Aspergillosis.</i> 22-Apr-09 Infection and Immunity Axis of McGill University Osler Lecture Series. <i>Aspergillus – Medusa, Glue and Arsenic.</i> 20-Apr-09 Hematology Grand Rounds, Memorial University, St John's, Newfoundland. <i>Update on Fungal Infections.</i> 7-Apr-09 Infectious Diseases Grand Rounds, Trois Rivieres <i>Is Candidemia a real clinical problem?</i> 10-Jun-08 Association Microbiologist et Infectiologues du Quebec Annual Meeting. <i>Management of Candidemia.</i> 6-Jun-08
Scholarly Community:	Panel Member, Microbiology and Infectious Disease Panel CIHR Program Director, Royal College Training Program in Infectious Diseases and Microbiology Osler Fellow, McGill University

MIMM - Consulting Activities**For the period covering June 1, 2008 to May 31, 2009**

Name of Faculty Member	Number of days			Total
	Private Sector Consulting	Public Sector Consulting	Other	
Coulton, J.W.	10 days			10 days
Sylvie Fournier	2 days	FRSQ, Evaluation of Chercheurs boursiers et cliniciens "volet fondamental" Senior		2 days
Matthias Götte	2 – 4 days /yr	Tibotec Mechelen, Belgium		4 days
Matthias Götte	2 – 4 days /yr	Gilead Sciences, CA, USA		4 days
Matthias Götte	2 – 4 days /yr	Virochem Pharma		4 days
Matthias Götte	2 – 4 days /yr	Merck, PA USA		4 days

Section II – Research:

Among our 15 Departmental academic staff members, 7 receive salary support from provincial (FRSQ (2)) or national (CIHR (2), CRC (3)) sources reducing the impact of academic salaries on the McGill budget. One (1) Professor receives a Dawson awards to a level approximately equivalent to that of CRC awards. Virtually all our Professors have one or more research grants (FRSQ, NSERC, CIHR, NIH, and private foundations) to support their research programs and trainees totalling \$2,875,582 and published 42 scholarly articles in peer-reviewed publications in 2008-2009 (Appendix II). All presented their research to numerous scholarly meetings, received awards and contributed to their respective academic and research institutions.

MIMM Research funding from all sources

Boehringer Ingelheim GmbH				
	APP Antigen production for the Development of APP Vaccines	\$ 284,072.00	James W	Coulton
CIHR, Canadian Inst of Health Research				
	CD4+CD25+ immunoregulatory T cell function in Type 1 autoimmune diabetes	\$ 132,974.00	Ciriaco	Piccirillo
	Molecular mechanisms involved in HIV drug resistance to different classes of RT inhibitors	\$ 13,750.00	Matthias	Gotte
	Fusion and cell entry by oncogenic sheep retroviruses	\$ 108,362.00	Shan-Lu	Liu
	Molecular Mechanisms of Invasive Aspergillosis	\$ 117,392.00	Donald	Sheppard
	Sheldon Biotechnology Centre: Surface Plasmon Resonance Facility	\$ 79,662.00	James W	Coulton
	Molecular mechanisms involved in HIV drug resistance to different classes of RT inhibitors	\$ 110,847.00	Matthias	Gotte
	CIHR/endMS Team in Immune Regulation and Biomarker Development for Pediatric and Adult Autoimmune Diseases	\$ 60,000.00	Ciriaco	Piccirillo
	Development of a new generation of live vaccines using Lactococcus lactis	\$ 130,464.00	Benoit	Cousineau
	Genetic dissection of the host response to intestinal infections	\$ 111,943.00	Samantha	Gruenheid
	Mechanism of inhibition of HIV-1 RT through delayed chain-termination	\$ 68,310.00	Matthias	Gotte
	Local dissociation of DNA/DNA and DNA/RNA from the ribonuclease H active site of HIV-1 reverse transcriptase: implications for (+)-strand DNA synthesis and drug design	\$ 30,000.00	Matthias	Gotte

	Functional characterization of nleA, a novel Type III secreted virulence factor of enterohemorrhagic and enteropathogenic E. coli	\$ 100,000.00	Samantha	Gruenheid
	Developmental And Cell-Cycle Control Of Chromosome replication	\$ 139,277.00	Gregory T	Marczynski
	Structural Biology Of Bacterial Membrane Proteins	\$ 160,497.00	James W	Coulton
	Molecular Characterisation Of Leishmania Infection	\$ 141,351.00	Greg J	Matlashewski
Canadian Cystic Fibrosis Foundation				
	Mechanisms of Aspergillus fumigatus induced progression of chronic airway disease in cystic fibrosis	\$ 75,500.00	Donald	Sheppard
Canadian Diabetes Association				
	Functional impact of CD4+FOXP3+regulatory T cells in autoimmune diabetes	\$ 85,000.00	Ciriaco	Piccirillo
FRSQ				
	Les introns bacteriens de groupe II: epissage, mobilite, applications et evolution	\$ 73,033.00	Benoit	Cousineau
	Mecanisme d'inhibition de la transcriptase inverse d VIH-1 par moyen de la terminaison de chaine retardee	\$ 73,033.00	Matthias	Gotte
Fonds de recherche sur lat nature (FQRNT)				
	Centre de recherche en infectiologie porcine - CRIP	\$ 4,300.00	James W	Coulton
GSK Bio				
	Validation of Therapeutic Adjuvants for Breast Cancer Vaccination and to Determine Impact of Vaccination of CD4+FOXP3+Regulatory T Cell Development and Function	\$ 169,400.00	Ciriaco	Piccirillo
Glaxo Smith Kline				
	Biochemical Characterization of RNase H Inhibitors	\$ 45,500.00	Matthias	Gotte
Harbor - UCLA Medical Center				
	Candida adherence and penetration of vascular endothelium	\$ 1,904.96	Donald	Sheppard
	Transcriptional Regulation of A Fumigatus Virulence	\$ 82,000.00	Donald	Sheppard
McGill University				
	Regulatory lymphocytes of the immune system: Regulation of Type 1 diabetes by Foxp3+ regulatory T cells	\$ 25,000.00	Ciriaco	Piccirillo

Multiple Sclerosis Society of Canada				
	Pathogenic mechanisms in an animal model of CD8+T cell-mediated demyelinating disease	\$ 91,382.00	Sylvie	Fournier
Natural Sciences and Engineering Research Council of Canada				
	Evolution Of Mobile Group II Introns	\$ 42,500.00	Benoit	Cousineau
	Role Of B7.2 Costimulation In T Cell Homeostasis	\$ 30,000.00	Sylvie	Fournier
	Signal Transduction By Bacterial Ser/Thr Kinases	\$ 25,000.00	Herve	Le-Moual
	Replacement Of Floor Centrifuge And Rotor	\$ 31,888.00	Herve	Le-Moual
	Conserved And Diverse Mechanisms Of Alpha-Proteobacteria Replication Origins	\$ 41,000.00	Gregory T	Marczynski
	Function Of The Alternatively Spliced P53 Gene	\$ 32,000.00	Greg J	Matlashewski
	Cbl Interface For Vitamin B12 Metabolism	\$ 28,000.00	James W	Coulton
Universite de Montreal				
	Biologie structurale et interactions des mutantes de TonB/Structural biology and interactions on TonB variants - BOURSE DE FORMATION GÉPROM	\$ 11,000.00	James W	Coulton
IDRI-Gates Foundation				
	Research in identifying and characterizing visceral leishmaniasis antigens	\$ 119,240.00	Greg J	Matlashewski
	Total Grants	\$2,875,581.96		

APPENDIX II: PUBLICATIONS

For the period of January 1, 2008 to December 31, 2008

James W. Coulton

James, K.J., Hancock, M.A., Moreau, V., Molina, F., and **Coulton, J.W.** (2008) TonB induces conformational changes in surface-exposed loops of FhuA, outer membrane receptor of *Escherichia coli*. *Protein Science* 17:1679-1688.

Chung, J.W., Jacques, M., and **Coulton, J.W.** (2008) Outer membrane proteins and iron uptake of *Actinobacillus pleuropneumoniae*. *Pasteurellaceae, Biology, Genomics and Molecular Aspects*, ed. P. Khunert and H. Christensen, pp. 144-175; Caister Academic Press, Norfolk, U.K.

Benoit Cousineau

Dayyeh, I.A., Shio, M.T., Sato, S., Akira, S., **Cousineau, B.**, and Olivier, M. (2008) Leishmania-Induced IRAK-1 Inactivation is Mediated by SHP-1 Interacting with an Evolutionarily Conserved KTIM Motif. *PLoS Neglected Tropical Diseases* 2(12), e305.

Belhocine, K., Mak, A., and **Cousineau, B.** (2008) Trans-splicing versatility of the Ll.LtrB group II intron. *RNA* 14(9), 1782-1790.

Yam, K.K., Pouliot, P., N'diaye, M.M., Fournier, S., Olivier, M., and **Cousineau, B.** (2008) Innate inflammatory responses to the Gram-positive bacterium *Lactococcus lactis*. *Vaccine* 26, 2689-2699.

Sylvie Fournier

Yam KK. Pouliot P. N'diaye MM. Fournier S. Olivier M. Cousineau B. Innate inflammatory responses to the Gram-positive bacterium *Lactococcus lactis*. *Vaccine*. 26(22):2689-99, 2008 May 23.

Matthias Götte

Ehteshami M, Götte M*

Effects of mutations in the connection and RNase H domains of HIV-1 reverse transcriptase on drug susceptibility. *AIDS Rev.* 2008 Oct-Dec;10(4):224-35, Review

Tchesnokov EP, Obikhod A, Schinazi RF, Götte M*

Delayed chain termination protects the anti-hepatitis B virus drug entecavir from excision by HIV-1 reverse transcriptase. *J Biol Chem.* 2008 Dec 5;283(49):34218-28

Dash, C., Scarth, B., Badorrek, C., **Götte, M.**, and Le Grice, S.F.J. (2008)

Examining the ribonuclease H primer grip of HIV-1 reverse transcriptase by charge neutralization of RNA/DNA hybrids. *Nucleic Acids Res.* *Nucleic Acids Res.* 2008 Nov;36(20):6363-71

Wendeler, M., Lee, H.-F., Bermingham, A., Miller, J.T., Chertov, O., Bona, M.K., Baichoo, N.S., Ehteshami, M., Beutler, J.A., O'Keefe, B.R., **Götte, M.**, Kvaratskhelia, M., and Le Grice, S.F.J.

Vinylogous ureas as a novel class of inhibitors of reverse transcriptase-associated ribonuclease H activity. *ACS Chem. Biol.* 2008 Oct 17;3(10):635-44

Lisco A, Vanpouille C, Tchesnokov EP, Grivel JC, Biancotto A, Brichacek B, Elliott J, Fromentin E, Shattock R, Anton P, Gorelick R, Balzarini J, McGuigan C, Derudas M, **Götte M**, Schinazi RF, Margolis L. Acyclovir is activated into a HIV-1 reverse transcriptase inhibitor in herpesvirus-infected human tissues. *Cell Host Microbe.* 2008 Sep 11;4(3):260-70.

Ehteshami M, Scarth BJ, Tchesnokov EP, Dash C, Le Grice SF, Hallenberger S, Jochmans D, **Götte M***. Mutations M184V and Y115F in HIV-1 reverse transcriptase discriminate against nucleotide-competing reverse transcriptase inhibitors. *J Biol Chem.* 2008 Oct 31;283(44):29904-11. Epub 2008 Aug 25.

Ehteshami M, Beilhartz GL, Scarth BJ, Tchesnokov EP, McCormick S, Wynhoven B, Harrigan PR, **Götte M***. Connection domain mutations N348I and A360V in HIV-1 reverse transcriptase enhance resistance to 3'-azido-3'-deoxythymidine through both RNase H-dependent and -independent mechanisms. *J Biol Chem.* 2008 Aug 8;283(32):22222-32. Epub 2008 Jun 10.

Samantha Gruenheid

Zhang AS, Canonne-Hergaux F, **Gruenheid S**, Gros P, Ponka P. Use of Nramp2-transfected Chinese hamster ovary cells and reticulocytes from mk/mk mice to study iron transport mechanisms. *Exp Hematol.* 2008 Oct;36(10):1227-35. Epub 2008 Aug 22. PubMed PMID: 18722041; PubMed Central PMCID: PMC2655630.

Coombes BK, Wickham ME, Mascarenhas M, **Gruenheid S**, Finlay BB, Karmali MA. Molecular analysis as an aid to assess the public health risk of non-O157 Shiga toxin-producing *Escherichia coli* strains. *Appl Environ Microbiol.* 2008 Apr;74(7):2153-60. Epub 2008 Feb 1. PubMed PMID: 18245257; PubMed Central PMCID: PMC2292595.

Echtenkamp F, Deng W, Wickham ME, Vazquez A, Puente JL, Thanabalasuriar A, **Gruenheid S**, Finlay BB, Hardwidge PR. Characterization of the NleF effector protein from attaching and effacing bacterial pathogens. *FEMS Microbiol Lett.* 2008 Apr;281(1):98-107. PubMed PMID: 18279332; PubMed Central PMCID: PMC2657846.

LeBlanc PM, Yeretssian G, Rutherford N, Doiron K, Nadiri A, Zhu L, Green DR, **Gruenheid S**, Saleh M. Caspase-12 modulates NOD signaling and regulates antimicrobial peptide production and mucosal immunity. *Cell Host Microbe.* 2008 Mar 13;3(3):146-57. PubMed PMID: 18329614.

Blasutig IM, New LA, Thanabalasuriar A, Dayarathna TK, Goudreault M, Quaggin SE, Li SS, **Gruenheid S**, Jones N, Pawson T. Phosphorylated YDXV motifs and Nck SH2/SH3 adaptors act cooperatively to induce actin reorganization. *Mol Cell Biol.* 2008 Mar;28(6):2035-46. Epub 2008 Jan 22. PubMed PMID: 18212058; PubMed Central PMCID: PMC2268406.

Herve Le Moual

Le Sage, V., Zhu, L., Lepage, C., Portt, A., Viau, C., Daigle, F., Gruenheid, S. and **Le Moual, H.** (2009) An outer membrane protease of the omptin family prevents activation of the *Citrobacter rodentium* PhoPQ two-component system by antimicrobial peptides. *Molecular Microbiology*, 74(1), 98-111.

Shan-Lu Liu

Receptor binding and low pH coactivate oncogenic retrovirus envelope-mediated fusion.

Côté M, Zheng YM, Liu SL. *J Virol*. 2009 Nov;83(22):11447-55. Epub 2009 Sep 2.

Gregory T. Marczynski

Spencer W. Siam R. Ouimet MC. Bastedo DP. **Marczynski GT**. CtrA, a global response regulator, uses a distinct second category of weak DNA binding sites for cell cycle transcription control in *Caulobacter crescentus*. *Journal of Bacteriology*. 191(17):5458-70, 2009 Sep.

Bastedo DP. **Marczynski GT**. CtrA response regulator binding to the *Caulobacter* chromosome replication origin is required during nutrient and antibiotic stress as well as during cell cycle progression.[Erratum appears in *Mol Microbiol*. 2009 Apr;72(1):273] *Molecular Microbiology*. 72(1):139-54, 2009 Apr.

Shaheen SM. Ouimet MC. **Marczynski GT**. Comparative analysis of *Caulobacter* chromosome replication origins. *Microbiology*. 155(Pt 4):1215-25, 2009 Apr.

Greg Matlashewski

Zhang WW. Peacock CS. **Matlashewski G**. A genomic-based approach combining in vivo selection in mice to identify a novel virulence gene in *Leishmania*. *PLoS Neglected Tropical Diseases* [electronic resource]. 2(6):e248, 2008.

Zhang WW. **Matlashewski G**. Immunization with a Toll-like receptor 7 and/or 8 agonist vaccine adjuvant increases protective immunity against *Leishmania major* in BALB/c mice. *Infection & Immunity*. 76(8):3777-83, 2008 Aug.

Ainsworth J. Thomas M. Banks L. Coutlee F. **Matlashewski G**. Comparison of p53 and the PDZ domain containing protein MAGI-3 regulation by the E6 protein from high-risk human papillomaviruses. *Virology Journal*. 5:67, 2008.

Gregory DJ. Sladek R. Olivier M. **Matlashewski G**. Comparison of the effects of *Leishmania major* or *Leishmania donovani* infection on macrophage gene expression. *Infection & Immunity*. 76(3):1186-92, 2008 Mar.

Miranda-Verastegui C. Tulliano G. Gyorkos TW. Calderon W. Rahme E. Ward B. Cruz M. Llanos-Cuentas A. **Matlashewski G**. First-line therapy for human cutaneous leishmaniasis in Peru using the TLR7 agonist imiquimod in combination with pentavalent antimony. *PLoS Neglected Tropical Diseases* [electronic resource]. 3(7):e491, 2009.

Ciro Piccirillo

Piccirillo, C.A. CD4⁺Foxp3⁺ regulatory T cells in immune tolerance. *Regulatory T cells and Clinical Application in Human Disease*. Shuiping Jiang, Ed. **Springer Publishers, Inc.** New York. 2008. * *Senior author*.

C. A. Piccirillo. Regulatory T cells in health and disease. *Cytokine* 3:395-401; 2008

Himmel M., G. Hardenberg, **C. A. Piccirillo**, T. S. Steiner, and M. K. Levings. The Role of T Regulatory Cells and Toll-like Receptors in the Pathogenesis of Human Inflammatory Bowel Disease. **Immunology** 2:145-53; 2008

Roberta Pelandi and **Ciriaco A. Piccirillo**. *Editorial : Tolerance, immune regulation, and autoimmunity: cells and cytokines that make a difference*. **Current Opinion in Immunology** 6:629-31; 2008

Piccirillo CA, d'Hennezel E, Sgouroudis E, Yurchenko E. CD4(+)Foxp3(+) regulatory T cells in the control of autoimmunity: in vivo veritas. **Current Opinion in Immunology** 6:655-62; 2008

Sgouroudis E. and * **C.A. Piccirillo**. Control of murine type 1 diabetes by CD4⁺Foxp3⁺ regulatory T cells. **Diabetes/Metabolism Research and Reviews** 25:208-18; 2009.

M. Tritt, E. Sgouroudis, E. d'Hennezel, A. Albanese and ***C.A. Piccirillo**. Functional waning of naturally-occurring CD4⁺ regulatory T cells contributes to the onset of autoimmune diabetes. **Diabetes** 57:113-23; 2008 * **Senior author**.

M. Tritt, E. Sgouroudis, E. d'Hennezel, A. Albanese and ***C.A. Piccirillo**. *Response to Comment on: Tritt et al.* Functional Waning of Naturally Occurring CD4⁺Regulatory T-Cells Contributes to the Onset of Autoimmune Diabetes: **Diabetes** 57:113–123. **Diabetes** 57: e7-e8, 2008 * **Senior author**.

Tang Q., J.Y. Adams, C.Penaranda, K.Grossheider, E.Piaggio, E.Sgouroudis, **C.A. Piccirillo**, B.L. Salomon, and J.A.Bluestone. Central role of a defective IL-2 production in triggering islet autoimmune destruction. **Immunity** 28:687-97, 2008.

Sgouroudis E., A. Albanese, and ***C.A. Piccirillo**. Functional impact of Idd3 alleles on the development of naturally-occurring CD4⁺Foxp3⁺ regulatory T lymphocytes and resistance to autoimmune diabetes. **J. of Immunol.** 181;6283-6292; 2008. * **Senior author**.

Donald Sheppard

Nobile CJ, Schneider HA, Nett JE, **Sheppard DC**, Filler SG, Andes DR, Mitchell AP. Complementary adhesin function in *C. albicans* biofilm Formation. (2008) **Current Biology** 22;18(14):1017-24.

Sheppard DC*, Locas, M-C, Restieri C, Laverdiere M. (2008) Utility of the germ tube test for the identification of *Candida albicans* directly from positive blood culture bottles. **Journal of Clinical Microbiology**, 46(10):3508-9

Chiang LY, **Sheppard DC**, Gravelat FN, Patterson TF, Filler SG. (2008) *Aspergillus fumigatus* stimulates leukocyte adhesion molecules and cytokine production by endothelial cells in vitro and during invasive pulmonary disease. **Infection and Immunity**, 76(8):3429-38

Gravelat F, Doedt T, Filler SG, Chiang LY, Hong L, Patterson TF, Filler SG, Sheppard DC*. (2008) In vivo analysis of *Aspergillus fumigatus* developmental gene expression determined by real-time RT-PCR. **Infection and Immunity**, 76(8):3632-9