469th REPORT OF THE ACADEMIC POLICY COMMITTEE TO SENATE
On the APC meeting held on December 10th 2015

I. TO BE APPROVED BY SENATE

(A) NEW TEACHING PROGRAMS REQUIRING SENATE APPROVAL

Graduate and Postdoctoral Studies/Schulich School of Music
Graduate Artist Diploma (30 cr.) – Appendix A

At a meeting on December 10th, 2015, APC reviewed and approved a proposal for a new Graduate Artist Diploma. The current Artist Diploma is administered at the undergraduate level but to a largely graduate clientele, which is misleading to graduate students who are interested in a high-level skill program but reluctant to take an undergraduate diploma. Re-positioning it as a Graduate Artist Diploma that is the premiere program requiring the highest artistry facilitates better recruitment and program funding. It is tailored for artist performers wishing to succeed in their craft through intensive coaching, practicing, and performance projects, preparing candidates for stage careers as soloists and orchestral musicians, opera singers, collaborative pianists, and chamber ensembles.

APC therefore recommends that Senate approve the following resolution:

Be it resolved that Senate approve the proposed Graduate Artist Diploma.

School of Continuing Studies
Certificate in Computers and Information Technology (30 cr.) – Appendix B

At a meeting on November 19th, 2015, APC reviewed and subsequently approved electronically a proposal from the School of Continuing Studies to create a Certificate in Computers and Information Technology. This new program addresses a need expressed by Indigenous community leaders in the James Bay area for a tailored program with an information technology focus. It will provide a solid foundation in concepts knowledge, applications, and skills to fill positions related to operating, maintaining, supporting, and evaluating computer and software systems. Sections of the course will be a synchronous online format that provides students live interaction with instructors. Admission requirements will remain the same as all Certificates offered through SCS.

APC therefore recommends that Senate approve the following resolution:

Be it resolved that Senate approve the proposed Certificate in Computers and Information Technology.

Certificate in Indigenous Business Management (30 cr.) – Appendix C

At a meeting on November 19th, 2015, APC reviewed and subsequently approved electronically a proposal from the School of Continuing Studies to create a Certificate in Indigenous Business Management. This new program addresses a need expressed by Indigenous community leaders in the James Bay area for a tailored program with a business management and entrepreneurial focus. It will focus on learning practical business management and entrepreneurial applications, emphasizing the problem-solving skills of individuals. Sections of the course will be a synchronous online format that provides students live interaction with instructors. Admission requirements will remain the same as all Certificates offered through SCS.

APC therefore recommends that Senate approve the following resolution:

Be it resolved that Senate approve the proposed Certificate in Indigenous Business Management.

(B) ACADEMIC PERFORMANCE ISSUES / POLICIES / GOVERNANCE/AWARDS

Research Advisory Council

Proposed revisions to the Regulations Concerning the Investigation of Research Misconduct – Appendix D

At a meeting on December 10th, 2015, APC reviewed and approved a proposal for revisions to the Regulations Concerning the Investigation of Research Misconduct. The Regulations were last amended and approved in May 2010, and describe the procedures to be followed in the case of an allegation of research misconduct at McGill. The review and revisions followed the regular triennial process for Policy revisions as determined by Senate. These proposed revisions are guided by and comply with both the *Tri-Agency Framework: Responsible Conduct of Research* (2011) and the Fonds de recherche du Québec (FRQ) *Policy for the Responsible Conduct of Research* (2015).

APC therefore recommends that Senate approve the following resolution:

Be it resolved that Senate approve and recommend to the Board of Governors for approval the proposed revisions to the Regulations Concerning the Investigation of Research Misconduct.

(C) CREATION OF NEW UNITS / NAME CHANGES / REPORTING CHANGES

Research Advisory Council

Proposal to establish the McGill University Research Centre on Complex Traits (MRCCT) as an official research centre – Appendix E

At a meeting on December 10th, 2015, APC reviewed and approved a proposal to establish the McGill University Research Centre on Complex Traits/le Centre de recherche de l'Université McGill sur les maladies infectieuses et inflammatoires chroniques. The proposed centre formalizes the activities of the extremely successful and vibrant Complex Traits Group. Infectious and inflammatory diseases represent a significant global health problem; members of the MRCCT are utilizing new genomic technologies to identify novel targets of diagnostic and therapeutic value for immune-related diseases. The new centre is uniquely positioned to promote interdisciplinary research collaborations and ensure advances in both basic and translational research as well as training and scientific outreach to clinical and basic research scientists.

APC therefore recommends that Senate approve the following resolution:

Be it resolved that Senate approve and recommend to the Board of Governors for approval the proposed McGill University Research Centre on Complex Traits.

(D) CHANGES IN DEGREE DESIGNATION - *none*

(E) INTER-UNIVERSITY PARTNERSHIPS – *none*

(F) OTHER - *none*

II. TO BE ENDORSED BY SENATE / PRESENTED TO SENATE FOR DISCUSSION – *none*

III. APPROVED BY APC IN THE NAME OF SENATE

(A) DEFINITIONS – *none*

(B) STUDENT EXCHANGE PARTNERSHIPS / CONTRACTS / INTERUNIVERSITY PARTNERSHIPS - *none*

(C) OTHER - *none*

IV. FOR THE INFORMATION OF SENATE

A) ACADEMIC UNIT REVIEWS – *none*

B) APPROVAL OF COURSES AND TEACHING PROGRAMS

1. Programs

a) APC Approvals (new options/concentrations and major revisions to existing programs)

i. New Programs

Faculty of Education

B.Ed. in Teaching English as a Second Language-TESL Elementary and Secondary; Teaching Greek Language and Culture (120 cr.)

At a meeting on December 10th, 2015, APC reviewed and approved this new concentration of an existing program, which was suggested to the Faculty by staff within the Department of History and Classical Studies in the Faculty of Arts. There is great need for teaching personnel in this subject matter within the Hellenic Community of Greater Montreal schools, and other Greek communities across Canada and in the United States.

ii. Major Revisions of Existing Programs

Graduate and Postdoctoral Studies/Faculty of Medicine

M.Sc. in Neuroscience (45 cr.)

Ph.D. in Neuroscience (0 cr.)

b) APC Subcommittee on Courses and Teaching Programs (SCTP) Approvals
(Summary Reports: http://www.mcgill.ca/sctp/documents/)

i. Moderate and Minor Program Revisions

Faculty of Dentistry

Approved by SCTP on 12th November 2015, reported to APC on 10th December 2015

DMD (218.5 cr.)

Faculty of Education

Approved by SCTP on 12th November 2015, reported to APC on 10th December 2015

B.Ed. in Secondary Science and Technology (120 cr.)

Faculty of Engineering

Approved by SCTP on 12th November 2015, reported to APC on 10th December 2015

B.Eng.; Minor in Technological Entrepreneurship (18 cr.)

B.Eng. in Chemical Engineering (142-145 cr.)

Graduate and Postdoctoral Studies

Approved by SCTP on 12th November 2015, reported to APC on 10th December 2015

M.Sc. in Public Health; Non-Thesis – Population Dynamics (60 cr.)

Graduate Diploma in Performance (30 cr.)

Faculty of Science

Approved by SCTP on 12th November 2015, reported to APC on 10th December 2015

B.Sc.; Joint Major in Biology and Mathematics (76 cr.)

B.Sc.; Major in Biology; Quantitative Biology (73 cr.)

B.Sc.; Honours in Biology; Quantitative Biology (79 cr.)

ii. Program Retirements

Faculty of Arts

Approved by SCTP on 12th November 2015, reported to APC on 10th December 2015

B.A.; Concentration mineure en langue et littérature françaises; critique littéraire (18 cr.)
B.A.; Minor Concentration in German Literature (18 cr.)
B.A.; Major Concentration in Contemporary German Studies (36 cr.)

2. Courses

a) New Courses

Reported as having been approved by SCTP on 12th November 2015: 40

Faculty of Arts: 24
Faculty of Dentistry: 4
Graduate and Postdoctoral Studies: 10
Desautels Faculty of Management: 1
Faculty of Medicine: 1

b) Course Revisions

Reported as having been approved by SCTP on 12th November 2015: 56

Faculty of Agricultural and Environmental Sciences: 3
Faculty of Arts: 20
School of Continuing Studies: 3
Faculty of Dentistry: 3
Faculty of Education: 4
Faculty of Engineering: 1
Graduate and Postdoctoral Studies: 15
Faculty of Medicine: 2
Faculty of Science: 5

c) Course Retirements

Reported as having been approved by SCTP on 12th November 2015: 34

Faculty of Agricultural and Environmental Sciences: 2
Faculty of Arts: 30
Graduate and Postdoctoral Studies: 2

(B) OTHER

Subcommittee on Teaching and Learning

Proposal to revise the nomination guidelines for the Lifetime Achievement Award for Leadership in Learning (LAALL)

At a meeting on December 10th, 2015, APC reviewed and approved a proposal to revise the nomination guidelines for the Lifetime Achievement Award for Leadership in Learning (LAALL). The award recognizes sustained excellence in leadership and innovation, as well as the active integration of teaching and learning with inquiry, scholarship and research. The revisions are intended to provide guidance and clarity on the letter of support as well as the teaching statement provided by the candidate. The revisions are also intended to help facilitate the Committee's interpretation of the overall dossier.

APC APPENDIX B 15-APC-12-32.

McGill

New Program/Major or Minor/Concentration Proposal Form

(2013)

1.0 Degree Title
Please specify the two degrees for concurrent degree programs

Graduate Artist Diploma

1.1 Major (Legacy= Subject)(30-char. max.)

1.2 Concentration (Legacy = Concentration/Option)
If applicable to Majors only (30 char. max.)

1.3 Minor (with Concentration, if Applicable) (30 char. max.)

2.0 Administering Faculty/Unit

Graduate and Postdoctoral Studies

Offering Faculty/Department

Schulich School of Music

3.0 Effective Term of Implementation
(Ex. Sept. 2004 = 200409)
Term

201609

4.0 Rationale and Admission Requirements for New Proposal

The current Artist Diploma is administered as an Undergraduate offering, but to a largely graduate clientele. Re-positioning it as a Graduate Artist Diploma facilitates better recruitment and program funding: 1) it tops a two-tiered (the GPD and AD) sequential diploma program alternative to the academic degrees by positioning the Graduate Artist Diploma as the premiere diploma requiring the highest artistry; and 2) this position clarifies the target populations for each diploma. The 30-credit AD will be offered through direct admission or sequentially following the Graduate Diploma in Performance. In the latter case, admission will be through a single audition.

5.0 Program Information
Please check appropriate box(es)

5.1 Program Type
- ☐ Bachelor's Program
- ☐ Master's
- ☐ M.Sc. (Applied) Program
- ☐ Dual Degree/Concurrent Program
- ☐ Certificate
- ☐ Diploma
- ☐ Graduate Certificate
- ☒ Graduate Diploma
- ☐ Ph.D. Program
- ☐ Doctorate Program (Other than Ph.D.)
- ☐ Private Program
- ☐ Off-Campus Program
- ☐ Distance Education Program (By Correspondence)
- ☐ Other (Please specify)

5.2 Category
- ☐ Faculty Program (FP)
- ☐ Major
- ☐ Joint Major
- ☐ Major Concentration (CON)
- ☐ Minor
- ☐ Minor Concentration (CON)
- ☐ Honours (HON)
- ☐ Joint Honours Component (HC)
- ☐ Internship/Co-op
- ☐ Thesis (T)
- ☐ Non-Thesis (N)
- ☐ Other

Please specify

5.3 Level
- ☐ Undergraduate
- ☐ Dentistry/Law/Medicine
- ☐ Continuing Ed (Non-Credit)
- ☐ Collegial
- ☒ Masters & Grad Dips & Certs
- ☐ Doctorate
- ☐ Post-Graduate Medicine/Dentistry
- ☐ Graduate Qualifying
- ☐ Postdoctoral Fellows

5.4 FQRSC (Research) Indicator
(for GPS) Yes No

6.0 Total Credits

30

7.0 Consultation with
Related Units Yes ☐ No ☐
Financial Consult Yes ☐ No ☐
Attach list of consultations.

8.0 Program Description (Maximum 150 words)

The Graduate Artist Diploma is the uppermost diploma offered at the Schulich School of Music. It is tailored for artist performers wishing to achieve the highest level of artistry in their craft through intensive coaching, practicing, and performance projects. Candidates are preparing for stage careers as soloists and orchestral musicians, opera singers, collaborative pianists, and chamber ensembles. Flexible program requirements, with range of performance project options relevant to the diverse opportunities of the modern artist (chamber, recording, creative collaborations, etc.) One year in length, admission is by audition. Students who hold a Master's or Doctoral degree can be admitted directly into the diploma. Others can be admitted following completion of the Graduate Diploma in Performance (GDP) program. Admissibility to the combined Graduate Diploma in Performance and Graduate Artist Diploma can be assessed in a single audition.

9.0 List of proposed program for the New Program/Major or Minor/Concentration.

If new concentration (option) of existing Major/Minor (program), please attach a program layout (list of all courses) of existing Major/Minor.

Proposed program (list courses as follows: Subj Code/Crse Num, Title, Credit weight under the headings of: Required Courses, Complementary Courses, Elective Courses)

Graduate Artist Diploma (30 credits)

Co-requisite courses:
For Harpsichord students:
MUPG 272D1/D2 Continuo (4)
MUPG 372D1/D2 Continuo (2)

Required courses (19 credits):

MUIN 710 Graduate Artist Diploma Tutorial 1 (8)
MUIN 711 Graduate Artist Diploma Tutorial 2 (8)
MUSR 692 Music Production Workshop (3)

Complementary courses (11 credits)

8 credits from the following:
MUPG 740 Graduate Artist Diploma Performance Project 1 (4)
MUPG 741 Graduate Artist Diploma Performance Project 2 (4)
MUPG 742 Graduate Artist Diploma Performance Project 3 (8)
MUPG 743 Graduate Artist Diploma Interdisciplinary Project (4)
MUPG 744 Graduate Artist Diploma Concerto Performance (4)
MUPG 745 Graduate Artist Diploma Recording Project (4)

3 credits of Performance courses with departmental approval from:
Any ensemble course with the prefix MUEN at the 500 or 600 level
MUPG 571 Free Improvisation 1 (1); may be taken only once
MUPG 572 Free Improvisation 2 (1); may be taken only once

and the additional courses from the following list for these areas:

Voice
MUIN 610 Vocal Coaching 1 (1); may be taken only once
MUIN 611 Vocal Coaching 2 (1); may be taken only once

Attach extra page(s) as needed

Graduate Artist Diploma (30 credits), continued Piano MUPG 670 Advanced Continuo 1 (2); if not already taken MUPG 671 Advanced Continuo 2 (2); if not already taken MUPG 687 Collaborative Piano Repertoire 1: Song (1); may be repeated with permission of instructor MUPG 688 Collaborative Piano Repertoire 2: Instrumental (1); may be repeated with permission of instructor MUPG 689 Collaborative Piano Rep. 3: Orch. Reduction, Opera, Oratorio (1); may be repeated with permission of instructor Chamber Music MUIN 500 Practical Instruction 1(1); may be repeated once per program Organ MUPG 575D1/D2 Liturgical Organ Playing (3) MUPG 670 Advanced Continuo 1 (2); if not already taken MUPG 671 Advanced Continuo 2 (2); if not already taken Early Music MUPG 670 Advanced Continuo 1 (2); if not already taken MUPG 671 Advanced Continuo 2 (2); if not already taken	

10.0 Approvals

Routing Sequence	Name	Signature	Date
Department	Stéphane Lemelin		6/15/15
Curric/Acad Committee	Jacqueline Leclair		6/16/15
Faculty 1	Sean Ferguson		6/15/15
Faculty 2			
Faculty 3			
CGPS		CGPS APPROVED	Oct. 19, 2015
SCTP			NOV. 12, 2015
APC		APC APPROVED	Dec. 10, 2015
Senate			

SCTP APPROVED

Submitted by

Name

Phone

Email

Submission Date

To be completed by ARR:

CIP Code

McGill

New Program/Major or Minor/Concentration Proposal Form

(2013)

1.0 Degree Title
Please specify the two degrees for concurrent degree programs

Certificate

2.0 Administering Faculty/Unit

School of Continuing Studies

1.1 Major (Legacy= Subject)(30-char. max.)

Computers and Information Technology

Offering Faculty/Department

SCS/Career and Professional Development

1.2 Concentration (Legacy = Concentration/Option)
If applicable to Majors only (30 char. max.)

n/a

3.0 Effective Term of Implementation
(Ex. Sept. 2004 = 200409)
Term

201601

1.3 Minor (with Concentration, if Applicable) (30 char. max.)

n/a

4.0 Rationale and Admission Requirements for New Proposal

This new program is intended for Indigenous students as a result of the need expressed by the Indigenous community leaders in the James Bay area for a tailored program with an information technology focus. It addresses the demand for information technology professionals to fill positions related to operating, maintaining, supporting and evaluating computer and software systems. This certificate provides a solid foundation in the concepts knowledge, applications, and skills, required to fill these positions. Funding from Aboriginal Affairs and Northern Development Canada will support the course development. The admission requirements for this certificate program will remain the same as all Certificates offered through the School of Continuing Studies. Applicants must hold a CEGEP diploma (DCS, DEC or equivalent) or applicants who do not have the normal academic background for admission but are 21 years of age and older may be admitted as mature students. The CPD Department regularly reviews, revises or retires any existing programs that are obsolete or have low enrolment.

5.0 Program Information
Please check appropriate box(es)

5.1 Program Type

- Bachelor's Program
- ☐ Master's
- M.Sc. (Applied) Program
- Dual Degree/Concurrent Program
- ☒ Certificate
- ☐ Diploma
- ☐ Graduate Certificate
- ☐ Graduate Diploma
- ☐ Ph.D. Program
- Doctorate Program
- (Other than Ph.D.)
- Private Program
- Off-Campus Program
- Distance Education Program
- (By Correspondence)
- Other (Please specify)

5.2 Category

- Faculty Program (FP)
- Major
- Joint Major
- Major Concentration (CON)
- Minor
- Minor Concentration (CON)
- ☐ Honours (HON)
- ☐ Joint Honours Component (HC)
- ☐ Internship/Co-op
- ☐ Thesis (T)
- ☐ Non-Thesis (N)
- ☐ Other

Please specify

5.3 Level

- Undergraduate
- Dentistry/Law/Medicine
- ☐ Continuing Studies (Non-Credit)
- ☐ Collegial
- ☐ Masters & Grad Dips & Certs
- ☐ Doctorate
- ☐ Post-Graduate Medicine/Dentistry
- ☐ Graduate Qualifying
- Postdoctoral Fellows

5.4 FQRSC (Research) Indicator
(for GPS) Yes No

6.0 Total Credits

30

7.0 Consultation with

Related Units	Yes ☒	No ☐
Financial Consult	Yes ☐	No ☒

Attach list of consultations.

8.0 Program Description (Maximum 150 words)

This tailored program is intended for Indigenous students as a result of the need expressed by the Indigenous community leaders. The twenty first century demands multidisciplinary individuals, teams, communities and organizations. The Certificate in Computer Information Systems is a bridge to higher-level computer qualifications. It provides a solid foundation in the concepts and techniques required for effective planning, design and development of software applications and systems, Internet technologies, applied computer knowledge and networking. The program will help develop skills necessary to assume positions in the fields of information technology, technical support, Internet and web specialism, computer support consulting, and help desk analysis.

9.0 List of proposed program for the New Program/Major or Minor/Concentration.

If new concentration (option) of existing Major/Minor (program), please attach a program layout (list of all courses) of existing Major/Minor.

Proposed program (list courses as follows: Subj Code/Crse Num, Title, Credit weight under the headings of: Required Courses, Complementary Courses, Elective Courses)

Required Courses (30 credits):

CCCS 280 Introduction to Computer Information Systems	(3 credits)
CCCS 300 Programming Techniques 1	(3 credits)
CCCS 310 Web Development	(3 credits)
CCCS 315 Data Structures & Algorithms	(3 credits)
CCCS 321 Operating Systems Administration	(3 credits)
CCCS 325 Mobile Application Development	(3 credits)
CCCS 330 Database Design & Business Application Development	(3 credits)
CCCS 425 Web Services	(3 credits)
CCCS 431 Networking Fundamentals	(3 credits)
CMIS 422 Information System Security	(3 credits)

Attach extra page(s) as needed

PROJ. 15.63

10.0 Approvals

Routing Sequence	Name	Signature	Date
Department	Lau, Hang		Sept 22, 2015
Curric/Acad Committee	SICILIA, Carmen		Sept. 21, 2015
Faculty 1	POTTER, Judith		SEPT. 22, 2015
Faculty 2	LABEAU, Fabrice		21-09-2015
Faculty 3			
CGPS			
SCTP	SCTP APPROVED		Oct. 15, 2015
APC		APC APPROVED	Dec. 18, 2015
Senate			

Submitted by

Name	Dawne Ramsahove
Phone	514-398-1261
Email	dawne.ramsahove@mcgill.ca
Submission Date	

To be completed by ARR:

CIP Code

McGill

New Program/Major or Minor/Concentration Proposal Form

(2013)

1.0 Degree Title
Please specify the two degrees for concurrent degree programs

Certificate

2.0 Administering Faculty/Unit

School of Continuing Studies

1.1 Major (Legacy= Subject)(30-char. max.)

Indigenous Business Management

Offering Faculty/Department

SCS/Career and Professional Development

1.2 Concentration (Legacy = Concentration/Option)
If applicable to Majors only (30 char. max.)

3.0 Effective Term of Implementation
(Ex. Sept. 2004 = 200409)
Term

201601

1.3 Minor (with Concentration, if Applicable) (30 char. max.)

This new program is intended for Indigenous students as a result of the need expressed by the Indigenous community leaders in the James Bay area for a tailored program with a business management and entrepreneurial focus. This certificate focuses on learning practical business management and entrepreneurial applications. The emphasis is on "what to do" thus endevouring to enhance the problem-solving abilities of individuals. Funding from Aboriginal Affairs and Northern Development Canada will support the course development. The admission requirements for this certificate program will remain the same as all Certificates offered through the School of Continuing Studies. Applicants must hold a CEGEP diploma (DCS, DEC or equivalent) or applicants who do not have the normal academic background for admission but are 21 years of age and older may be admitted as mature students. The CPD Department regularly reviews, revises or retires any existing programs that are obsolete or have low enrolment.

5.0 Program Information
Please check appropriate box(es)

5.1 Program Type

- Bachelor's Program
- ☐ Master's
- M.Sc. (Applied) Program
- Dual Degree/Concurrent Program
- ☒ Certificate
- ☐ **Diploma**
- ☐ Graduate Certificate
- ☐ Graduate Diploma
- ☐ Ph.D. Program
- Doctorate Program
- (Other than Ph.D.)
- Private Program
- Off-Campus Program
- Distance Education Program
- (By Correspondence)
- Other (Please specify)

5.2 Category

- Faculty Program (FP)
- Major
- Joint Major
- Major Concentration (CON)
- Minor
- Minor Concentration (CON)
- ☐ Honours (HON)
- ☐ Joint Honours Component (HC)
- ☐ Internship/Co-op
- ☐ Thesis (T)
- ☐ Non-Thesis (N)
- ☐ Other

Please specify

5.3 Level

- Undergraduate
- Dentistry/Law/Medicine
- ☐ Continuing Studies (Non-Credit)
- ☐ Collegial
- ☐ Masters & Grad Dips & Certs
- ☐ Doctorate
- ☐ Post-Graduate Medicine/Dentistry
- ☐ Graduate Qualifying
- Postdoctoral Fellows

5.4 FQRSC (Research) Indicator
(for GPS) Yes No

6.0 Total Credits

30

7.0 Consultation with

Related Units Yes ☒ No ☐

Financial Consult Yes ☐ No ☒

Attach list of consultations.

8.0 Program Description (Maximum 150 words)

This tailored program is intended for Indigenous students as a result of the need expressed by the Indigenous community leaders. The twenty first century demands multidisciplinary individuals, teams, communities and organizations. This program introduces the knowledge and competencies essential to starting, promoting, and managing a socially relevant business or organization. It focuses on numerical and financial literacy, as well as fundamental communication and management skills. It will help develop the skills needed to create a business or effectively work in an established organization, create a business plan, develop projects, communicate with confidence, effectively manage internal and external stakeholders, understand the fundamentals of how organizations operate within a social, political, and legal framework, and negotiate and manage conflict.

9.0 List of proposed program for the New Program/Major or Minor/Concentration.

If new concentration (option) of existing Major/Minor (program), please attach a program layout (list of all courses) of existing Major/Minor.

Proposed program (list courses as follows: Subj Code/Crse Num, Title, Credit weight under the headings of: Required Courses, Complementary Courses, Elective Courses)

Corequisite: This course must be taken at the beginning of the program.

CMSC 000	Foundations of Mathematics (12 CEUs) OR
	(the Exemption by Examination Test)

Required Courses (30 credits):

CACC 220	Accounting Concepts for Managers (3 credits)
CCLW 300	Public Administration and Law for Indigenous Peoples (3 credits)
CCOM 205	Communication in Management 1 (3 credits)
CENT 305	Sales and Negotiations (3 credits)
CENT 307	Creating a Business Plan (3 credits)
CGMG 210	Fundamentals of Project Management (3 credits)
CGMG 282	Introduction to Business (3 credits)
CGMG 305	Managing in Public and Non-Profit Organizations (3 credits)
CORG 225	Foundations of Organizational Behaviour and Administration (3 credits)
CORG 420	Human Resources Management: Theory and Practice (3 credits)

Attach extra page(s) as needed

10.0 Approvals

Routing Sequence	Name	Signature	Date
Department	SALMASI. Kamal		
Curric/Acad Committee	SICILIA, Carmen		
Faculty 1	Hang Lau		
Faculty 2			
Faculty 3	POTTER, Judith		SEPT. 22, 2015
CGPS			
SCTP			OCT. 15, 2015
APC		APC APPROVED	Dec. 18, 2015
Senate			

SCTP APPROVED

Submitted by

Name	Dawne Ramsahoye
Phone	514-398-1261
Email	Dawne.ramsahoye@mcgill.ca
Submission Date	June 25, 2015

To be completed by ARR:

CIP Code

McGill

Memorandum
Note de service

Office of the Vice-Principal
(Research and International Relations)
James Administration Building, Suite 419
Tel.: 514-398-2995 Fax: 514-398-8257

Bureau de la vice-principale
(recherche et relations internationales)
Pavillon James de l'administration, bureau 419
Tél.: 514-398-2995 Téléc.: 514-398-8257

Date: November 27, 2015

To/Destinataire(s): Prof. Christopher Manfredi, Chair, Academic Policy Committee

From/De la part de: Dr. Rose Goldstein, Vice-Principal (Research and International Relations)

c.c. Victor Arshad, Academic Program Officer

Subject/Object: Revisions to ***Regulations Concerning Investigation of Misconduct of Research***

Purpose:

Request for APC to review the revised ***Regulations Concerning Investigation of Research Misconduct*** for approval and recommendation to move forth to Senate. (Appendix 1: Comparison of proposed revisions to the current Regulations).

Background:

McGill has several distinct policies in place that guide the conduct of research at the University. In academic year 2014-2015, two of these policies underwent a review. They are:

- *Regulation on the Conduct of Research*
- *Regulations Concerning Investigation of Research Misconduct*

While both policies address the same theme - conduct of research - it is important to note their fundamental differences which call for an individualized approaches, methodologies, and timelines.

The *Regulation on the Conduct of Research* addresses the integrity of research across all disciplines. It is aspirational rather than procedural and outlines our shared values and guiding principles as applied to all research activities at McGill. In 2014-2015, a working group of McGill scholars with expertise and interest in ethical conduct reviewed the existing policy and prepared a report of recommendations for the Vice Principal (Research and International Relations). Before any formal revisions to the existing policy are made, it will be necessary to assess its implementation. To this end, an administrative response to the recommendations of the working group is being prepared by VP-RIR. Further consultation with appropriate stakeholders including Deans, P7, and the Research Advisory Council will take place before the final revisions are proposed and presented to the governance bodies during academic year 2015-2016.

The ***Regulation Concerning Investigation of Research Misconduct***, which was last amended and approved in May 2010, describes the procedures to be followed in the case of an allegation of research misconduct at McGill and is the policy to which we are proposing revisions today. The review followed the regular triennial process for Policy revisions as determined by Senate. These proposed revisions are guided by and comply with both the *Tri-Agency Framework: Responsible Conduct of*

Research (2011) and the Fonds de recherche du Québec (FRQ) *Policy for the Responsible Conduct of Research* (2015).

Working group and consultation

A working group was struck in September 2014 to review the ***Regulations Concerning Investigation of Research Misconduct***. Its membership was approved by the Senate nominating committee. (Appendix 2: Working group Terms of Reference**)**

The working group met three times during academic year 2014-2015 and delivered its recommendations to the VP-RIR in June 2015.

Proposed Revisions

Proposed revisions are summarized in Appendix 3.

Principal changes are as follows:

- Definition of research misconduct now includes *financial* misconduct and notification to the Internal Audit Department.
- Composition of the Committee on Research Misconduct now includes an external member.
- Timeframe for the Committee to conclude its investigation and submit a preliminary report is extended from 90 to 120 days.
- A summary of the process is added to the list of items that the Committee must provide in its preliminary report
- New section added describing the Appeals process.
- Clarification that the Research Integrity Officer (RIO) will notify the appropriate Dean(s) or Chair(s) upon determination that an investigation should take place rather than when an allegation is put forth.
- Clarification of the management of investigations of research misconduct involving Graduate Students and Postdoctoral Fellows.

Next steps*:*

Upon review and endorsement, APC will propose approval of the *Regulations Concerning Investigation of Research Misconduct* to Senate and the Board of Governors for adoption according to the following expected timeline:

Research Advisory Council	September 28, 2015
Academic Policy Committee	December 10, 2015
Senate	January 13, 2016
Board of Governors	February 11, 2016

Consultation and governance timelines are found in Appendix 4.

Appendix 1: Comparison of proposed revisions to the Current *Regulations*
Appendix 2: Working group – Terms of Reference
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McGill

Regulations Concerning the Investigation of Research Misconduct

Current	Proposed
PREAMBLE	**PREAMBLE**
Research is central to the mission of the University, to the advancement of knowledge, and to the social well-being, health and the economic development of society. The University, funding agencies and other public and private sponsors of research and related activities recognize that research can best flourish in a climate of academic freedom, a climate premised on trust in, and the integrity of, members of the University research communities and their compliance with the policies, practices and ethical norms governing research. Thus, the University is committed to the ongoing education of the members of its community in matters of research integrity.	Research is central to the mission of the University, to the advancement of knowledge, and to the social well-being, health and the economic development of society. The University, funding agencies and other public and private sponsors of research and related activities recognize that research can best flourish in a climate of academic freedom, a climate premised on trust in, and the integrity of, members of the University research communities and their compliance with the policies, practices and ethical norms governing research. Thus, the University is committed to the ongoing education of the members of its community in matters of research integrity.
However, it must also be recognized that in research, as in any human endeavour, there are some who are alleged to have failed to adhere to accepted norms. Allegations of research misconduct may arise from sources within or outside the University – and allegations may or may not be well-founded. Whatever their source, motivation or accuracy, such allegations have the potential to cause great harm to the persons accused and their associates, to the accuser, to the University, and to research and scholarship in general. Thus, it is in the interests of the public, funding agencies and other sponsors of research, and the University, that the University has in place an appropriate procedure for assessing allegations of research misconduct and, where warranted, investigating such allegations and reporting the results of investigations to relevant University authorities and agencies. Moreover, funding agencies hold institutions responsible for investigating allegations of misconduct involving members of their research communities and generally require that they have in place appropriate policies and procedures.	However, it must also be recognized that in research, as in any human endeavour, there are some who are alleged to have failed to adhere to accepted norms. Allegations of research misconduct may arise from sources within or outside the University – and allegations may or may not be well-founded. Whatever their source, motivation or accuracy, such allegations have the potential to cause great harm to the persons accused and their associates, to the accuser, to the University, and to research and scholarship in general. Thus, it is in the interests of the public, funding agencies and other sponsors of research, and the University, that the University has in place an appropriate procedure for assessing allegations of research misconduct and, where warranted, investigating such allegations and reporting the results of investigations to relevant University authorities and agencies. Moreover, funding agencies hold institutions responsible for investigating allegations of misconduct involving members of their research communities and generally require that they have in place appropriate policies and procedures.
These Regulations, which apply to all allegations of research misconduct, regardless of the discipline involved, establish a procedural framework that will:	These Regulations, which apply to all allegations of research misconduct, regardless of the discipline involved, establish a procedural framework that will:

- ensure prompt and appropriate response whenever an allegation of research misconduct is made; and
- ensure the protection of the interests of:
  - those alleged to have engaged in misconduct;
  - those making allegations of research misconduct;
  - those who, while not directly implicated in, are nevertheless directly affected by, allegations of misconduct;
  - the University and its affiliated institutions;
  - the funding agencies and other sponsors of research; and
  - the public.

1. DEFINITIONS

1.1 "Advisor" means a member of the University community who has agreed to act gratuitously in an advisory capacity to a member of the academic staff. Such individuals, in so doing, are deemed to perform part of their academic duties and shall be accorded full respect by the University's administrative officers.

1.2 "Agency" means the funding agency, foundation, organization, sponsor or other entity, public or private, international, national, provincial or foreign, which supports the research in whole or in part, or which has oversight of any research activities, in respect of which the Research Misconduct is alleged to have occurred.

1.3 "Chair" includes the chairs and directors of all centres, departments, institutes or schools to which the Respondent is appointed or with which the Respondent is registered or affiliated and, where there is more than one Respondent, the chairs and directors of all such units to which the Respondents are appointed or with which they are registered or affiliated.

- ensure a prompt and appropriate response whenever an allegation of research misconduct is made; and
- ensure the protection of the interests of:
  - those alleged to have engaged in misconduct;
  - those making allegations of research misconduct;
  - those who, while not directly implicated in, are nevertheless directly affected by, allegations of misconduct;
  - the University and its affiliated institutions;
  - the funding agencies and other sponsors of research; and
  - the public.

1. DEFINITIONS

For the purposes of this policy:

1.1 "Advisor" means a ~~member~~Member of the University~~c~~Community who has agreed to act ~~gratuitously~~ in an advisory capacity to a ~~member of the academic staff~~ Respondent, Complainant or Witness. Such individuals act in accordance with these regulations and are deemed, in so doing, ~~are deemed~~ to perform part of their academic duties. ~~and~~ They do so without receiving additional remuneration. An Advisor shall be accorded full respect by the University's administrative officers.

1.2 "Agency" means the funding agency, foundation, organization, sponsor or other entity, public or private, international, national, provincial or foreign, which supports the research in whole or in part, or which has oversight of any research activities, in respect of which the Research Misconduct is alleged to have occurred.

1.3 "Chair" means the chair(s) or director(s) of the department(s), institute(s), school(s) or centre(s) of the Respondent 's appointment, registration or affiliation. Where there is more than one Respondent, "Chair" means the chair(s) or director(s), of each Respondent's respective department(s), school(s), institute(s) or centre(s) of appointment, registration or affiliation ~~" Chair" includes the chairs and directors of all centres, departments,institutes or schools to which the Respondent is registered or affiliated and, where Respondent is appointed or with which the~~

	there is more than one Respondent, the chairs and directors of all such units to which the Respondents are appointed or with which they are registered or affiliated.
	1.4 "Committee" means the group assembled to investigate allegations of Research Misconduct
1.4 "Complainant" means a person who makes an allegation of Research Misconduct.	**1.5** "Complainant" means a person who makes an allegation of Research Misconduct.
1.5 "Data or Results" include all information or records of any sort related to the application for, performance of, data obtained from, conclusions and outcomes reached in the research in question including but not limited to formulae, discoveries, inventions, ideas, data, raw numbers, algorithms, concepts, products, compositions, processes, protocols, methods, tests, pattern research interpretations and analyses, and manuscripts, publications and reports.	**1.6** "Data or Results" include " means the recorded factual information and material, both physical and electronic, commonly accepted in the relevant scholarly community as necessary to validate research findings including, but not limited to, research proposals, laboratory records, progress reports, internal reports, and presentations. Data includes all information or records of any sort related to the application for, performance of, dataor Results obtained from, conclusions and outcomes reached in the the research in question including but not limited to formulae, discoveries, inventions, ideas, databaw algorithms, concepts, products, compositions, processes, protocols, methods, tests, pattern research interpretations and analyses, and manuscripts, publications and reports..
1.6 "Dean" includes the deans of all faculties to which the Respondent is appointed or with which the Respondent is registered or affiliated and, where there is more than one Respondent, the deans of all faculties to which the Respondents are appointed or with which they are registered or affiliated.	1.7 "Dean" includesmeans the deans of all faculties to which the Respondent is appointed or with which the Respondent is registered or affiliated and, where there is more than one Respondent, the deans of all faculties to which the Respondents are appointed or with which they are registered or affiliated.
	1.8 "Expert" means a person who has requisite skill or knowledge relating to a particular subject as determined by the Research Integrity Officer (RIO) or the Committee, as the case may be.
1.7 "Good Faith Allegation" means an allegation that is not malicious or frivolous made by a Complainant who has reasonable grounds to believe that he or she has knowledge that Research Misconduct may have occurred.	1.9 "Good Faith Allegation" means an allegation that is not malicious or frivolous made by a Complainant who has reasonable grounds to believe that he or she has knowledge that Research Misconduct may have occurred.
1.8 "Member of the University Community" includes but is not limited to any person paid by, under the control of, or contributing in any manner to a research project in the University or an affiliated institution, and includes members of the academic, administrative and support staff of the University and its affiliated institutions, and students, fellows, technicians,	**1.10** "Member of the University Community" includesmeans a member of the academic, administrative and support staff of the University and its affiliated institutions, as well as students, fellows, technicians, health care workers, programmers, analysts, guests and visiting researchers including, but is not limited to, any person paid by, under the control of, or contributing in any manner to a

health care workers, programmers, analysts and guests and visiting researchers.	research project in the University or an affiliated institution~~, and includes members of the academic, administrative and support staff of the University and its affiliated institutions, and students, fellows, technicians, health care workers, programmers, analysts and guests and visiting researchers~~.
1.9"Plagiarism" means the representation of another's work, published or unpublished, as one's own or assisting another in representing another's work, published or unpublished, as his or her own.	**1.11** "Plagiarism"[1] means ~~the representation of another's work,~~ presenting and using another's published or unpublished work, including theories, concepts, data, source material, methodologies or findings, including graphs and images, as ~~one's~~one's own ~~or assisting another in representing another's work, published or unpublished, as his or her own.~~, without appropriate referencing and, if required, without permission.
1.10 "Research Misconduct" includes, but is not limited to the definitions of the funding agencies for such misconduct, for example: fabrication, falsification, plagiarism, misappropriation of intellectual property rights of another, or any other conduct that constitutes a significant departure from the ethical and other standards that are commonly accepted within the relevant research community for proposing, performing, reporting or reviewing research or treating human and animal research subjects, but does not include:	**1.12** "Research Misconduct" includes, but is not limited to the definitions of the funding agencies for such misconduct, for example: fabrication, falsification, ~~plagiarism~~Plagiarism, mismanagement of research funds, misappropriation of intellectual property rights of another, or any other conduct that constitutes a significant departure from the ethical and other standards that are commonly accepted within the relevant research community for proposing, performing, reporting or reviewing research or treating human and animal research subjects. ~~but.~~ Research Misconduct does not include:
(i) honest errors or differences of interpretation or judgment relating to Data or Results that are reasonable in light of the circumstances in which they are made or reached; or	(i) honest errors or differences of interpretation or judgment relating to Data or Results that are reasonable in light of the circumstances in which they are made or reached; or
(i) for the purposes of these Regulations, alleged plagiarism by students, other than postdoctoral fellows, relating to research that is undertaken for academic credit provided the allegation implicates only students.	(ii) ~~for the purposes of these Regulations,~~ alleged ~~plagiarism~~Plagiarism by students, ~~other than postdoctoral fellows,~~ relating to unpublished research that is undertaken for academic credit, provided that the allegation implicates only students. Such allegations shall be dealt with in accordance with the Code of Student Conduct and Disciplinary Procedures. However, if the alleged Plagiarism is in a graduate thesis, it is assessed as Research Misconduct.
1.11 "Research Record" includes any Data or Results in any medium.	**1.13** "Research Record" includes any Data or Results in any medium.
1.12 "Respondent" means a Member or Members of the University Community against whom an	**1.14** "Respondent" means a Member or Members of the University Community against whom an

[1] *Tri-Agency Framework: Responsible Conduct of Research*, Section 3.1 Breaches of Agency Policies, p.5

allegation of Research Misconduct is directed, or who may be implicated in an allegation of Research Misconduct (as, for example, co-authors or co-investigators or other members of a research team), or who becomes the subject of an investigation. Respondent also includes a past Member of the University Community against whom an allegation of Research Misconduct is directed with respect to research activities conducted while a Member of the University Community.

allegation of Research Misconduct is directed, or who may be implicated in an allegation of Research Misconduct (as, for example, co-authors or co-investigators or other members of a research team), or who becomes the subject of an investigation. Respondent also includes a past Member of the University Community against whom an allegation of Research Misconduct is directed with respect to research activities conducted while a Member of the University Community.

1.15 "Results" means the project 's findings, including conclusions and outcomes, reached in the research in question.

1.16 "Witness" means a person who testifies before the Committee.

2. PROHIBITION OF RESEARCH MISCONDUCT

2.1 No Member of the University Community shall:

(i) engage in Research Misconduct; or

(ii) make an allegation of Research Misconduct that is not a Good Faith Allegation.

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2.1 No Member of the University Community shall:

(i) engage in Research Misconduct; or

(ii) make an allegation of Research Misconduct that is not a Good Faith Allegation.

3. RESEARCH INTEGRITY OFFICER

3.1 The Principal, following consultation with the Provost and the Vice-Principal (Research and International Relations), shall appoint from the academic staff of the University a Research Integrity Officer ("RIO") and a Deputy Research Integrity Officer.

3.1.1 The Deputy Research Integrity Officer shall serve as RIO only in the event that the latter is unable so to serve or is disqualified in a particular case for cause or conflict of interest.

3. RESEARCH INTEGRITY OFFICER

3.1 The Principal, following consultation with the Provost and the Vice-Principal (Research and International Relations), shall appoint from the academic staff of the University a Research Integrity Officer ("RIO") and a Deputy Research Integrity Officer.

~~**3.1.1** The Deputy Research Integrity Officer shall serve as RIO only in the event that the latter is unable so to serve or is disqualified in a particular case for cause or conflict of interest.~~

3.2 The RIO shall make diligent efforts to ensure that:

(i) the assessment or investigation of an allegation is conducted in a timely, objective, thorough, competent and fair manner and in accordance with these procedures and to this end shall assist the Committee on Research Misconduct in its work;

3.2 The RIO shall make diligent efforts to ensure that:

i. the assessment or investigation of an allegation is conducted in a timely, objective, thorough, competent and fair manner and in accordance with ~~procedures and to~~Regulations. To this end, the RIO shall assist the Committee on Research Misconduct in its work;

(ii) notification is provided to the Agency, if any, where required by the Agency's rules;

(iii) interim administrative actions are taken, as appropriate, to protect human or animal research subjects, research funds, research collaborators, Members of the University Community and the public, and to ensure that the purposes of the funding provided by an Agency, if any, are carried out.

ii. notification is provided to the Agency, if any, where required by the Agency's rules;

iii interim administrative actions are taken, as appropriate, to protect human or animal research subjects, research funds, research collaborators, Members of the University Community and the public, and to ensure that the purposes of the funding provided by an Agency, if any, are carried out.

3.3 The RIO shall take all measures deemed necessary to protect the integrity of the Respondent's research facility, Research Records, research personnel including students, and research funds.

3.4 The Deputy Research Integrity Officer shall serve as RIO only in the event that the latter is unable to serve or is disqualified in a particular case for conflict of interest.

4. RESPONSIBILITY TO REPORT RESEARCH MISCONDUCT

4.1 A person who has reasonable grounds to believe that Research Misconduct is occurring or has occurred in the University or an affiliated institution shall immediately report the matter:

(i) to the RIO; or

(ii) in accordance with provisions of the *Policy on Safe Disclosure*.

4.2 Where a person is unsure whether a suspected incident constitutes Research Misconduct he or she should seek guidance from the RIO.

4.3 A person who makes a Good Faith Allegation of Research Misconduct shall be entitled to the protections afforded by, and to be treated in accordance with, the *Policy on Safe Disclosure*.

4.4 All Members of the University Community, including Complainants and Respondents, shall cooperate with the RIO and, if one is constituted, the Committee on Research Misconduct.

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4.1 ~~A~~ Every person who has reasonable grounds to believe that Research Misconduct is occurring or has occurred in the University or an affiliated institution shall immediately report the matter:

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(ii) in accordance with provisions of the *Policy on Safe Disclosure*.

4.2 Where a person is unsure whether a suspected incident constitutes Research Misconduct ~~he or she should seek~~, guidance should be sought from the RIO.

4.3 A person who makes a Good Faith Allegation of Research Misconduct shall be entitled to ~~the protections afforded by, and to be treated in accordance with, the *Policy on Safe Disclosure*~~protection from retaliation.

4.4 All Members of the University Community, including Complainants and Respondents, shall cooperate with the RIO and, if one is constituted, the Committee on Research Misconduct.

5. ALLEGATION ASSESSMENT

5.1 Within seven (7) calendar days of receiving an allegation of Research Misconduct, the RIO in writing shall:

(i) notify the Respondent of the allegation and of his or her right to an Advisor and provide the Respondent with a copy of these Regulations; and

(ii) advise the Respondent's Chair and Dean of the allegation and request them to provide any information they may have concerning the matter.

5.2 Within thirty (30) calendar days of receiving an allegation of Research Misconduct, the RIO shall determine whether there is sufficient evidence of possible misconduct to warrant an investigation, whether Agency funds or applications for funding may be involved, and whether the allegation may fall under the applicable Agency's definition, if any, of Research Misconduct.

5.2.1 In making the determination called for by section 5.2 the RIO:

(i) shall meet with the Respondent, accompanied by an Advisor if the Respondent so wishes;

(ii) may meet with the Complainant;

(iii) where necessary, may consult in strictest confidence one or more members of the University community, or one or more external experts in the field who are at arms-length from the alleged Research Misconduct; and

(iv) where the allegation relates to research involving human or animal subjects, may consult with the chair of the committee charged with approval of the research.

5.2.2 Where feasible the RIO shall not disclose any nominative information relating to the Complainant or the Respondent when meeting with members of the University community or the experts pursuant to section 5.2.1(iii).

5.3 Anonymous allegations of Research

5. ~~ASSESSMENT OF~~ ALLEGATION ~~ASSESSMENT~~

5.1 Within seven (7) calendar days of receiving an allegation of Research Misconduct, the RIO, in writing, shall:

(i) notify the Respondent of the allegation and of ~~his or her~~the right to an Advisor ~~and provide~~at any stage in the process;

(ii) ensure that the Respondent ~~with a copy of~~ has access to these Regulations; ~~and~~.

~~(iii) advise the Respondent's Chair and Dean of the allegation and request them to provide any information they may have concerning the matter~~.

5.2 Within thirty (30) calendar days of receiving an allegation of Research Misconduct, the RIO shall determine whether there is sufficient evidence of possible ~~misconduct~~ Research Misconduct to warrant an investigation, whether Agency funds or applications for funding may be involved, and whether the allegation may fall under the applicable Agency's definition, if any, of Research Misconduct.

5.3 In making the determination ~~called for by section 5.2,~~ the RIO:

(i) shall meet with the Respondent; ~~accompanied by an Advisor if the Respondent so wishes;~~

(ii) may meet with the Complainant;

(iii) where necessary, may consult in strictest confidence one or more ~~members~~Members of the University ~~community~~Community, or one or more external ~~experts in the field~~Experts who are at arms-length from the alleged Research Misconduct; and

(iv) where the allegation relates to research involving human or animal subjects, may consult with the chair of the committee charged with approval of the research.

5.4 Where feasible, the RIO shall not disclose any nominative information relating to the Complainant or the Respondent when meeting with ~~members~~Members of the University ~~community~~Community or ~~the experts pursuant to section 5.2.1(iii).~~external Experts.

5.5 Anonymous allegations of Research

Misconduct supported by substantive evidence may be acted upon by the RIO.

5.4.1 If the RIO determines that there is no reasonable basis for the allegation sufficient to warrant an investigation, he or she shall so notify the Complainant and the Respondent in writing with reasons.

5.4.2 If the RIO determines that the allegation provides sufficient information to warrant an investigation, the RIO:

(i) shall initiate the investigation process and so notify in writing the Respondent, the Chair and Dean, the Complainant, other appropriate University officials and, if the allegation originated from an Agency, the Agency;

(ii) shall request the Dean, the Vice-Principal (Research and International Relations) and the Secretary-General to advise the RIO of the names of their appointees to the Committee on Research Misconduct;

(iii) shall invite the Respondent, together with an Advisor if the Respondent so wishes, to meet with the RIO to discuss the investigation process;

Misconduct supported by substantive evidence may be acted upon by the RIO.

5.6 If the RIO determines that there is ~~no reasonable basis for the allegation~~ not sufficient evidence of possible Research Misconduct to warrant an investigation, ~~he or she~~the RIO shall, within 10 days of making that determination, so notify the Complainant, provided that the RIO determines the Complainant has a legitimate and direct personal interest in the matter or needs to be aware that no investigation will occur, and the Respondent in writing with reasons.

5.7 If the RIO determines that ~~the allegation provides~~there is sufficient ~~information~~ evidence of possible Research Misconduct to warrant an investigation, the RIO:

(i) shall initiate the investigation process and so notify in writing: the Respondent,; the Chair and Dean, ~~the Complainant,~~ ; the Complainant, provided that the RIO determines the Complainant has a legitimate and direct personal interest in the matter or needs to be aware of the investigation; other appropriate University officials; and, if applicable, the ~~allegation originated from an~~funding Agency~~, the Agency~~;. Where a graduate student or postdoctoral fellow is implicated in the allegations, the notification shall also be sent to the Dean of Graduate and Postdoctoral Studies.

(ii) shall request ~~the Dean,~~ the Vice-Principal (Research and International Relations), ~~and~~ the Secretary-General and the Dean of Graduate Studies, where appropriate, to advise the RIO of the names of their appointees to the Committee on Research Misconduct;

(iii) shall invite the Respondent, together with an Advisor, ~~if the Respondent so wishes,~~ to meet with the RIO to discuss the investigation process;

(iv) where an allegation of Research Misconduct includes mismanagement of research funds, shall notify the Internal Audit Department and request that they review the matter and prepare a

report relating to the allegation of mismanagement of research funds, a copy of which shall be provided to the Committee on Research Misconduct;

(iv) may locate, collect, inventory and secure all the relevant original Research Records, or copies if the originals are unavailable, to prevent the loss, alteration, or fraudulent creation of records; and

(v) may place under trusteeship the Respondent's research facility, Research Records, research personnel including students, and research funds.

(v) may sequester, locate, collect, inventory, and secure all the relevant original Research Records, or copies if the originals are unavailable, to prevent the loss, alteration, or fraudulent creation of records; and

(vi) may ~~place under trusteeship~~ take such measures the RIO deems necessary to protect the integrity of the Respondent's research facility, Research Records, research personnel including students, and research funds.

5.4.2.1 Where a graduate student or postdoctoral fellow is implicated in the allegations the notification under section 5.4.2(i) shall also be sent to the Dean of Graduate and Postdoctoral Studies.

~~**5.4.2.1** Where a graduate student or postdoctoral fellow is implicated in the allegations the notification under pursuant to section 5.4.2(i) shall also be sent to the Dean of Graduate and Postdoctoral Studies~~.

5.5.1 In exceptional cases, and notwithstanding section 5.4.2(i), the RIO may, after consulting with the Provost and the Vice-Principal (Research and International Relations), exercise the powers conferred by section 5.4.2(iv) and (v) without prior notification to the Respondent.

5.8 In exceptional cases, ~~and notwithstanding section 5.4.2(i),~~ the RIO may, after consulting with the Provost and the Vice-Principal (Research and International Relations), exercise the powers conferred by section 5.~~4.2~~7 (~~i~~v) and (vi) without prior notification to the Respondent.

5.5.2 The RIO shall sequester any additional Research Records and documents requested by the Committee on Research Misconduct.

~~**5.5.2** The RIO shall sequester any additional Research Records and documents requested by the Committee on Research Misconduct.~~

5.5.3 The RIO shall provide receipts for all Research Records sequestered under sections 5.4.2(iv) and (v) and 5.5.2 and on written request from the person from whom Research Records are collected, shall allow such person under supervision by a University official:

(i) access to his or her own original Research Records; and

(ii) to copy the Research Records.

5.9 The RIO shall provide receipts for all Research Records ~~sequestered under sections 5.4.2(iv) and (v) and 5.5.2 and on~~ secured. On written request from ~~the person from whom Research Records are collected, shall allow~~ a researcher, such person, under supervision by a University official, shall be allowed:

(i) access to ~~his or her~~their own original Research Records; and

(ii) to copy ~~the~~their own Research Records.

5.6 In the circumstance that certain Research Records are the property of, or belong to, an Agency, the Agency and Respondent shall

5.10 In the circumstance that certain Research Records are the property ~~of,~~ or ~~belong to~~,in the possession of an Agency, the ~~Agency and~~ Respondent shall ~~provide full access to the~~

provide full access to the Research Records to all who have a legitimate right to access in order to facilitate the complete and thorough investigation of an allegation of Research Misconduct in accordance with these regulations.

6. COMMITTEE ON RESEARCH MISCONDUCT

6.1 There shall be a Committee on Research Misconduct ("the Committee") for the investigation of allegations of Research Misconduct referred to it by the RIO.

6.2 Subject to section 6.2.1, the Committee shall consist of four (4) members of which:

(i) one (1) member shall be appointed by the Dean;

(ii) one (1) member shall be appointed by the Vice-Principal (Research and International Relations); and

(iii) two (2) members with relevant knowledge and expertise shall be appointed by the Secretary-General from the panel established in accordance with section 6.8.

6.2.1 In the event that a Respondent is a graduate student or postdoctoral fellow the Committee shall be comprised of five (5) members with the Dean of Graduate and Postdoctoral Studies, or his or her appointee, serving as a fifth (5th) member.

6.3.1 In the event that the Respondent holds appointment in, or is affiliated with, two or more faculties the Deans of the relevant faculties shall consult and decide who shall serve as their appointee pursuant to section 6.2(i).

~~Research Records to all who have a legitimate right to access~~cooperate and perform necessary actions to assist the University in obtaining the relevant information in order to facilitate the complete and thorough investigation of an allegation of Research Misconduct ~~in accordance with these regulations~~.

6. COMPOSITION OF THE COMMITTEE ON RESEARCH MISCONDUCT

6.1 There shall be a Committee on Research Misconduct ("the "Committee") for the investigation of allegations of Research Misconduct referred to it by the RIO.

6.2 ~~Subject to section 6.2.1, the~~ The Committee shall consist of four (4) members ~~of which:~~:

(i) one (1) member ~~shall be~~ of the University community with relevant knowledge and expertise appointed by the Vice-Principal (Research and International Relations) in consultation with the Dean;

(ii) one (1) external member ~~shall be~~ who has no current affiliation with the University appointed by the Vice-Principal (Research and International Relations); and

(iii) two (2) members with relevant knowledge and expertise shall be appointed by the Secretary-General from ~~the~~a panel of ten (10) established in accordance with the procedures set out in section 6.~~8~~9.

6.2.1 In the event that a Respondent is a graduate student or postdoctoral fellow the Committee shall be comprised of five (5) members with the Dean of Graduate and Postdoctoral Studies, or ~~his or her appointee~~delegate, serving as a fifth (5^{th}) member.

~~**6.3.1**~~ **6.3** In the event that the Respondent ~~holds~~ or Respondents hold appointment in, or ~~is~~ are registered or affiliated with, two or more faculties, the Vice-Principal (Research and International Relations), in consultation with the Deans of the relevant faculties ~~shall consult and decide who shall serve as their appointee pursuant to section 6.2(i).~~

6.3.2 In the event that there are two or more Respondents who hold appointments in or are affiliated with two or more faculties the Deans of the relevant faculties shall consult and decide who shall serve as their appointee pursuant to section 6.2(i).

~~**6.3.2** In the event that there are two or more Respondents who hold appointments in or are affiliated with two or more faculties the Deans of the relevant faculties,~~ shall consult and decide who shall serve as their appointee ~~pursuant to section 6.2(i).~~.

6.4 In the event of the recusal of a member of the Committee pursuant to section 6.8, the vacancy shall be filled in accordance with the above provisions.

6.4 The Committee when constituted shall select a chair from amongst its members. The chair shall not have a casting vote.

6.5 The Committee when constituted shall select a chair from amongst its members. The chair shall ~~not~~ have a casting vote if there is a tie in voting.

6.5 The RIO, promptly on receipt of the names of the members appointed to the Committee pursuant to section 6.2, shall take reasonable steps to ensure that the members of the Committee have no bias or conflict of interest with the Respondent, the Complainant, or the case in question.

6.6 The RIO, ~~promptly on receipt of the names of the members appointed to the Committee pursuant to section 6.2,~~ shall take reasonable steps to ensure that the members of the Committee have no bias or conflict of interest with the Respondent, the Complainant, or the case in question.

6.7 The RIO shall determine if the Complainant has a legitimate and direct personal interest in the outcome of the investigation and, if so, will notify the Complainant of the membership of the Committee.

6.6 The appointment of any member of the Committee may be challenged for bias or conflict of interest by the Respondent or, where the Complainant has a legitimate and direct personal interest in the outcome of the investigation, the Complainant. The validity of a challenge shall be determined by the RIO whose determination shall be final.

6.8 Within three (3) working days of notification of the composition of the Committee, the appointment of any member of the Committee may be challenged for bias or conflict of interest by the Respondent or, where the Complainant has a legitimate and direct personal interest in the outcome of the investigation, the Complainant. The validity of a challenge shall be determined by the RIO, whose determination shall be final.

6.7 In the event of the recusal of a member of the Committee the vacancy shall be filled in accordance with the provisions of sections 6.2 through 6.3.2 relevant to that member.

(Now Section 6.4)

6.8 The members of the panel referred to in section 6.2(iii) shall be established by the Principal, or designate, and the President of MAUT, or designate, jointly submitting to the Senate Nominating Committee a slate of twelve (12) names of members of the academic staff, of acknowledged standing and expertise, who are representative of different disciplines. The Senate Nominating Committee shall reduce the slate to nine (9) names and present it to Senate for approval.

6.9 There shall be a panel of ten (10) members of the academic staff of acknowledged standing and expertise, appointed to staggered terms of office of three (3) years commencing on September 1st, as follows:

(i) Prior to the March 1st of each year, the Secretary-General shall request from the President of the McGill Association of University Teachers (M.A.U.T.) and the

6.8.1 Vacancies on the panel shall be filled by the Principal, or designate, and the President of MAUT, or designate, jointly submitting to the Senate Nominating Committee a slate of names equal to at least one and one-half (1.5) the number of vacancies on the panel.

The Senate Nominating Committee shall reduce the slate to the number of vacancies on the panel and present it to Senate for approval.

6.8.2 The members of the panel referred to in section 6.2(iii) shall serve for a term of three years but, when first constituted, the panel shall consist of:

(i) three (3) members appointed for a term of three (3) years,

(ii) three (3) members appointed for a term of two (2) years, and

(iii) three (3) members appointed for a term of one (1) year.

7. COMMITTEE PROCEDURES

7.1 The Committee shall determine the facts

Principal a slate of names, consisting of at least twice the number of vacancies on the panel to be filled that year.

(ii) The slate of recommended names shall be submitted by the President of M.A.U.T. and the Principal to the Secretary-General for consideration by the Senate Nominating Committee. From this slate, the Senate Nominating Committee shall select the persons to recommend to Senate to fill the vacancies. Reasonable efforts shall be made to give due consideration to representation from different disciplines.

~~The members of the panel referred to in section 6.2(iii) shall be established by the Principal, or designate, and the President of MAUT, or designate, jointly submitting to the Senate Nominating Committee a slate of twelve (12) names of members of the academic staff, of acknowledged standing and expertise, who are representative of different disciplines.~~

~~The Senate Nominating Committee shall reduce the slate to nine (9) names and present it to Senate for approval.~~

~~6.8.1Vacancies on the panel shall be filled by the Principal, or designate, and the President of MAUT, or designate, jointly submitting to the Senate Nominating Committee a slate of names equal to at least one and one-half (1.5) the number of vacancies on the panel.~~

~~The Senate Nominating Committee shall reduce the slate to the number of vacancies on the panel and present it to Senate for approval.~~

~~6.8.2The members of the panel referred to in section 6.2(iii) shall serve for a term of three years but, when first constituted, the panel shall consist of:~~

~~three (3) members appointed for a term of three (3) years,~~
~~three (3) members appointed for a term of two (2) years, and~~
~~three (3) members appointed for a term of one (1) year.~~

7. COMMITTEE PROCEDURES

7.1 The Committee shall conduct its investigation in accordance with the procedures established below.

7.2 The Committee shall determine the facts

relevant to and the validity of the allegations brought to its attention by the RIO and to this end may:

(i) request the production of data, documents and other information deemed relevant to its investigation;

(ii) call witnesses including the Complainant; and

(iii) when the Committee deems it appropriate, appoint one or more internal or external experts to assist it in the analysis of Research Records and other specific evidence.

relevant to and the validity of the allegations brought to its attention by the RIO ~~and to.~~ To this end, the Committee may:

(i) request the production of ~~data~~Data, documents and other information deemed relevant to its investigation;

(ii) call ~~witnesses~~Witnesses including the Complainant; and

(iii) when the Committee deems it appropriate, appoint one or more internal or external ~~experts~~Experts to assist it in the analysis of Research Records and other specific evidence.

7.1.1 The Committee shall determine whether a Complainant is a person with a legitimate and direct personal interest in the outcome of the investigation for the purposes of these Regulations and the Committee's determination shall be final.

~~**7.1.1** The Committee shall determine whether a Complainant is a person with a legitimate and direct personal interest in the outcome of the investigation for the purposes of these Regulations and the Com m ittee 's determination shall be final.~~

7.3 The Respondent has the right to be heard as part of an investigation. The Complainant may request an opportunity to be heard as part of an investigation, and the Committee may grant this request where it believes the Complainant can provide information relevant to the investigation.

7.2.1 The Committee shall take reasonable steps to ensure that any expert appointed under section 7.1 shall be free of bias or conflict of interest with the Respondent, the Complainant, or the case in question.

7.4 The Committee shall take reasonable steps to ensure that any ~~expert~~Expert appointed ~~under section 7.1~~ shall be free of bias or conflict of interest with the Respondent, the Complainant, or the case in question.

7.2.2 The Committee shall notify the RIO and, the Respondent of the names of any experts appointed under section 7.1(iii).

7.5 The Committee shall notify the RIO and, the Respondent of the names of any ~~experts~~Experts appointed ~~under section 7.1(iii).~~ to assist it.

7.2.3 The Respondent may challenge the appointment of any expert for bias or conflict of interest. The validity of a challenge shall be determined by the RIO whose determination shall be final.

7.6 The Respondent may challenge the appointment of any ~~expert~~Expert for bias or conflict of interest. The validity of a challenge shall be determined by the RIO whose determination shall be final.

7.3 All hearings of the Committee shall be *in camera*.

7.7 All hearings of the Committee shall be *in camera.*

7.4 All hearings and deliberations of the Committee are strictly confidential and the Committee shall instruct all persons appearing before it to treat all evidence and proceedings as confidential.

7.8 All hearings and deliberations of the Committee are strictly confidential and the Committee shall instruct all persons appearing before it to treat all evidence and proceedings as confidential.

7.5 The Respondent and witnesses, including the

7.9 The Respondent and ~~witnesses~~Witnesses,

Complainant if called as a witness, may be accompanied by an Advisor.

7.6.1 The Respondent and the RIO may call witnesses from within or without the University to present evidence.

7.6.2 The Respondent and Advisor and the RIO may put questions to any person who appears before the Committee.

7.6.3 The Committee may put questions to any person appearing before it.

7.6.4 The witnesses and experts shall address the substance of the allegations before the Committee.

7.6.5 The Respondent, the RIO and their Advisors shall be entitled to reasonable access to the record of the matter.

7.7.1 The Committee shall give the Respondent, the RIO and any other person invited to appear before it ten (10) calendar days written notice of the date on which they are to appear.

7.7.2 If the Respondent, the RIO or other person fails to attend the Committee may proceed with the investigation in his or her absence.

7.8.1 The Committee shall obtain and review all relevant documentation and perform or cause to be performed necessary analyses of the evidence, including scientific, forensic, statistical, or other analyses as needed.

7.8.2 The Committee shall maintain an index of all the relevant evidence secured or examined in conducting the investigation, including any evidence that may support or contradict the report's conclusions.

7.9 Any finding of Research Misconduct by the Committee shall be based on a preponderance of the evidence, that is, evidence that shows that it is more likely than not that the Respondent committed Research Misconduct.

7.10 The Office of the Vice-Principal

including the Complainant if called as a ~~witness~~Witness, may be accompanied by an Advisor.

7.10 The Respondent and the RIO may call ~~witnesses~~Witnesses from within or ~~without~~outside the University ~~to present evidence~~.

7.11 The Respondent~~ and~~, the Respondent's Advisor, and the RIO, may put questions to any person who appears before the Committee.

7.12 The Committee may put questions to any person appearing before it.

7.13 The ~~witnesses~~Witnesses and ~~experts~~Experts shall address the substance of the allegations before the Committee.

7.14 An Advisor may not appear as a Witness.

7.15 The Respondent~~, the RIO~~ and ~~their Advisors~~the Respondent's Advisor shall be entitled to reasonable access to the record of the matter.

7.16 The Committee shall give the Respondent, ~~the RIO~~ and any other person invited to appear before it ten (10) calendar days written notice of the date on which they are to appear.

7.17 If the Respondent~~, the RIO~~ or such other person fails to attend, the Committee may proceed with the investigation in ~~his or her~~their absence.

7.18 The Committee shall obtain and review all relevant documentation and perform or cause to be performed necessary analyses of the evidence, including scientific, forensic, statistical, or other analyses as needed.

7.19 The Committee shall maintain an index of all the relevant evidence secured or examined in conducting the investigation, including any evidence that may support or contradict the ~~report's~~Committee's conclusions.

7.20 Any finding of Research Misconduct by the Committee shall be based on a preponderance of the evidence. ~~, that is, evidence that shows that it is more likely than not that the Respondent committed Research Misconduct.~~

7.21 The Office of the Vice-Principal (Research

(Research and International Relations) shall provide staff and other assistance to the Committee for conducting and completing the investigation, including maintaining confidentiality, conducting interviews and analyzing Data or Results.

8. INVESTIGATION BY COMMITTEE

8.1 Within ten (10) working days of the appointment of the Committee, the RIO shall notify the Respondent in writing of:

(i) the name of the research project in question;
(ii) the name of the Complainant, if known;
(iii) the specific allegations of Research Misconduct;
(iv) the name of the Agency involved, if any;
(v) the names of the members of the Committee;
(vi) a copy of these Regulations.

8.2.1 Subject to section 8.2.2, the Committee shall conclude its investigation and submit its preliminary report pursuant to section 8.4, within ninety (90) calendar days of the notification to the Respondent of the opening of an investigation as provided for in section 8.1.

8.2.2 If the Committee, for good cause, is unable to comply with the delay specified in section 8.2.1, or such shorter delay as may be imposed by an Agency, it shall provide written reasons for its inability to do so to the RIO and, if appropriate, the Agency, and request an extension.

8.3 The Committee shall conduct its investigation in accordance with the procedures established in section 7.

8.4 On the completion of the investigation the Committee shall prepare a preliminary written report containing:

(i) the names of the members of the Committee;
(ii) the names of any experts appointed by the Committee;
(iii) the names of the persons invited to appear before the Committee;

and International Relations) shall provide staff and other assistance to the Committee for conducting and completing the investigation, including maintaining confidentiality, conducting interviews, and analyzing Data or Results.

~~8.~~ ~~INVESTIGATION BY COMMITTEE~~8, TIMING

8.1 Within ten (10) working days of the appointment of the Committee, the RIO shall notify the Respondent in writing of:

(i) the name of the research project in question;
(ii) the name of the Complainant, if known;
(iii) the specific allegations of Research Misconduct;
(iv) the name of the Agency involved, if any;
(v) the names of the members of the Committee;
~~(vi)~~ ~~a copy of these Regulations~~.

8.2 ~~Subject to section 8.2.2,, the~~The Committee shall conclude its investigation and submit its preliminary report ~~pursuant to section 8.4,~~ within ~~ninety (90)~~ one-hundred and twenty (120) calendar days of the notification to the Respondent of the opening of an investigation ~~as provided for in section 8.1.~~

8.3 If the Committee, for good cause, is unable to comply with ~~the delay~~any specified ~~in section 8.2.1, or such shorter delay as may be imposed by an Agency~~delays, it shall provide written reasons for its inability to do so to the RIO and, if appropriate, the Agency, and request an extension.

~~**8.3** The Committee shall conduct its investigation in accordance with the procedures established in section 7.~~

8.4 On the completion of the investigation the Committee shall prepare a preliminary written report containing:

(i) the names of the members of the Committee;
(ii) the names of any ~~experts~~Experts appointed by the Committee;
(iii) the names of the persons invited to appear before the Committee;

(iv) the names of the Agencies supporting the research in question;
(v) the name of the Complainant, if known;
(vi) a statement of the allegations of Research Misconduct;
(vii) a summary of the relevant evidence;
(viii) the Committee's analysis of the evidence;
(ix) the Committee's findings with respect to the allegations with supporting reasons;
(x) the Committee's recommendation as to the appropriate disposition of the case; and
(xi) any other recommendations that the Committee feels are appropriate in the circumstances of the case.

8.5 The preliminary report of the Committee shall be transmitted to the Respondent who shall have fifteen (15) working days in which to comment on the Committee's findings and recommendations.

8.6 Within a further fifteen (15) days the final report of the Committee, together with the Respondent's comments, if any, received by the Committee, shall be submitted to the Secretary-General who shall promptly transmit a copy to the Provost, the RIO, the Respondent and, subject to the laws concerning privacy and protection of personal information, the Complainant if the Complainant has a legitimate and direct personal interest in the matter and needs to have access to the report.

(iv) the names of the Agencies supporting the research in question;
(v) the name of the Complainant, if known;
(vi) a statement of the ~~allegations~~allegation(s) of Research Misconduct;
(vii) a summary of the relevant evidence;
(viii) a summary of the process followed for the investigation;
(ix) the Committee's analysis of the evidence;
(x) the Committee's ~~findings with respect to the allegations with supporting reasons~~ conclusion as to whether or not there has been Research Misconduct and if so, the norms and rules from which there has been a departure;
(xi) the Committee's recommendation as to the appropriate disposition of the case; and
(xii) any other resommendations that the Committee feels are appropriate in the circumstances of the case.

8.5 The preliminary report of the Committee shall be transmitted to the Respondent who shall have fifteen (15) working days in which to comment on the Committee's findings and recommendations.

8.6 Within a further fifteen (15) days, the final report of the Committee, together with the Respondent's comments, if any, ~~received by the Committee,~~ shall be submitted by the RIO to the Secretary-General, ~~who shall promptly transmit a copy,~~ the Provost, and the Respondent. ~~and, subject to the laws concerning privacy and protection of personal information, the Complainant if the Complainant has a legitimate and direct personal interest in the matter and needs to have access to the report.~~

9. APPEALS

9.1 Within ten (10) working days after receiving the final report of the Committee, the Respondent may make an appeal to the Provost by way of written notice of appeal.

9.2 Grounds for such an appeal shall be limited to failure to follow due process as provided in these regulations, or evidence of bias on the part of the Committee.

9.3 The notice of appeal shall succinctly set out the complete and substantive reasons for the appeal and state on which grounds the appeal is based.

9.4 Upon receipt of a notice of appeal, the Provost [or his or her designate] will review the written report of the Committee and the written statement of appeal and may, but is not required to, meet with any of the Respondent, Complainant, RIO or members of the Committee. Provost will, within thirty (30) days of the submission of the notice of appeal, determine whether or not there are valid grounds for the appeal.

9.5 Should the Provost determine that there are no valid grounds under these Regulations for an appeal then the appeal will be dismissed and the Provost shall determine as set out in Section 10 whether to accept the Committee 's recommendations pursuant to sections 8.4(x), (xi), and (xii).

9.6 Should the Provost find that there are valid grounds for an appeal, then the Provost shall inform the Respondent, RIO, Complainant if appropriate, and where required, the Agency, that a new hearing before a new Committee shall be initiated.

9. DECISION BY THE PROVOST

9.1 As soon as practicable but no later than fifteen (15) working days after receipt of the report the Provost shall decide whether to accept the Committee recommendations called for by sections 8.4(x) and (xi).

9.2 The Provost shall not be required to meet with the Complainant, Respondent, RIO or any other person prior or subsequent to making his or her decision.

10. DECISION BY THE PROVOST

10.1 As soon as practicable but no later than fifteen (15) working days after receipt of the report the Provost shall decide whether to accept the ~~Committee~~ Committee's findings or recommendations. ~~called for by sections 8.4(x) and (xi).~~

10.2 The Provost shall not be required to meet with the Complainant, Respondent, RIO or any other person prior or subsequent to making ~~his or her~~a decision.

10.3 If the Committee's finding is that the allegation of Research Misconduct is not substantiated, the Provost shall dismiss the allegations and the Provost shall so notify the Respondent.

10.4 If the Committee's finding is that the allegation of Research Misconduct is founded:

(i) the Provost shall take appropriate action in accordance with the regulations, policies, codes or collective agreement to which the Respondent is subject;

(ii) (the Committee's report can be used as evidence in any disciplinary proceedings instituted by the Provost.

9.3 If the Provost's decision changes the recommendations of the Committee, the Provost shall provide substantive written reasons.

9.4 The Provost shall communicate his or her decision in writing to the chair of the Committee, the RIO, the Respondent, The Respondent's Chair and Dean and, where appropriate to:

(i) other relevant University authorities;
(ii) the Agency, if any; and
(iii) subject to the laws concerning privacy and protection of personal information, the Complainant if the Complainant has a legitimate and direct personal interest in the matter and needs to have access to the determination.

9.5.1 If the Committee's finding is that the allegation of Research Misconduct is not substantiated the Provost shall dismiss the allegations and ensure that the rights and protections extended the Respondent by section 10.4.1 are afforded him or her.

9.5.2 If the Committee's finding is that the allegation of Research Misconduct is founded:

(i) the Provost shall take appropriate administrative action and/or institute disciplinary proceedings in accordance with the regulations, policies, code or collective agreement to which the Respondent is subject;
(ii) the Committee's report can be used as evidence in any disciplinary proceedings instituted by the Provost pursuant to section 9.5.2(i).

9.6 Subject to section 9.4, the Provost shall determine whether any government agencies, professional societies, professional licensing boards, editors of journals or other publications,

10.5 ~~If the Provost's decision changes~~ If the Provost does not accept the recommendations of the Committee, the Provost shall provide substantive written reasons to the RIO, the Chair, and the Respondent.

10.6 The Provost shall communicate his or her decision in writing to the chair of the Committee, the RIO, the Respondent, ~~The~~the Respondent's Chair and Dean, the Vice Principal (Research and International Relations), the Secretary General, and, where appropriate to:

(i) other relevant University authorities;
(ii) the Agency that funded the research, if any; and
(iii) subject to the laws concerning privacy and protection of personal information, the Complainant if the Provost determines, upon consultation with the RIO, that the Complainant has a legitimate and direct personal interest in the matter and needs to have access to the ~~determination~~decision.

~~**9.5.1**If the Committee's finding is that the allegation of Research Misconduct is substantiated the Provost shall dismiss the allegations and ensure that the rights and protections extended the Respondent by section 10.4.1 are afforded him or her.~~

~~9.5.2 If the Committee's finding is that the allegation of Research Misconduct is founded:~~

~~(i)the Provost shall take appropriate administrative action and/or institute disciplinary proceedings in accordance with the regulations, policies, code or collective agreement to which the Respondent is subject;~~

~~(ii) the Committee's report can be used as evidence in any disciplinary proceedings instituted by the Provost pursuant to section 9.5.2(i).~~

10.7 ~~Subject to section 9.4,~~The Provost shall determine whether any government agencies, professional societies, professional licensing boards, editors of journals or other publications,

collaborators of the Respondent, or other relevant parties should be notified of the outcome of the investigation.

9.7 After completion of the investigation and all ensuing related actions, the RIO shall prepare a complete file, including the records of the investigation and copies of all documents and other materials furnished to the RIO or the Committee.

9.8 The University Secretariat shall be the official office of record and shall keep the file of the case for at least five years after its completion to permit later reassessment of the case where required by an Agency.

9.8.1 The Agency, and other authorized personnel who have a legitimate need to know, shall be given access to the file upon written request.

10. GENERAL PROVISIONS

10.1 Respondent's Admission

10.1.2 If the Respondent admits to the Research Misconduct, he or she should be asked to sign a statement attesting to the occurrence and extent of the Misconduct, acknowledging that the statement was voluntary and stating that the Respondent was advised of his or her right to consult an Advisor.

10.1.3 A signed admission may only be used as a basis for closing an assessment or investigation if the RIO obtains the written concurrence of the Agency, if any, to its closure.

10.2 Resignation of Respondent

10.2.1 The termination of the Respondent's employment or other relationship with the University or an affiliated institution for any reason, including resignation, before or after an allegation of Research Misconduct has been reported, shall not preclude or terminate an investigation under these Regulations.

collaborators of the Respondent, or other relevant parties should be notified of the outcome of the investigation.

10.8 After completion ~~-~~of the investigation ~~-~~and all ensuing related actions, the RIO shall prepare a complete file, including the records of the investigation and copies of all documents and other materials furnished to the RIO ~~or~~and the Committee.

10.9 The University Secretariat shall be the official office of record and shall keep the file of the case for at least five years after its completion to permit later reassessment of the case where required by an Agency.

10.10 The Agency, and other authorized personnel who have a legitimate need to know, shall be given access to the file upon written request.

11. GENERAL PROVISIONS

11.1 Respondent's Admission

11.1.1 If the Respondent admits to the Research Misconduct~~, he~~ prior to or ~~she should~~during a hearing of the Committee on Research Misconduct, any investigation or hearing shall be ~~asked~~discontinued. The RIO shall ask the Respondent to sign a statement attesting to the occurrence and extent of the Research Misconduct, acknowledging that the statement was voluntary and stating that the Respondent was advised of ~~his or her~~the right to consult an Advisor. The RIO shall submit a report to the Provost, together with the Respondent 's statement. The Provost shall proceed inaccordance with 10.4 and 10.6.

11.1.2 A signed admission may ~~only~~ be used as a basis for closing an assessment or investigation ~~if the RIO obtains~~with the written concurrence of the Agency, if ~~any~~required, to its closure.

~~**10.2 Resignation of Respondent**~~
11.2 Termination of Respondent's Relationship with University

11.2.1 The termination of the Respondent's employment or other relationship with the University or an affiliated institution for any reason, including resignation, before or after an allegation of Research Misconduct has been reported, shall not preclude or terminate an investigation under these Regulations.

10.2.2 If the Respondent refuses to participate in the Research Misconduct process after resignation, the RIO and the Committee shall use reasonable efforts to reach a conclusion concerning the allegations, noting in the report the Respondent's failure to cooperate and its effect on the review of all the evidence.

11.2.2 If the Respondent refuses to participate in the Research Misconduct investigation process after the termination for any reason, ~~including~~ resignation, ~~the~~ of the Respondent's employment or other relationship with the University or with an affiliated institution, the RIO and the Committee shall use reasonable efforts to reach a conclusion concerning the allegations, noting in the report the Respondent's failure to cooperate and its effect on the review of all the evidence.

10.3 Requirements for Reporting to the Appropriate Agency

10.3.1 The University's decision to initiate an investigation shall be reported in writing by the RIO to the Agency, if any, in accordance with the requirements of the Agency.

10.3.2 If the University plans to terminate an investigation for any reason without completing all relevant requirements of the appropriate Agency's regulation or policies, the RIO shall submit a report of the planned termination to the Agency, including a description of the reasons for termination.

10.4 Protection of Innocent Respondents

10.4.1 An innocent Respondent shall be entitled to the rights and protections afforded Respondents by the Policy on Safe Disclosure.

11.3 Requirements for Reporting to the Appropriate Agency

11.3.1 The University's decision to initiate an investigation shall be reported in writing by the RIO to the Agency, if any, in accordance with the requirements of the Agency.

11.3.2 If the University plans to terminate an investigation for any reason without completing all relevant requirements of the appropriate Agency's regulation or policies, the RIO shall submit a report of the planned termination to the Agency, including a description of the reasons for the termination.

11.4 Protection of ~~Innocent~~ Respondents

~~**10.4.1** An innocent Respondent shall be entitled to the rights and protections afforded Respondents by the Policy on Safe Disclosure.~~

11.4.1 All parties involved in the investigation of a research misconduct allegation, including the RIO, the Committee on Research Misconduct and the Provost, shall make diligent efforts, which, in their opinion, are necessary to protect the privacy and reputation of a Respondent, taking into account their duties pursuant this policy.

11.4.2 The University shall make diligent efforts, which, in its opinion, are deemed necessary to protect the privacy and reputation of a Respondent found not to have committed Research Misconduct.

10.5 Protection of Other Members of the Academic Community

10.5.1 The University shall take all reasonable measures to ensure that the academic standing and reputation of an innocent student,

11.5 Protection of Other Members of the Academic Community

The University shall take all reasonable measures to ensure that the academic standing and reputation of ~~an innocent student~~third parties such

postdoctoral fellow, technician, research assistant, research associate or member of the academic staff is not prejudiced by any investigation of, or any administrative actions and/or disciplinary proceedings that may be instituted.

10.6 Annual Report

10.6.1 Once per academic year, the RIO shall make a report to Senate and the Board of Governors, which report shall include:

(i) the number of Research Misconduct allegations received;
(ii) the number of Research Misconduct allegations investigated;
(iii) a summary of the findings of the investigations conducted;
(iv) a summary of any actions taken pursuant to the investigations.

10.7 Review of Regulations

These Regulations shall be reviewed at the end of the third year of their operation by a working group comprised of the RIO; the Provost or delegate; the Vice-Principal (Research and International Relations) or delegate; the Dean of Graduate and Postdoctoral Studies or delegate; and six persons (namely, one member of the academic staff representing each of the sectors whose research activities are primarily funded by CIHR, NSERC and SSHRCC; one member of the graduate student body; one postdoctoral fellow; and one member representing all other research related academic classifications) approved by Senate Nominating Committee.

as students, postdoctoral ~~fellow, technician~~fellows, technicians, research ~~assistant~~assistants, research ~~associate~~associates or ~~member~~ members of the academic staff is not prejudiced by any investigation ~~of~~, or by any administrative actions and/or disciplinary proceedings that may be instituted.

11.6 Annual Report

Once per academic year, the RIO shall make a non-nominative report to Senate and the Board of Governors, which report shall include:

(i) the number of Research Misconduct allegations received;
(ii) the number of Research Misconduct allegations investigated;
(iii) a summary of the findings of the investigations conducted;
(iv) a summary of any actions taken pursuant to the investigations.

11.7 Review of Regulations

~~These~~ After a further three years, these Regulations shall be reviewed ~~at the end of the third year of their operation~~ by a working group comprised of the RIO; the Provost or delegate; the Vice-Principal (Research and International Relations) or delegate; the Dean of Graduate and Postdoctoral Studies or delegate; a representative of the McGill Association of University Teachers; and six persons (namely, one member of the academic staff representing each of the sectors whose research activities are primarily funded by CIHR, NSERC and SSHRCC; one member of the graduate student body; one postdoctoral fellow; and one member representing all other research related academic classifications) approved by Senate Nominating Committee.

Terms of Reference

Working Group to Review the McGill *Regulations concerning the investigation of research misconduct*

Members:
Dr. Rose Goldstein (Chair and Vice-Principal, Research and International Relations)
Dr. Abraham Fuks (Research Integrity Officer)
Prof. Lydia White (Associate Provost, Policies, Procedures and Equity)
Prof. Martin Kreiswirth (Associate Provost, Graduate Education and Dean, Graduate and Postdoctoral Studies)
Prof. Fabien Gélinas (Faculty of Law)
Prof. Paul Clarke (Faculty of Medicine)
Prof. Jonathan Webb (Faculty of Engineering)
Dr. Marcel Behr (Faculty Clinician, Faculty of Medicine/RI-MUHC)
Prof. Brigitte Vachon (Faculty of Science)
Dr. Étienne Audet-Walsh (Postdoctoral Fellow, Faculty of Medicine)
Mr. Rui Hao (Leo) Wang (Graduate Student, Faculty of Medicine)
Ms. Suzanne Owen (Legal Counsel, Legal Services)

Objectives:

- As part of the regular three-year update of Policies, review McGill's *Regulations concerning the investigation of research misconduct;*
- Propose revisions that are aligned with current practice, government funding agency requirements and best practices for research-intensive universities;
- Participate in discussion and assist, as required, in consultation with selected experts in the area or the McGill community at large.

Governance:

- The Chair of the Working Group is ultimately responsible for all decisions and proposed changes to the Regulations;
- Members of the working group are mandated to participate as advisors to the Chair
- All university policies related to research must undergo review and attain approval from the Research Advisory Council, Academic Policy Committee, Senate, and the Board of Governors.

Timeline:

- The Working Group is expected to meet at least three times between September 2014 and March 2015.
- An initial meeting will occur in September 2014 to review the purpose of the Regulations, role of the working group, and initial topics.
- Subsequent meetings will occur in Fall 2014/ Winter 2015, with the aim of completing the review and seeking full governance approvals on the revised Regulations by June 2015.

Summary table of revisions to the *Regulations Concerning the Investigation of Research Misconduct* (*November 2015)*

Heading	2014/15 proposed revisions	2010 Policy http://www.mcgill.ca/secretariat/files/secretariat/research-misconduct-regulations-concerning-investigation-of_0.pdf	Rationale for proposed revisions - Key Points
Preamble	• No changes		
1. Definitions	Added the following definitions: • Committee, Expert, Results, Witness Amended the following definitions: • Advisor, Chair, Data, Member of the University Community, Plagiarism, Research Misconduct	• Current regulation provides definitions of key terms used within the regulation	• The new definitions add clarity as the terms are used throughout the regulation • Financial misconduct was added to the definition of Research misconduct to meet Tri-Agency criteria • Clarification was needed regarding treatment of Graduate Students and Postdoctoral Fellows during any investigation of research misconduct
2. Prohibition of Research Misconduct	• No changes	• No Member of the University Community shall: ○ engage in Research Misconduct; or ○ make an allegation of Research Misconduct that is not a Good Faith Allegation.	• N/A
3. Research Integrity Officer	• No substantive changes • Moved relevant sections under this section for consistency • Changed the order of clauses	• Provides guidelines of the RIO and Deputy RIO responsibilities	• Streamlined the reading of this section
4. Responsibility to Report Research Misconduct	• Revised 4.3 to remove reference to another University policy	• Current policy refers to the Policy on Safe Disclosure	• References to other University policies should be removed
5. Assessment of Allegation	• Changed the title of the section for clarity • Revised Section 5.1 to clarify that the RIO informs the Respondent of their right to an Advisor at any stage in the process and to ensure that the Respondent has access to this Regulation • Removed from Section 5.1 and revised Section 5.7 to clarify that the RIO will notify the appropriate Dean(s) and Chair(s) upon determination that an investigation should take place rather than at the time of the allegation • Revised section 5.6 to refer to evidence rather that reasonable basis as the determination to warrant an	• Current title is “Allegation Assessment’ • The current regulation does not clarify that an Advisor can be requested ‘at any time in the process’ • Current regulation states that the RIO should provide a copy of the Regulation to the respondent • Currently, the RIO informs the Chair(s) and Dean(s) within seven days of an allegation of Misconduct and requests any information they have concerning the matter • Current regulation does not stipulate procedures for Graduate students and postdoctoral fellows	• The Respondent should have the right to request an Advisor at any time in the process • With today’s technology, it was deemed sufficient to ensure that the respondent have access to the Regulation • Change from ‘reasonable basis’ to ‘sufficient evidence’ to clarify basis of RIO decision • Notification to Complainant will occur by the RIO within 10 days of the decision if no investigation is forthcoming • The RIO will inform the Complainant, if they have a legitimate and direct personal interest in the matter or need to be informed, that an investigation is warranted

Heading	2014/15 proposed revisions	2010 Policy http://www.mcgill.ca/secretariat/files/secretariat/research-misconduct-regulations-concerning-investigation-of_0.pdf	Rationale for proposed revisions - Key Points
	investigation and to notify the Complainant within 10 days if there is not sufficient evidence • Revised Section 5.7 to include notification of the Dean of Graduate and Postdoctoral studies in the case where a graduate student or postdoctoral fellow is implicated • Revised Section 5.7 to include notification of internal audit in the case of financial misconduct • Revised section 5.7 to include notification of the Complainant if he/she has a direct and legitimate interest or needs to be aware of the investigation • Revised section 5.9 to include 'or in the possession of' when referring to Research records held by ta funding Agency	• Current regulation does not include financial misconduct as research misconduct • Current policy only refers to the Research Record being the property of the funding Agency	• The Chair and Deans should be notified at an appropriate time if the RIO determines that an investigation should proceed • When a graduate student or postdoctoral fellow is implicated in an investigation, the Dean of Graduate and Postdoctoral Studies should be notified • A procedure for investigating allegations of financial misconduct needed to be added • Clarification in regard to Agency 'owning' the research record or simply having possession of the record. In either case, the Respondent shall cooperate in obtaining the relevant information.
6. Composition of the Committee on Research Misconduct	• Heading was changed • The Chair was given the casting vote in the case of a tie • Clause 6.4 was added to provide guidance in the event of a recusal of a member of the Committee • The panel of potential committee members was increased from 9 to 10. • The Secretary –General shall request a slate of at least double the number of vacancies on the panel to be filled in that year. • The VPRIR will appoint two members – one with relevant expertise in consultation with the relevant Dean, and an external member • Clauses were rearranged for clarity	• Currently, the Chair does not have a casting vote • The panel consists of nine (9) names) • The slate of names to fill vacancies on the panel is 1.5 times the number of vacancies on the panel • The committee does not currently have an external member	• The VP-RIR will appoint two committee members, one Expert, in consultation with the relevant Dean, and the other from outside the McGill Community • Tri-Agency Framework requires one external committee member • Guidance to handle the recusal of a member of the Committee was needed • The size of the panel and the size of the slate were increased to avoid problems in getting a sufficient number of committee members • Streamlined the process for selecting the slate and panel
7. Committee Procedures	• Revised Section 7.3 to clearly state that the respondent has a right to appear before the Committee and the Complainant may request to appear before the Committee • Added Section 7.14 stating that an Advisor may not act as a witness	• Current regulation is unclear about appearances before the Committee • Currently, there is no clarification on Advisors acting as witnesses	• Revised for clarity
8. Timing	• Heading was changed to 'Timing'	• Current heading is 'Investigation by Committee'	• New heading better reflects the entire process, not just the investigation by the Committee

Proposed Heading	2014/15 proposed revisions	2010 Policy http://www.mcgill.ca/secretariat/files/secretariat/research-misconduct-regulations-concerning-investigation-of_0.pdf	Rationale for proposed revisions - Key Points
	• Revised Section 8.2 to give the Committee 120 calendar days to conclude its investigation and submit its preliminary report • Revised Section 8.4 to include a summary of the process in the preliminary report	• Currently, the Committee has 90 days to conduct its investigation and provide its preliminary report • Currently there is no provision of a summary of the process in the preliminary report	• Tri-Agency policy gives more time to the Committee so the time period was extended • The summary of the process was added to items provided in the preliminary report to adhere to the Tri-Agency policy
9. Appeals	• New section added • Adds and explains the Appeals process in detail	• Under current section 8, the Respondent has the right to submit written comments to the Provost that accompany the final report.	• Appeals process was added as a separate section to meet Tri –Agency and FRQ requirements
10. Decision by the Provost	• The Provost shall also communicate their decision to the VP-RIR and the Secretary General in addition to the chair, the RIO, Respondent, Chair and Dean. • The order of clauses was changed	• The Provost shall communicate his or her decision in writing to the chair of the committee, the RIO, the Respondent, the Respondent's Chair and Dean.	• The VP-RIR and Secretary General are currently informed; this is to update the policy with practice.
11. General Provisions	• Revised Section 11.1 to include information on timing of any admission of research misconduct • Changed Heading of Section 11.2 to 'Termination of respondent's Relationship with University' • Revised Section 11.2 to include all reasons of termination of employment, not just resignation • Removal of the word 'innocent' • Revised section 11.4. to include that all parties involved in the investigation will make diligent efforts to protect the privacy and reputation of the Respondent • Added section 11.4.2 that the University shall make diligent efforts to protect respondents found not to have committed Research Misconduct • Revised section 11.7: removed 'and if Senate so determines'. To be consistent with policy revisions across the board, a reference to another University policy was removed. • The annual report to Senate is to be non-nominative • The working group to review the regulations was revised to include a member of MAUT	• Provides guidance when the Respondent has resigned, but not for termination of the relationship between the University and the Respondent for other reasons • Refers to other University policies which, moving forward, is no longer a process at McGill • Heading is currently 'Protection of Innocent Respondent' and 'innocent' student, postdoctoral fellow, technician, research assistants, research associates or other member of the academic staff and/or disciplinary proceedings • Current practice is to send a non-nominative report, yet it is not detailed in the current policy	• A broader definition than resignation was needed to describe and termination of relationship between the University and the respondent. • The word 'innocent' was removed as there are penal connotations to the word and it is not used anywhere else in the document • 11.4 should be stronger to protect the privacy and reputation of the Respondent. • Addition of 'non-nominative' report makes the updated regulation more accurate • The composition of the working group to review the Regulation should be balanced and representative of the research community.

Appendix 4: Timeline for Consultations and Governance Process
Regulations Concerning the Investigation of Research Misconduct

Consultations	
Date	**Consultee**
May 5/September 28	RAC
October 8	APC
October 26/ November 19	MAUT working group
November 25 (week of)	Deans
December 11	P7

Governance	
September 28/ October 15	RAC (meeting/email)
December 10	APC
January 13, 2016	Senate
February 11, 2016	Board of Governors

McGill

Memorandum
Note de service

Office of the Vice-Principal
(Research and International Relations)
James Administration Building, Suite 419
Tel.: 514-398-2995 Fax: 514-398-8257

Bureau de la vice-principale
(recherche et relations internationales)
Pavillon James de l'administration, bureau 419
Tél.: 514-398-2995 Téléc.: 514-398-8257

Date: November 27, 2015

To/Destinataire(s): Prof. Christopher Manfredi, Chair, Academic Policy Committee

From/De la part de: Dr. Rose Goldstein, Vice-Principal (Research and International Relations)

c.c. Victor Arshad, Academic Program Officer

Subject/Object: McGill University Research Centre on Complex Traits
An Initiative to Cure Infectious and Chronic Inflammatory Diseases

Purpose:
Please find attached the proposal by Professor Silvia Vidal (Faculty of Medicine for the McGill University Research Centre on Complex Traits, *An Initiative to Cure Infectious and Chronic Inflammatory Diseases*, which seeks recognition as an official research centre of McGill University. According to the process outlined in the Policy on Research Centres, the proposal has been reviewed and approved by the Research Advisory Committee (RAC). As Chair of RAC, I ask that APC review the proposal for approval and recommendation to Senate.

Background:
At the RAC meeting on September 28th, 2015, Professor Vidal presented the proposal to establish the MRCCT. RAC members considered the proposal very strong, and had few revisions to suggest. As per the current practice for review of new Research Centre proposals, three reviewers among the RAC members were assigned to carry out a detailed assessment and three responses were received.

The following comments were provided to Professor Vidal:

- *Please expand on the reasoning for the naming and consider adding 'Research' to the name.*
- *Please clarify what type of opportunities/trainings will be offered to students at various levels*
- *Nomination process is clear (bylaws section 7); please explain renewal, privileges and responsibilities of members*
- *The governance structure membership seems a bit large, which may be an organizational challenge, but it there is already precedence for working with these committees, this is not a concern. Please clarify.*
- *What is the long-term plan for funding?*

The revised proposal was presented at the November 17th, 2015 meeting of RAC. Members were fully satisfied that Professor Vidal has addressed the content issues and the proposal to establish the MRCCT as an official McGill research centre was recommended to move forward for approval by APC.

Next steps:
Upon review and endorsement, APC will propose approval of the MRCCT proposal to Senate and the Board of Governors for official research centre status as per the *Policy on Research Centres*.

Appendix I: MRCCT proposal

Faculty of Medicine
McGill University
Complex Traits Program
Bellini Pavilion
3649 Promenade Sir-William-Osler
Montreal, Quebec, Canada H3G 0B1

Tel: 514-398-2362
Fax: 514-398-2603

November 13, 2015

Research Advisory Council
Office of the Vice-Principal
Research and International Relations
James Building, Room 419
845 Sherbrooke Street West
Montreal, Quebec H3A 0G4

Dear members of the Research Advisory Council,

I would like to thank the Council members who have taken the time to read our proposal for the creation of a new McGill Research Center and have provided suggestions for improvement.

1- Name of the Centre: Members of the Council as well as the reviewers suggested clarifying the name of the Centre.

We agree that the name of the Center has to resonate with potential donors and the general public while keeping our identity at McGill and among our large net of collaborators. Hence, following consultation we have settled for slightly modifying the original title and adding a sub-title as follows:

McGill University Research Centre on Complex Traits (MRCCT)
An Initiative to Cure Infectious and Chronic Inflammatory Diseases

2-Research Program: We were asked to clarify what type of opportunities/trainings will be offered to students of various levels.

We have slightly revised the section describing the Training Plan on pages 12-13. Therein we indicate that whereas all activities described will be offered to graduate students and post-doctoral fellows alike ..." **e**) to facilitate and promote the integration of the different aspects of the project, special emphasis will be given to yearly retreats and, **f**) for graduate students, laboratory rotations within the different areas of research will be offered; and **g**) for post-doctoral fellows, on the same vein of a thesis advisory committee, we will set a mentoring committee composed of two to three PIs to guide their professional development. "

3-Governance:

We have clarified inconsistencies regarding the membership term for the Executive Board (i.e. 3 years); the term for the Scientific Advisory Committee (3 years) and the Clinical Advisory Committee (i.e. 3 years).

We have revised the process of renewal, privileges and responsibilities of members (bylaws section 7).

We also revised the budget (pages 58-59) and included a budget plan for the next 5 years (page 58).

Thank you again for your time and effort in reviewing our proposal. We hope that these changes will meet your satisfaction and appreciate very much your help in the process of creating the MRCCT.

Sincerely,

Silvia Vidal

Silvia Vidal, Ph.D.
Canada Research Chair in Host
Responses to Virus Infections
Professor, Department of Human Genetics
Director, Complex Traits Group
McGill Life Sciences Complex
Bellini building
3649 Sir William Osler Promenade, room 367
Montreal, QC, H3G0B1
Phone: 514-398-2362

McGill

Faculty of Medicine
3655 Promenade Sir William Osler #637
Montreal, QC H3G 1Y6

Faculté de médecine
3655, Promenade Sir William Osler #637
Montréal, QC H3G 1Y6

Fax/Télécopieur: (514) 398-8807
Tél/Tel: (514) 398-3523

16 March 2015

Research Advisory Committee
Office of the VPRIR

Re: McGill University Centre for Complex Traits

Dear Colleagues:

On behalf of Dr. David Eidelman, Vice-Principal (Health Affairs) and Dean of Medicine, I am writing in support of the establishment of the McGill University Centre for Complex Traits (MCCT).

The proposed centre formalizes the activities of the extremely successful and vibrant Complex Traits Group, which has been active as a research centre in all but name for many years. As part of the landmark Life Sciences Complex, the MCCT, with its focus on infection and inflammation, is uniquely positioned to promote interdisciplinary research, training and scientific outreach to clinical and basic research scientists. The success of the MCCT is assured by its renowned investigators, its members' outstanding level of external research funding, and the high percentage of salary and stipend support for faculty, postdoctoral researchers, and students.

Infectious and inflammatory diseases represent a significant global health problem; members of the MCCT are utilizing new genomic technologies to identify novel targets of diagnostic and therapeutic value for such immune-related diseases. The new centre will promote interdisciplinary research collaborations and ensure advances in both basic and translational research.

The proposed co-directors of the MCCT, Dr. Silvia Vidal and Dr. Philippe Gros, are world leaders in their fields who will undoubtedly shepherd the MCCT to making increasingly important research contributions. The focus of the MCCT and its leadership aligns well with the strategic research priorities of the Faculty of Medicine. We will, therefore, be pleased to continue to support the MCCT financially, with a commitment for 2015-16 of $65,000.

In conclusion, the Faculty strongly supports the creation of the McGill University Centre for Complex Traits. We are confident that centre members will continue to make critical contributions to research and training in the health sciences.

Sincerely,

Shari R. Baum, Ph.D.
Associate Dean (Research)
Faculty of Medicine

Cc: David Eidelman, MD, CM, FRCPC, FACP
Vice Principal (Health Affairs) and Dean
Faculty of Medicine

Proposal for the Creation of the

McGill University Research Centre on Complex Traits (MRCCT)

An Initiative to Cure Infectious and Chronic Inflammatory Diseases

Requestors: Members of the Complex Traits group

Jörg Fritz, Dept. of Microbiology and Immunology
Philippe Gros, Dept. of Biochemistry
Samantha Gruenheid, Dept. of Microbiology and Immunology
Danielle Malo, Dept. of Medicine and Human Genetics
Judith Mandl, Dept. of Physiology
Ana Nijnik, Dept. of Physiology
Maya Saleh, Dept. of Medicine and Biochemistry
Silvia Vidal, Dept. of Human Genetics

Date: November 13, 2015

Table of Contents

I – Identification

a. Name

McGill University Research Centre on Complex Traits (MRCCT)
An Initiative to Cure Infectious and Chronic Inflammatory Diseases

b. Faculties

Faculty of Medicine

c. Names of proposers and affiliation

Silvia Vidal, Professor, Department of Human Genetics, Associate Member, Department of Microbiology and Immunology
Director of the Complex Traits Group, McGill University

Philippe Gros, Professor, Department of Biochemistry and , Associate Member, Department of Human Genetics and Microbiology and Immunology
Vice-Dean, Life Sciences, Faculty of Medicine, McGill University

d. Physical location of the research Center

McGill Life Sciences Complex, 3rd. floor, Bellini Building
3649 Promenade Sir-William-Osler, Montreal, QC H3G 0B1

II –Executive summary

Infectious and inflammatory diseases represent a global health problem of unmet medical need. In the last few years, new genomic technologies and methodological approaches have dramatically changed our understanding of these immune-related diseases in terms of genetic risk factors and cell types involved. Yet, characterizing the precise identity of a risk factor or how it impacts on disease remains the next frontier of complex trait analysis before we can use this new information to develop informed therapeutic strategies.

With the overarching goal of identifying novel targets of diagnostic and therapeutic value for immune-related diseases, the McGill Center of Complex Traits (MRCCT) is well-positioned to harness the opportunities arising from recently emerged genomic information through a discovery platform aimed at elucidating cellular/molecular mechanisms of gene:environment interactions that underlie pathophysiology. Building on CFI funded infrastructure awards (CFI3, CFI6, LOFs), salary awards (James McGill, William Dawson, CRC chairs), team and individual research grants, and Faculty of Medicine support, the MRCCT brings together 13 primary members and 21 associate members combining expertise in genetics, genomics, bioinformatics, computer science, epidemiology, immunology, microbiology and translational medicine. A Clinical Advisory Committee will formalize links with the clinical arena. Members of the MRCCT span the academic, clinical and private sectors in North America and Europe. This ensures that the MRCCT will provide a unique opportunity for multidisciplinary training for the study of risk factors from the bench-side to the bed, and from the bed to the bench-side.

Anchored in the Strategic Research Plans of McGill University and the Faculty of Medicine, the proposed MRCCT will sustain and further McGill's international position in the field of complex disorders with a strategic prioritization on immune-mediated diseases, health outputs, computing science and imaging technologies.

III - Rationale

a. Context (societal, disciplinary, institutional)

Societal context. Immune-mediated diseases pose a tremendous burden on global health and resources. Despite inroads in hygiene, vaccination and antimicrobials, infectious diseases caused by established, emerging or re-emerging pathogens still account for close to 25% of annual deaths worldwide. In Canada, the 2009 H1N1 influenza pandemic, outbreaks of contaminated food and water supplies and the worrisome spread of methicillin-resistant *Staphylococcus aureus* strains are recent examples that the problem of infectious diseases is not just limited to poor countries but it is also relentless. Meanwhile, the prevalence of chronic inflammatory diseases (CID) such as rheumatoid arthritis (RA), inflammatory bowel disease (IBD) and multiple sclerosis (MS) is on the rise. Canada has among the highest rates of IBD and MS in the industrialized world, where inflammatory chronic diseases are the third leading cause of morbidity and mortality, after heart disease and cancer. Current treatments with anti-inflammatory drugs or biologicals are of limited effectiveness and are associated with serious side effects. Yet recent research breakthroughs have greatly improved the prospects of treating these conditions through an enhanced understanding of the underlying pathogenesis and the discovery of new pharmacological targets. Developing new therapies with the goal to treat these devastating diseases has never been more promising.

Disciplinary context. Genetic approaches have dramatically broadened our grasp of immune-mediated diseases. The identification of rare familial or sporadic mutations in patients with unusually severe infections or auto-inflammatory syndromes has provided key insights into the molecular and cellular underpinnings of disease and possible treatments. This is illustrated by the identification of mutations in cellular proteins involved in inflammation (e.g. TNFR, NLRP3) or immunity to infection (STAT1, IRF8, CARD9) or both (STAT3), which makes it possible to provide genetic counselling to families and have direct consequences for treatment choice (e.g anti-TNF or anti-IL1b). At another level, population-based genome-wide association studies (GWAS) fostered by the Human Genome and HapMap Projects, have now identified a wide range of risk-conferring genetic variants for both infectious diseases and CIDs, including significant and surprising overlaps in genetic risks amongst different CIDs, and between infectious diseases and CIDs. These studies have confirmed some of the genes and pathways previously known to be involved in immune-mediated diseases and revealed new associations. However, most of the causative risk variants remain undefined. A full explanation of disease complexity will require significant more knowledge before one can derive information relevant to pathogenesis and for pharmacological applications. Innovative approaches are needed to understand not only the identity of the disease variants but also how multiple disease variants interact among themselves and/or with the environment (diet, life-style, microbial flora) and through which biochemical mechanisms and cells they impinge on disease. This is a formidable challenge, which requires the integration of different disciplines, new approaches and international efforts.

Institutional context. McGill has advanced multidisciplinary research and training in complex diseases through investments in infrastructure and institutional recruitment of top talents. In 2008, the inauguration of the Bellini pavilion at the Life Sciences Complex (LSC) enabled an ambitious program along five research themes, including Complex Traits. The construction of the Bellini was

supported by close to $80M including CFI awards (Thomas/Gros, CFI3 and CFI6) and $26M contributions from McGill. Over the past six years, the CFI3 and CFI6 awards, as well as several LOF awards (totalizing $1.8M) to members of the Complex Traits group (CTG) have supported the creation of technology platforms unique to the CTG including gene discovery, mouse phenotyping, and cell immunophenotyping.

The CTG was initiated by P. Gros and D. Malo at McGill and the hiring of S. Vidal (University of Ottawa), M. Saleh (La Jolla Institute for Allergy and Immunology, Merck) and S. Gruenheid (University of British Columbia) whose synergized expertise in the use of mouse genetic models of acute and chronic infections, inflammation, and cancer and the application and development of rapidly evolving approaches in genetics, genomics, immunology, cell biology and biochemistry. The group rapidly attracted young talents with unique expertise in the areas of innate immunity and imaging. The hiring of Jörg Fritz (University of Toronto, 2010), Ana Nijnik (Welcome Trust, 2012) and Judith Mandl (NIH, 2015) brought new experimental models and analytical approaches to examine the behavior of immune cell populations during development, homeostasis and in response to pathogen challenge or inflammatory insults. This multidisciplinary group from the Departments of Biochemistry, Human Genetics, Medicine, Microbiology and Immunology, and Physiology all came together on the 3rd floor of the Bellini building.

Activities at the Bellini created a thriving environment for research, training and entrepreneurship. This has been multiplied by numerous collaborations and interactions adding complimentary expertise to the group. Included are the area of bioinformatics (G. Bourque, M. Blanchette), statistical genetics (M. Lathrop) and genome editing (S. Huang, J. Pelletier). In addition, CTG scientists established a network of supporting Canadian and international collaborators who bring rare families/patients (N. Jabado, D. Vinh, S. Turvey, JL Casanova), patients or cohorts with severe infections or inflammatory diseases (K. Kain, E. Schurr, P. Awadalla) and highly characterized clinical datasets (S. Sawcer, M. Georges) to facilitate knowledge translation from mice to humans. Finally, CTG scientists established several partnerships with the industry including Vertex inc. and Amorchem LLPP, and initiated clinical trials (P. Gros, K. Kain) based on recent discoveries.

The creation of the MRCCT will capitalize on the unique opportunities created by rapid advances in genomics technology and the increase in critical mass and diversification of research operations at the CTG to achieve breakthroughs in the field of medical genomics.

b) Purpose and program. The MRCCT will marshal research efforts and training to understand the molecular underpinnings of immune-mediated diseases with the goal of translating basic research breakthroughs into the most advanced therapies for patients. The Center will develop a program enabling excellence, innovation and entrepreneurship in research towards 1- the characterization of the unexplored core genetic risk at the interface of infectious and inflammatory chronic diseases, and the production of new mouse genetic models of disease; and 2- the understanding of the contribution of the environment (diet, microbiome, co-infections) to disease risk; 3-systematically exploring and exploiting the “druggability” of new disease targets.

c) Past history. The Center’s research program will build and expand upon McGill cutting-edge’s technologies in mouse and human genomics, microscopic imaging of live cells and organisms, genetic engineering and biochemical analysis. MRCCT members have an extensive history and success in research collaborations, corroborated by over 52 joint publications in the very best journals (*Nature*, *Nature Genetics*, *NEJM*, *Cell*, *J. Exp. Med*) and 10.5 M$ joint funding grants since

2008. A detailed list of the collaborations, team grants and joint publications can be found in Appendices A and B. Some of the recent success stories include i) characterization of a new myeloid deficiency due to mutation of IRF8, a gene originally discovered in mice at CTG. This information was crucial to guide clinicians in the selection of bone-marrow transplant donors (PMID: 21524210); ii) identification of a founder CARD9 mutation in Québec causing central nervous system candidiasis, which was clinically cured upon GM-CSF adjunctive therapy (PMID: 24704721); iii) the identification of genetic variants in *USP18, STAT4* and *Rspo2* causing susceptibility to enteropathogens (PMID: 20693420; PMID: 23695692; PMID: 24285835); (iv) the identification of *PTPRC* and *c-REL* mutations causing susceptibility to virus-induced neuroinflammation; v) demonstration that inactivation of cIAP2 sensitizes to pulmonary damage during influenza virus infection (PMID: 24439895); (vi) identification of mutations in the mouse *CCDC88B* gene which cause protection against neuroinflammation and encephalitis induced by cerebral malaria: this gene has also been identified as a candidate gene for IBD (PMID: 25403443). Other important discoveries include: (i) identification of novel immune cells with myeloid/lymphoid mixed features mediating mucosal immunity in the gut (PMID: 22158124); (ii) discovery of histone deubiquitination-dependent regulation of ontogeny of immune cells (PMID: 22184403).

d) Into the future. The Center will network internationally recognized basic scientists and clinical investigators from academia and the private sector to synergize their expertise around three rapidly advancing research axes i) analysis of big data in infectious and inflammatory diseases; ii) discovery and validation of pathways in immune-related diseases and iii) delineation of cellular and molecular mechanisms of disease. Primary membership includes 13 members from the departments of Medicine, Human Genetics, Microbiology and Immunology, Biochemistry and Physiology and 21 associate members from the academia (McGill University, Université de Montréal, University of Toronto, Université de Liège, Cambridge University and Institut Pasteur) and private (Vertex Pharmaceuticals Inc, Lallemand Inc, Janssen Research & Development, LLC) sectors. This group of Scientists and Clinician Scientists brings together multidisciplinary expertise in genetics and genomics, bioinformatics and computer science, epidemiology, immunology, microbiology and translational medicine.

Centered on its trainees, the program will enhance active participation of all its members in all stages of the discovery process. Trainees will be exposed to and have hands on experience in multidisciplinary research approaches to research in clinical and experimental settings as well a structured communications program. Building on past experience, the Center will emphasize exchanges between laboratories, workshops, seminars and retreats. Awareness of the underlying need and implications of our scientific work for society will also be emphasized.

Through this program, the proposed MRCCT will sustain and further McGill's international position in the field of complex diseases. The Center will broaden the impact of our research activities, strengthen partnerships and enhance the delivery of quality-research experiences for trainees. The Center will cement the foundation of the new generation of researchers while providing a unique forum to build bridges with colleagues from other research institutions and other sectors. The Center will continue and reinforce McGill's tradition of excellence and innovation in health research.

e) Recommendations: The proposers of the Centre have consulted with the Dean of Medicine, the Chairs of their home Departments, and a number of Directors of Research Centres (with complementary interests) here at McGill and abroad. A table listing the names of these individuals together with their letters of support are appended in Appendix D.

IV- Research Program

a) Mission and Vision: The mission of the MRCCT is to establish a multidisciplinary Center of excellence in research and education that will accelerate new scientific discoveries, enabling personalized translational medicine to better prevent and treat infectious and chronic inflammatory diseases.

To achieve this mission the MRCCT will:
1. provide innovative platforms to investigate how immune-mediated diseases are influenced by host genetic factors, the immune system, endogenous microbial communities, and other environmental factors.
2. train a new generation of scientists with multidisciplinary expertise in genetics, genomics, immunology, cell biology, biochemistry and bioinformatics.
3. translate basic science results from the bench to the bedside through collaborations with clinicians and clinician scientists and the pharmaceutical sector.

We envision the MRCCT to become a world leader in infectious and inflammatory diseases research, discovery of predictive and therapeutic targets, networking, infrastructure and education.

b) Scientific goal: The scientific goal of the Center is to understand the genetic and environmental etiology of infectious and chronic inflammatory diseases oriented towards the identification of molecular targets that could be of use for disease management or therapeutic strategies.

c) Research activities with specific examples: To maximize our impact, the Center will promote a discovery pipeline around six interrelated core activities for the validation and valorization of genetic risk variants relevant to human health. Our experimental program is unique in that it combines gene discovery research in large human cohorts and clinical cases of immunity-related diseases and in mouse models (ENU, recombinant congenic, collaborative cross) with genetic and immunological phenomics platforms in primary cells and new mouse models of disease. The core activities define a discovery pipeline from genomic data into animal and cell models and pre-clinical studies using patient samples and newly developed models for the validation of risk variants and possible interventions in immune-related diseases.

1) Computational analysis. This activity is required for the analysis of large genomics datasets obtained from different origins: published GWAS and meta-analysis, and next-generation RNA, exome and genome sequencing data, mouse genomics data. It is required to identify and prioritize pathological genetic variants associated with immunity-related diseases. Computational analysis is also performed for the analysis of the microbiome (see activity 5).

MRCCT members have developed tools for the analysis of human genetic and epigenetic datasets, with the goal of identifying and prioritizing pathological variants associated with infectious and inflammatory diseases, and for subsequent characterization in mouse models.

For example, L. Barreiro and E. Schurr examined whole blood transcription profiles to identify a gene signature typically associated with poor outcome in leprosy. P. Gros, M. Lathrop and G. Bourque have applied ChIP-seq and RNA-seq in immune cells to characterize the cistromes (entire regulated gene sets) activated by pro-inflammatory transcription factors IRF1, IRF8, PU.1, STAT1, and epigenetic histone marks in different cell types. As a group, the MRCCT now has access to RNAseq datasets from 12 immune cell types and tissues (CD19, CD4, CD8, CD15, CD14, platelets, ileal, colonic and rectal biopsies) from 350 normal individuals which, along with genotype data, have identified cis-acting expression SNPs (eSNPs) that regulate gene expression in these cells.

S. Vidal, M. Lathrop and G. Bourque have used mouse whole exome sequence data to identify candidate mutations for genes which when mutated alter the host response against herpes encephalitis. Collaborations between D. Malo, M. Lathrop and G. Bourque led to the identification of novel genes critical to the host response against enteropathogenic bacteria. N. Jabado applied exome sequencing to discover mutations in genes critical to early brain development, glioblastoma and neroinflammation.

2) Validation of disease-associated genetic variants in mouse and cell models. This activity is required for the formal validation of a genetic risk variant identified in a patient population. This requires the identification and characterization of a second disease allele in a valuable model of disease. To test gene function, the most straightforward approach is to use knock-out or knock-in mouse models available through KOMP or ENU programs. This approach is currently being taken by D. Malo, A. Nijnik, S. Vidal, for example, to examine the role in inflammatory disease models for genes discovered in mouse screens. Such models are important not only to understand the role of a given gene into disease pathogenesis but also to serve as a tool to test new possible therapies. Furthermore, MRCCT scientists have collectively generated or obtained >150 mouse lines that bear mutations in important “immune” genes and that can be used to map interactions of new genetic effects with known pathways.

In addition, establishing a cell model is also desirable in order to characterize mechanisms in the human host as well as to test potential therapeutic compounds. These model systems can also be used for genome-wide cell-based screens to identify second site modifiers. In addition to access to publicly available mutant collections, the Center will bring together expertise in advanced engineering technologies. Together, the laboratories of J. Pelletier and S. Huang have the capability to create sequence specific mutation (CRISPR-Cas9) or down-regulation (shRNA) at the gene or genome-wide level. In addition, their laboratories carry collections of “druggable” gene family shRNA libraries (e.g. Kinome and Phosphatome) to identify candidate molecules that can modify a given target gene.

3) Comprehensive functional phenotyping of mouse models of human diseases *in vivo*. This activity serves two aims, first, to investigate immune cell types and pathways involved in pathogenesis and second, to develop mouse models for pre-clinical testing of pharmacological modulators (Gros, Gruenheid, Haston, Lesage, Malo, Olivier, Qureshi, Saleh, Schurr, Vidal, Danska). Over the years, MRCCT members have developed mouse models of infection with bacterial (*Salmonella, Legionella, Citrobacter, Mycobacterium*), viral (influenza, coxsackie, HSV, CMV), parasitic (*Plasmodium, Leishmania*, *Schistosoma*, *Heligmosomoides*) and fungal (*Candida*) pathogens and that use a number of phenotypic readouts (microbial replication, histopathology, survival) to probe the role of specific genes in different aspects of innate and acquired immune

mechanisms *in vivo* (BSL-2, BSL-3 facilities), including activity of specific cell types and associated inflammatory and immune pathways. MRCCT scientists also are using several models of (a) intestinal inflammation, including dextran sulfate sodium (DSS)-induced colitis, and acute colitis caused by infection with *Citrobacter rodentium* or naive $CD45Rb^{Hi}$ T cell transfer and (b) neuroinflammation, including experimental autoimmune encephalitis (EAE), the cuprizone toxicity model, and several microbial models of acute encephalitis caused by *Plasmodium berghei*, and by Herpes Simplex Virus 1. Other disease models include type 1 diabetes (S. Lesage, J. Danska, C. Piccirillo) and sepsis (D. Malo, M. Saleh). Overall, these models are useful to validate candidate variants *in vivo* in mouse models of human diseases, as well as to provide insight into the impact of the variant in sometimes apparently unrelated diseases.

4) Assessment of genetic variants function on the immune and inflammatory responses at the cellular and molecular levels (J. Fritz, N. Jabado, J. Mandl, A. Nyzhnyk, C. Piccirillo, M. Saleh, S. Vidal). This activity serves to examine the function of candidate variants at greater detail taking advantage of new technologies that use fluorescent markers and antibodies allowing the detection of specific molecules at the surface or inside live cells. MRCCT Scientists (J. Fritz, M. Saleh) have developed streamlined FACS-based methods for immunophenotyping numbers, cell fate and cell function of immune cell types by high throughput multivariate flow cytometry (FACS) in mouse models. This resulted in collaborations to examine the role of a chemically-induced mutant of UNC93B in the cellular response to influenza virus infection (S. Qureshi, S. Vidal, C. Piccirillo, D. Malo). MRCCT members have also used functional immunocharacterization of rare patients (P. Gros, C. Piccirillo, N. Jabado, D. Vinh) to define new immunodeficiencies (IRF8) or guide treatments (GM-CSF) as well as to shed light into the function of the human immune system. In addition, techniques and instruments (irradiator) are in place to characterize the hematopoietic cells compartment of new mouse models *in vivo* (bone marrow transplants, mixed chimeras, and adoptive transfers of individual cell types). These approaches are complemented with more classical histopathology studies, and cell biology and molecular biology techniques. Finally, recent advances in two-photon microscopy permit intra-vital imaging of immune tissues (lymph nodes, mucosal surfaces) in real time in live animals, allowing the monitoring of influx, transit, and egress behavior of lymphoid and myeloid cells at steady state and in response to immune stimuli (J. Mandl). Altogether these studies serve to link a given variant with a cellular and/or molecular defect that can then be addressed.

5) Investigation of the effect of different microbiota and individual microbiota components on expression of immune and inflammatory phenotypes established in specific mouse mutants. The composition and metabolic activities of microbial communities living on mucosal surfaces (gut, lung, skin) may play an important role in triggering initial onset, modulating progression and ultimate outcome of many chronic conditions, including metabolic (obesity, diabetes), and inflammatory diseases (IBD, ARDS [acute respiratory distress syndrome], dermatitis). M. Saleh has established a first-class platform to investigate the effect of different microbiota and individual microbiota components on expression of immune and inflammatory phenotypes established in specific mouse mutants. These experiments require a very controlled animal environment for co-housing, co-fostering, and fecal transfer into-germfree mice. The sequencing analysis of microbial communities' metagenomes relies on bioinformatics tools developed by MRCCT members (G. Bourque). J. Danska's group at Hospital for Sick Children, University of Toronto is working with Lallemand Inc, Quebec to test the effects of their probiotic microorganisms in rodent models of

type 1 diabetes, specifically to understand how these products modify the intestinal microbial community (microbiome) of recipient animals, and the mechanisms through which these products dampen autoimmune responses. Similarly, through a MITACS fellowship to M. Saleh, a second collaboration with Lallemand Inc is underway to evaluate the role of probiotics on modulating cell death and pathology in the gut. This activity was undertaken as a joint effort with our colleagues from the Cancer Center and complements the studies on tolerance conducted by the Microbiome and Disease Tolerance Center (MDTC). The hope is to identify specific host genotype-microbial species interactions that can serve for personalized interventions.

6) Assessment of the biochemical function of protein variants and possible interventions. The goal of the activity is both to understand the molecular function of a candidate variant in a pathway and how to intervene in the pathway. It also aims to test small molecule modulators of potential therapeutic value (all current CTG members, Huang) and translational research (Bar-Or, Kain, Parkinson, Ward). MRCCT are actively engaged in the study of the clinical value of small molecules or host-based treatments. The discovery of a dominant mutation in JAK3 providing protection to mouse cerebral malaria prompted the use of JAK3 inhibitors to protect against disease. Bar-Or and Antel coordinate a number of multi-center national and international translational research initiatives to develop and test immunomodulatory therapies for patients with MS. J. P. Antel (McGill) (e.g. Teriflunomide, Alemtuzumab). Saleh and Parkinson are examining the role of death receptor pathways at the intersection with inflammatory responses to identify new targets for IBD. There is an approved clinical trial for the use of GM-CSF in CARD9-immunodeficiency (Vinh). These activities illustrate the emphasis of the Center into transfer of knowledge from basic research to enhanced quality of life for patients.

d. Training plan. The training in the MRCCT will be multidisciplinary (immunology, genetics, cell biology, bioinformatics, biochemistry), and using state of the art technology platforms further facilitated by the direct proximity of additional scientific nodes. These highly trained individuals will not only be highly competitive on the job market but will also keep Canada at the forefront of a knowledge-based economy in the health sector. Finally, their activity will be focused on two major disease areas for Canadians (infections, inflammation), with a strong focus on knowledge translation.

Our goal is to provide trainees with a unique environment that promotes integrated and interdisciplinary research spanning disease modeling, molecular genetics, statistical genetics, genomics, Chip-seq, RNA-seq, immunophenotyping in mouse models and in different cell populations, pathogenesis of disease, cellular biology, and bioinformatics, as well as the clinical aspects of disease, including diagnosis, treatment and prevention. We will provide opportunities for graduate students and postdoctoral fellows to: **a)** train in a variety of leading research and clinical laboratories at the McGill University and Genome Quebec Innovation Centre (MUGQIC), the MRCCT at the Bellini Life Sciences building, the Montreal Neurological Institute (MNI) and at sites of our industrial partners (Lallemand); **b)** participate in pre-existing seminars, including the CTG Seminar Series *Excellence in Genetics and Immunology* (http://www.mcgill.ca/complextraits/seminars) and workshops (for advanced biochemistry, bioinformatics, and Chip-seq through the CIHR Systems Biology Training Program (S. Vidal, P. Gros); for deep mouse and human immunophenotyping through the CIHR Neuroinflammation Training Program (A. Bar-Or, J. Antel, S. Sawcer); and for knowledge translation through the Experimental Therapeutics Program (A. Bar-Or)); **c)** interact

directly or through social media with a large community of experts in molecular and clinical aspects of inflammatory diseases in tandem conferences with the University of Cambridge (S. Sawcer) and the Université de Liège (M. Georges); **d)** participate in the recently initiated (M. Saleh, P. Gros) seminar series "Inflammation at barrier surfaces: From Bench to bedside", a public series that features monthly workshops with a national/international expert and a local expert, one conducting clinical research/practice and the other doing fundamental research on inflammation. The series is supported by Vertex Pharmaceuticals and by Crohn's and Colitis Canada ($35,000); **e)** to facilitate and promote the integration of the different aspects of the project, special emphasis will be given to yearly retreats and, **f**) for graduate students, laboratory rotations within the different areas of research; **g**) for post-doctoral fellows, we will set a mentoring committee composed of two to three PIs to guide their professional development.

We anticipate that this environment will provide an in-depth understanding of cutting-edge immunology, genomic, molecular and cellular approaches used to characterize complex diseases and will allow trainees to experience a unifying view of inflammatory pathologies, be it sterile or infectious, as they will have the opportunity to participate in a wider range of our Team's integrated research approach. Training of highly qualified personnel (undergraduate and graduate students, postdoctoral fellows and health professionals) has been and will continue to be a major focus of all the investigators associated with the MRCCT.

e. Added Value.

Knowledge translation. MRCCT members are engaged in various knowledge-translation activities promoting McGill's research: a) dissemination of research results in the scientific literature; b) presentations at national and international meetings expose new and diverse audiences to research results, while providing opportunities for trainees to acquire experience in public speaking; c) participation in community events such as the "Gene Researcher for a Week" from Canadian GeneCure Foundation, and that allows 2 high school students to spend a week in a research lab, as well as other outreach programs from local high schools and CEGEPs (3 such projects have won gold medals in 2012); d) participation in radio and television interviews (Radio Canada, CBC, Tele Québec, BBC News, TV5 – M. Saleh) aimed at informing the public of recent discoveries, the "Soup and Science" program at McGill (A. Nijnik; S. Gruenheid) aimed at informing the community of research results, and newspaper article on the successes of the Team (McGill Reporter, La Presse, Le Devoir, Journal de Montreal, Daily mail UK).

Contribution to the discipline: Interdisciplinary research is a distinguishing feature of MRCCT, due to (1) the aggregate scientific expertise of its members, (2) the approach to research taken by the members of the centre, and (3) the type of technology platforms available to members. MRCCT scientists bring distinct but complementary expertise to the inter-disciplinary research environment, facilitating a true "bench-to-bedside-and-back" program. This is exemplified by work done by MRCCT members P. Gros, and K. Kain who showed that loss of pyruvate kinase in erythrocytes protects against blood stage malaria in mice [PMID:14595440] and in humans [PMID:18420493]. In collaboration with A. Sakuntabhai (MRCCT associate member) who has assembled unique Thai and Senegalese cohorts from areas of endemic malaria, a unique mutant variant in the gene encoding pyruvate kinase was identified which is associated with fewer malaria attacks in infected individuals.

Independently, Saleh's group identified a polymorphic variant in the human Caspase-12 that is unique to populations of African descent [PMID: 15129283]; They subsequently observed that Caspase-12 alleles modulate host response to blood-stage malaria infection in mice [PMID: 20876354]. Along similar lines, work of E. Schurr led to the concept that genetic variants associated with susceptibility to leprosy in humans are also associated with susceptibility to Crohn's disease.

Unique technology platforms: With the support of CFI and McGill, MRCCT members have developed unique technology platforms and associated expertise that have been recognized internationally, enabling important and productive collaborations with Canadian colleagues and scientists abroad with key knowledge translation outcomes published in top journals. Industrial partners in Canada and abroad have also made extensive use of the MRCCT technology platforms. The MRCCT platforms have been used on a contractual basis by private companies looking to take advantage of efficient mouse models and associated expertise in immunology and cell biology to quickly test candidate molecules including GlaxoSmithKline (L. Cardon; neuroinflammation; King of Prussia, PA), Vertex Inc. (C. Sayegh; mouse colitis models; Laval, QC), Janssen Research & Development, LLC (J. Parkinson; IBD models, PA, USA), Raptor Inc. (T. Daley; Novel formulation of anti-malarial drugs; Palo Alto, CA), Dafra Pharma (A. Fortin; Pre-clinical evaluation of novel anti-fungal agents), and Inimex Pharma (R. Hancock; novel anti-inflammatory peptides; Coquitlam, BC). These linkages with the private sector will facilitate knowledge translation of research results into commercial opportunities in Canada (see below).

Commercialization: Partnerships and activities of MRCCT members with the private sector facilitate the important knowledge translation activities of Center scientists. As mentioned above, the MRCCT platforms have been used on a contractual basis by private companies looking to take advantage of efficient mouse models and associated expertise in immunology and cell biology to quickly test candidate molecules, thus building strong bridges between MRCCT scientists and the private sector. MRCCT members have experience in intellectual property with several filed or issued patents. Additional collaborations have led to significant commercial opportunity in novel treatment of human diseases. P. Gros showed that a mutation in pantetheinase causes susceptibility to malaria in mice, and demonstrated that the enzyme catabolic product cysteamine protects against malaria, and can improve the efficacy of the anti-malarial drug artemisinin [PMID: 20479197]. Gros and McGill filed for patent protection for this discovery, and a US patent was recently granted for this invention (USPA 61/159,480; issued 26/8/2014). Cysteamine is approved for clinical use and treatment of cystinosis in humans, and an industrial partner, Raptor Pharmaceuticals has licensed the patent on anti-malarial activity of cysteamine/artemisinin combinations. Raptor funded a sponsored research agreement for pre-clinical development of this formulation ($200K, Gros lab), which is now complete. Phase IIB clinical testing is scheduled for Q3 2015 (collaboration with Medicine for Malaria Venture/Gates; James McArthur, U. of Queensland, Brisbane). In another instance, the process of discovery of novel anti-inflammatory drug targets, and a preliminary list of 6 genes was included in a US patent application filed in 2012 (USPA; 61/652,271; filed 28/5/2012). This patent was licensed by Amorchem LLP for further commercial development of one of the targets (USP) through a sponsored research agreement with McGill (Total value $1.2M). Independently, another target discovered using the ENU platform, CCDC88B, is being considered by Versant/Inception LLP for licensing and pre-clinical development; Versant agreed to a $140K seed funding (Blueline program) to explore the CCDC88B pathway by

protein:protein interaction and mass spectrometry, and to identify druggable targets in this pathway.

Originality. Although there are several nodes of excellence in Canada in individual aspects (genetics, infectious diseases, immunology, and biochemistry) of the proposed program and associated team, none assemble in one place all the elements of established strength and superb infrastructure support. There are only two other centers in the world conducting this type of work at this level, Dr. B. Beutler, Baylor College of Medicine, and C. Goodnow, Australia National University. Both theirs and our labs are in close contact and we exchange resources and expertise on a regular basis. C. Goodnow will be invited to be on the Scientific Advisory Board of the MRCCT. Our proposed studies investigate different disease models and associated genes and response pathways.

International Visibility. The formation of the MRCCT will formalize and allow us to deepen our associations with key collaborators from McGill and at the national and international levels. Associate members bring outstanding expertise and access to unique clinical cohorts to MRCCT. Examples of this include M. Georges (University of Liège) and S. Sawcer (University of Cambridge) whose expertise is in IBD and MS, respectively. Already integrated through active collaborations with MRCCT full members (P. Gros, M. Saleh, S. Vidal), their continued association is critical to the translational aspects of our program. In addition, the center will also facilitate continued close associations with experts in high throughput genomics and bioinformatics at the McGill Innovation Center (Associate members G. Bourque, M. Lathrop), which is also linked to other high level computational and genomics nodes in Canada. We will further deepen our national and international network through our seminar series, workshops and symposia. Historically, the CTG has already established itself as a leader in these areas, with its high quality seminar series "Excellence in Genetics and Immunology", its innovative industry-partnered workshop series "Inflammation at Barrier Surfaces; From bench to Bedside", as well as the two Symposia on the "Genetics of Infectious Diseases". With an expanded membership and as a formalized Center, we anticipate that the MRCCT will continue this legacy and forge further strong connections with other experts within McGill and Internationally.

V - Strategic positioning

a. Relation to other research Centres at McGill

The MRCCT has a non-departmental structure with a major focus on interdisciplinary research in genetics, computational biology, pathway analysis and gene discovery. Members of the MRCCT collaborate extensively and provide access to their platforms to members of the Departments of Biochemistry, Human Genetics, Physiology, and Microbiology/Immunology and to researchers affiliated to other McGill-affiliated research Centres. In particular, MRCCT share memberships in the McGill Center for Tuberculosis, and the Microbiome and Disease Tolerance Centre. The MRCCT envisions many areas of interaction, involving both direct scientific collaborations between members and use of core facilities housed in other research Centers. The MRCCT is also interacting with McGill clinician Scientists. Dr. Bar-Or directs the Experimental Therapeutics Program and serves as Scientific Director of the Clinical Research Unit, at the Montreal Neurological Institute (MNI). He studies the cellular and molecular parameters of immune regulation, immune-neural

interactions and stem cell biology in MS. Dr. Bar-Or coordinates a number of multi-center national and international translational research initiatives with major emphasis on translation of basic laboratory discoveries towards development of novel therapies for patients with MS. His colleague JP Antel, coordinates the neuro-immunology program at the MNI.

Rosalind and Morris Goodman Cancer Center (GCC): We will continue to interact actively with members of the GCC via current individual collaborations (Gros-Beauchemin on the genetics of susceptibility to colorectal cancer in mouse models; Saleh-Beauchemin on the effect of inflammasome on colitis and colorectal cancer; Malo-Giguère on the impact of NCOA7, an estrogen co-receptor, on immunity to *Salmonella* infection; Fritz-Sonenberg on translational control mechanisms and Vidal-Bouchard on genetics of development) and through the current CIHR training grant (M. Tremblay, PI). Joint recruitment of a new investigator with strong interest in genetic analysis in mouse tumor models is also planned. We will make extensive use of GCC mouse colony, including access to specific Cre mutants, CRISPR/Cas9 technology, transgenic core, carcinogenesis core, gnotobiotic units and development of animal models of specific tumors. The generation of mouse models for human diseases is an important aspect of the research held at the MRCCT. The potential of the CRISPR/Cas9 system is enormous and will revolutionize our current approaches to develop models of diseases. J Pelletier (GCC and MRCCT associate member) and Y. Yamanaka (GCC) have recently used CRISPR/Cas9-based genome editing tools to modify the mouse genome with high precision in mouse models of lymphoma and in mouse embryo.

McGill University and Genome Quebec Innovation Centre (MUGQIC): The MUGQIC will continue to be a critical partner as their sequencing, functional genomics and bioinformatics resources and expertise continue to be key for many of our research activities. Key existing collaborations between several members of the MRCCT and M. Lathrop (Scientific Director of the MUGQIC) and G. Bourque (Director of Bioinformatics at MUGQIC) are already engaged as seen by several joint publications (Appendix A). M. Lathrop and G. Bourque bring expertise on using genetic and other high-throughput genomic approaches to identify DNA variants that predispose to common diseases.

McGill International TB Center: The McGill International TB Center, directed by Dr. Marcel Behr, regroups a community of researchers with a common interest in tuberculosis and a major emphasis on translational research and in TB control programs. This Center is distinguishable from the MRCCT as being a disease based Centre. Members of the MRCCT working on infectious pathogens will continue to interact actively with the TB Centre as associate members (P. Gros and C. Piccirillo). Two primary appointed members of the TB Centre are associate members of the MRCCT centre (E. Schurr, M. Olivier) and will bring their expertise in applied and translational genomics and immunity to *Leishmania* infection, respectively.

Microbiome and Disease Tolerance Center (MDCT): The MDCT is built on expertise of primary members appointed at the department of Microbiology and Immunology and of associate members from McGill affiliated groups (Institute of Parasitology, MUHC, MNI and Meakins-Christie laboratories), Montreal University and McMaster University. The MDTC technology platforms provide microbiomics expertise/services to collaborators from the Montreal and Canadian research communities. The major focus of the research performed at the MDTC is to study the effect of the microbiome in heath and disease with specific emphasis on the development of novel

immunomodulatory tools and strategies for treatment of infectious and inflammatory diseases. MDTC has reported some success stories with 1) the development of vaccine for veterinary use in visceral leishmaniasis (Leish-Tech™, Brazil), 2) TLR based-therapy for human cutaneous leishmaniasis and 3) Phase I clinical trial for the use of immunomodulatory bacteria in chronic rhinosinusitis. These avenues of research are complementary to the ones proposed by the MRCCT and will foster current interaction between MDCT and the MRCCT members and favor the development of new collaborations.

Centre for Host-Parasite Interactions: The Centre for Host-Parasite Interactions is located at the Institute of Parasitology on the Macdonald campus of McGill University and regroups scientists from McGill University, Université Laval, Université de Montréal-St Hyacinthe, Institut Armand Frappier, and the Université du Québec à Montréal. Research activities at the Centre focuses on parasitic diseases including the study of pathogenesis and molecular basis of drug resistance and drug target discovery and do not overlap with activities proposed for the MRCCT.

b. Relation to other Research Centres outside McGill University

MRCCT will continue to foster collaborations with other scientists with complimentary research programs at U. Laval (M. Bergeron, M. Ouellette, B. Papadopoulou, Centre de Recherche en Infectiologie, point-of-care diagnostics in infectious diseases, pathogenesis and vaccine development in parasitic diseases; R. Levesque, Director, Institut de Biologie Integrative et des Systèmes; J. Corbeil; *Legionella* epidemiology; S. Moineau, Development of novel applications of CRISP-Cas9 system); U. of Montreal (F. Daigle, J. Harel, L. Barreiro), U. of Toronto (J. Brumell, K. Kain), U. of British Columbia (B. Finlay). Important mouse resources to model human diseases are available through collaborations with C. McKerly (Director of the Toronto Centre for Phenogenomics), J.J. Panthier (Director of *Unité de génétique fonctionnelle de la souris*, Pasteur Institute) and C. Goodnow (Director of the Australina Phenomics Facility).

Important collaborators provide access to biological samples (DNA, RNA, immortalized cell lines), immunophenotyping profiling and genomics data (partial exome sequence) from unique cohorts of patients suffering from infectious and inflammatory diseases. These human datasets form a key part of future research at MRCCT. J. L. Casanova (Rockefeller U., NYC) provides access to (a) ~500 rare patients that develop disseminated mycobacterial infections following BCG vaccination (MSMD), as well as (b) familial and extreme cases of herpes simplex encephalitis and acute recurrent candidiasis. A. Hill (Director, Jenner Institute, Oxford, UK) contributes his large collection of TB patients, and Gram-negative sepsis (DNA), as well as rare Gram-positive sepsis cases (138 patients, exomes sequenced) from western Africa (Gambia). K. Kain (MRCCT Associate Member and Director of The Center for Travel and Tropical Medicine, Toronto General Hospital and the Director of Sandra Rotman Laboratoires for Global Health) is a long-time collaborator providing unparalleled expertise, and access to rare pediatric cases of severe cerebral malaria as well as a large cohort of pregnancy-associated malaria (n>1200). P. Awadalla (MRCCT Associate Member and Director of the CARTaGENE Biobank of Quebec) is a statistical geneticist who has established host-specific and microbe-specific genome-wide signatures in whole-blood transcriptomes of malaria-infected West African children and studies the effect of host genotypes on gene expression both in the host and the parasite (genotype-by-infection interactions *in vivo*). A. Sakuntabhai (MRCCT

Associate Member and Pasteur Institute, Paris) provides access to large familial cohorts from Senegal and Thailand of uncomplicated malaria, that have been uniquely followed longitudinally for quantitative parameters (parasitemia, fever, gametogenesis), and in which single genetic effects can be studied independently of clinical diagnoses.

In the area of inflammation, MRCCT members collaborate with scientists who bring expertise and clinical datasets for IBD and multiple sclerosis (MS). For MS, S. J. Sawcer (MRCCT Associate Member, Cambridge University, UK) conducts large-scale population studies of genetics of MS (GWAS, metanalyses and immunochips), and has access to curated genetic data from the large multicenter European MS consortium (4000 patients), including exome sequences from 195 patients. In the IBD area, M. Georges (MRCCT Associate Member, Head of the Unit of Genetics of the GIGA (Groupe Interdisciplinaire de Génoprotéomique Appliquée), U. Liège, Belgium) is a coordinator of the International IBD Genetics Consortium with access to genetic data from large European cohorts of IBD patients (3000 cases and 3000 controls of Crohn's disease), and genome wide RNA expression and eQTL maps from different immune cell types from 300 normal individuals in 14 different blood cells. He has whole exome sequences from 178 cases of CD.

c. Added value and importance to McGill University

The Creation of the MRCCT with the mission of deciphering the genetic and pathogenic mechanisms of human complex infectious and inflammatory diseases, and a mandate to accelerate the translation of research outcomes is anchored on strong strategic prioritization and committed institutional support for this research area at McGill. **First**, it greatly enhances and broadens the Complex Traits research theme and promotes and facilitates new research opportunities within key research themes of the McGill Life Sciences Complex and affiliated Research Centres, with high impact on the national and international scene. **Second**, it stimulates novel multidisciplinary research interactions thus contributing to development of innovative research and academic programs. **Third**, it maximizes investment in the McGill Life Sciences Complex as well as in the Genome Centre, key areas of strategic importance enhancing McGill's ability to attract, retain and develop outstanding faculty, students and research staff. **Fourth**, it capitalizes on the most effective use of research and funding through its potential for intellectual property and research commercialization. **Finally**, it adds to McGill a unique claim of housing the first Centre in Canada dedicated to the study of Complex Genetic Diseases. As stated in the "Support Health research and the delivery of care" section of the McGill Strategic Research Plan "…*we are developing new approaches to better understand and provide novel solutions, over the life course, to complex health problems, such as cancer, infections, mental health and neurological disorders, chronic diseases that afflict the aging population, and rare and neglected diseases that affect vulnerable populations. Our multidisciplinary approach considers the intrinsic genetic determinants of human health while addressing how environmental and social factors influence individual and collective well-being".* Likewise, the new Strategic Research Plan of the Faculty of Medicine at McGill (June, 2014) identifies "Infection and Inflammation" as one of the 4 disease areas targeted for intensive research; The plan also identifies "gene discovery in complex common disorders", "host-microbe interactions in infection, inflammation, development and cancer", "integrated *omics* approaches to biomedical research" and "Precision engineering of animal-, cell- and protein-based models of human disease" as top strategic research priorities. The plan also names "Genomics",

"Computational Biology" and "Imaging" as prioritized technology poles for infrastructure investments.

In addition, the goal of our Center to provide a unique training environment for the next generation of scholars and citizens is ingrained in the major priorities and objectives of the "McGill Achieving Strategic Academic Priorities Plan (ASAP http://www.mcgill.ca/asap/home-page)" (October, 2012) aimed to …"*Advancing McGill's academic success, profile, and reputation for excellence, nationally and internationally, as one of the world's research-intensive universities (p.18)*" … and "*Ensure innovation in graduate students experience based on disciplinary and interdisciplinary research strengths and competitive funding (p.24). "*

d. Future development plans

Moving forward, we will build on our established strength in immunology, genetics, and cell biology and will take advantage of new research opportunities, including new technologies and emerging clinical datasets. We will retain a focus on infectious diseases, as they represent a continuing threat to global health in general, and to the health of Canadians in particular. We will also maintain a parallel effort in inflammatory diseases, in particular MS and IBD, where Canada ranks number 1 and number 2 in incidence worldwide. We will also preserve a genetic approach in mouse models as an entry point to understand the immune system at the cellular and molecular levels. Finally, it is recognized that inflammation is a critical pathological component of many other chronic conditions including cancer, atherosclerosis, diabetes, and neurodegenerative diseases. In the past, research at CTG involved a forward genetic approach in mice to discover pathways important for disease. This was based on available robust inter-strain phenotypic differences in disease models, followed by identification of the major gene effect, validation of relevance to human disease, and study of the cellular and molecular mechanism of action. Recent advances in genome technologies (genotyping, genome sequencing, RNAseq) are generating enormous datasets for infectious and inflammatory diseases, including a multitude of disease-associated rare and common variants, eQTLs, and epigenetic marks. However, their relevance to disease pathogenesis is generally unknown and needs to be validated. We think that a reverse genetics approach in mouse models, including implementation of novel technologies (CRISPR/Cas9), can not only provide a solution to this validation issue, but can also permit analysis of gene:gene and gene:environment interactions that can further modulate penetrance and expressivity of major gene effects, including interactions with multiple microbiomes and this under well-controlled conditions.

In the coming years, we will take advantage of technological advances in imaging to explore and characterize immune cells heterogeneity in genetic mouse models of human infectious and inflammatory diseases and to monitor the influx, transit, behavior and egress of lymphoid and myeloid cells at steady stade and in response to immune stimuli in real time in live animals. This methodology will allow us to integrate data from genetic studies in mouse models, cellular and molecular immunological studies *ex vivo* and *in vitro* with behavior of immune cells in the whole animal. In the coming years, we will implement these technologies to the study of genetically determined susceptibility to infectious and inflammatory diseases. In the summer of 2014, CTG members filed an application to the CFI-8 call to support a program in Infection and Inflammation Genomics and Phenomics Center (total value $6.4M). This application contains a request for

imaging infrastructure which major components including FACS (LSR Fortessa), and two-photon intra-vital imaging, bench top sequencer, as well as upgrades on several of its current instruments.

Additional collaboration between M. Lathrop (MUGQIC), A. Hill (Wellcome Trust Centre for Human Genetics and the Jenner Institute) and P. Gros and other MRCCT members resulted in the recent creation of the Infection Genomics Consortium: A Strategic Partnership Between Oxford University and McGill University. This consortium was built on established strengths in laboratories at the Universities of Oxford and McGill to become world leading for the study of genetic determinants of susceptibility to infectious and inflammatory diseases (total of $12M submitted to Wellcome Trust).

In the fall 2014, Gruenheid and Malo (L. Goodridge PI and 20 co-applicants) submitted a pre-application to Genome Canada program *Large-Scale Applied Research Project Competition: Genomics and Feeding the Future* (total value of $10M). The project is entitled *"A Syst-OMICS Approach to Ensuring Food Safety and Reducing the Economic Burden of Salmonellosis"* and regroup multidisciplinary researchers form McGill University, Université Laval, Université de Montréal, Public Health Agency of Canada, Laboratoire de Santé Publique du Québec, Agriculture and Agri-Food Canada, Canadian Food Inspection Agency, Health Canada, University of Florida.

In January 2015, in response to a call for team grants on 'Environment, genes and chronic diseases' (total value of $14M), Saleh, Gros, Lathrop, Bourque (M. Saleh PI and 10 co-applicants) submitted a pre-application to CIHR entitled *"A Canada-Japan integrative meta-omics approach to define diet-microbiome derived metabolites that promote IBD in genetically susceptible individuals"*. This project regroups multidisciplinary researchers form McGill University, Université de Montreal, Manitoba University, McMaster University and Kyoto University in Japan.

VI. Governance

a. Governance structure

The administration of the *McGill Centre for Complex Traits* (MRCCT) consists of a Director, an Associate Director, an Executive Committee, a local Clinical Advisory Committee and a Scientific Advisory Board. The inaugural Director of the Center will be **Silvia Vidal**, Professor in the Department of Human Genetics and CRC Tier I award holder, internationally renowned for her research on the genetic susceptibility to virus infections. She is also co-appointed at the Department of Medicine and an Associate Member of the Department of Microbiology and Immunology. The Associate Director will be **Philippe Gros**, Vice-Dean Life Sciences, Faculty of Medicine and James McGill Professor in the Departments of Biochemistry and Human Genetics. Philippe Gros is internationally recognized for his many discoveries of genes, proteins and pathways that play a major role in complex human diseases.

b. Executive Committee representation

The administration of the MRCCT is overseen on an annual basis by an Executive **Committee**, which is responsible for selecting the Director of the MRCCT, approving the budget, the annual report, and refining the mandate. The membership of the Executive **Committee** will include

representatives from the Faculty of Medicine, the Faculty of Sciences and the Vice-Principal Research and International Relations.

Executive Board Membership:

Board Members are appointed for terms of 3 years renewable.
a) Vice-Principal (Research) (or delegate): Prof. Rose Goldstein
b) Dean of Medicine (or delegate): Prof. Shari Baum
c) Proposed Director and Associate Director of the Research Centre: Silvia Vidal, PhD and Philippe Gros, PhD
d) Two active full members of the Research Centre: Danielle Malo, PhD, and Jörg Fritz, PhD
e) Graduate student: Mathieu Mancini
f) Post-doctoral fellow: David Langlais
g) External member: Jacek Majewski, Professor at the Department of Human Genetics, McGill University

c. Clinical Advisory Committee

The Clinical Advisory Committee will seek out for opportunities to expand the links the Center with the clinical arena, and in turn will promote Center activities at the McGill University Health Center. The Clinical Advisory Committee will be composed of the Chair of the Department of Medicine and two MUHCRI representatives. Committee members are appointed for terms of 3 years renewable.

The proposed committee members are:

James G Martin MD, DSc.
Harry Webster Thorp Professor and Chair
Department of Medicine, McGill University
Physician-in-Chief, McGill University Health Centre

Donald C Vinh, MD
Assistant Professor and Clinician-Investigator
Director, Infectious Disease Susceptibility Program
Department of Medicine, McGill University Health Center

Ines Colmegan, MD
Assistant Professor, Division of Rheumatology
Department of Medicine
McGill University Health Centre.

d. Scientific Advisory Board

The Scientific Advisory Board will be composed of members of the Executive Board, and 2-3 external renowned international experts (see proposed names in the list provided below) in genetics/genomics of infections and inflammatory conditions. The SAB will overview the scientific direction of the MRCCT and provide guidance to the Executive Board.

The proposed committee members are:

Jean-Laurent Casanova**, **MD, PhD
St. Giles Laboratory of Human Genetics of Infectious Diseases
Rockefeller University

David Adams, PhD
Experimental Cancer Genetics (Leader, Mouse Genomes and Mouse Genetics projects)
Wellcome Trust Sanger Institute

Monica J. Justice, PhD
Head and Senior Scientist Genetics & Genome Biology
University of Toronto

Phil Barker, PhD
Scientific Director, Department of Neurology and Neurosurgery
Montreal Neurological Institute

John Orlowski, PhD
Director, Department of Physiology
McGill University

Tim Geary, PhD
Director, Institute of Parasitology
McGill University

e. Annual Retreat.

The Centre will hold one retreat per year, (a full day) where all principal investigators and students report on their projects in a meeting style format (10 minute presentations or poster presentations). Every two years, the retreat will be scheduled at the same time as the SAB meeting, in a symposium format to encourage excellence and promote interaction among Centre and international SAB members. International SAB members will be invited to give a lecture as keynote speakers in the symposium.

VI. Membership

Our multi-disciplinary Centre brings together complementary expertise to take advantage of the unique opportunities from recent progress in genomics technologies and to achieve breakthroughs in the field of medical genomics. The team members and their associated scientific expertise are listed below. Primary membership includes 13 members from the departments of Medicine, Human Genetics, Microbiology and Immunology, Biochemistry and Physiology and includes immunologists (J. Fritz, J. Mandl, C. Piccirillo), physiologist (A. Nyjnik), cell biologist (M. Saleh), microbiologist (S. Gruenheid), geneticists (P. Gros, S. Vidal, D. Malo), bioinformatician (M. Blanchette) and Clinician Scientists (N. Jabado, S. Qureshi and D. Vinh). There are 21 associate

members representing different disciplines including computational biology (Bourque), statistical genetics (Lathrop, Awadalla), population genetics (Barreiro), mouse genetics (Haston, Lesage), immunology (Danska, Krawczyk, Olivier), applied and translational genomics (Antel, Bar-Or, Kain, Georges, Sakuntabhai, Sawcer, Schurr, Turvey), vaccinology (Ward), functional genomics (Huang, Pelletier) and drug discovery (Parkinson) from the academia (McGill University, Université de Montréal, University of Toronto, Université de Liège, Cambridge University and Institut Pasteur) and the private (Janssen Research & Development, LLC at Johnson & Johnson) sectors.

Key existing collaborations between members of the CTG and Associate members are already engaged and include collaboration with Dr. Lathrop (Scientific Director of MUGQIC) and G. Bourque (Director of Bioinformatics at MUGQIC) (PMID: 24285835; 25268389; 25403443; 23594960; 22363534). Additional associate members provide access to unique human cohorts of inflammatory (M. Georges, Bar-Or, Sawcer, Antel) and infectious diseases (A. Sakuntabhai; K. Kain; Turvey), access to large sequencing and expression datasets (Barrero, Awadalla, Lathrop).

a. Full members

Director:

	**Vidal, Silvia,** PhD, is a Professor, Department of Human Genetics, McGill University and an Associate Member of the Department of Microbiology and Immunology, and is Director of the CTG. She holds a Tier 1 Canada Research Chair in Host Responses to Virus Infections and is the recipient of the Premier's Research Excellence Award. She uses mouse genetic platforms to discover and functionally characterize the molecular interface between pathogenic viruses, inflammation and immunity. Her laboratory made inroads in characterizing mechanisms of self/non-self discrimination by NK cells during viral infection and pathways that control inflammatory responses during coxsackieviral myocarditis and influenza pneumonia. She has also developed an internationally recognized program in ENU mutagenesis and infectious diseases. Vidal's program has spearheaded a number of projects and collaborations with academia and industry at McGill and abroad on gene discovery in human infectious and inflammatory disorders.

Co-Director:

	**Gros, Philippe,** PhD, Vice-Dean, Life Sciences, Faculty of Medicine, McGill University. Dr. Gros is a James McGill Professor of the Department of Biochemistry, and founding member of the CTG. He is also a member of the McGill International Center for Tuberculosis, and the Goodman Cancer Research Center, and is an associate member of the Departments of Human Genetics, and Microbiology and Immunology. His main area of investigation concerns the genetic analysis of susceptibility to infections, pre-disposition to neural tube defects, and models of carcinogen-induced cancer. He has received several prestigious awards since 2008 including, the Wilder Penfield Prize (Gouvernement du Québec; 2008), the Killam Prize in Health Sciences (Canada Council of the Arts; 2008), the Champion of Genetics Awards (GeneCure Foundation; 2011), the Queen Elizabeth II Diamond Jubilee Medal (Association of Universities and Colleges of Canada, 2013), and the McLaughlin Medal (Royal Society of Canada, 2014). He acts as an advisor for several organizations, including the Burroughs Wellcome Fund and the Canadian Institutes of Health Research and the Bill and Melinda Gates Foundation. His experience in the biotechnology sector, includes the co-founding of PhageTech, and Emerillon Therapeutics (Xenon).

Primary Members:

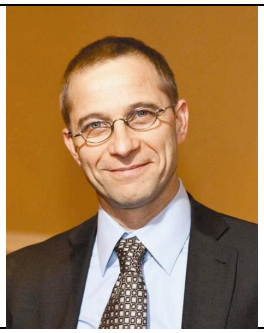
	**Blanchette, Mathieu,** PhD, Assistant Professor, School of Computer Science, McGill Centre for Bioinformatics, McGill University. His lab focuses on the development of algorithmic and machine learning approaches to biological sequence analysis. He is interested in the analysis of transcriptional regulation, in particular the prediction of transcription factor binding sites and regulatory modules, as well as in splicing regulation using approaches based on comparative genomics.
	**Colmegna, Ines**, MD, is an Assistant Professor, Division of Rheumatology - Department of Medicine, McGill University Health Centre. She is an Affiliate Member in the Department of Microbiology and Immunology and a Member of the MDTC. She holds a FRSQ Chercheur-Boursier Junior 2. Her laboratory studies the impact of aging on stem cell function to understand how immune aging favors autoimmunity. Her clinical focus is rheumatoid arthritis and she is involved in National and International initiatives that relate to this disease.
	**Fritz, Jörg Hermann,** PhD, is a CIHR New Investigator, and an Assistant Professor (Departments of Microbiology and Immunology and Physiology). He is an immunologist who trained with Dr. D. Philpott (Institut Pasteur, Paris), and Dr. J. Gommerman (U. Toronto), and who joined the CTG in 2010. Research in his laboratory focuses on understanding how innate immune recognition of microbes by pattern recognition molecules such as Toll-like receptors and Nod-like receptors translates into immunological memory for successful protection of the host. A particular focus is given to mucosal pathogens of the respiratory and gastrointestinal system where he is trying to understand how the expression pattern and activity of innate resistance effectors adapts to changes in the tissue milieu due to the availability of nutritional metabolites, the composition of the mutualistic microflora, or infection with pathogens. In this context he is studying the priming and function of innate lymphoid cells and B lineage cells for their role in mucosal immunity instructed to commensals, pathobionts and pathogens. He received a Career Development Award from the Austrian Academy of Sciences in 2008, and a Research Achievement Award for the research publication with the highest impact (McGill University, 2012).
	**Gruenheid, Samantha,** PhD, is an Associate Professor, Department of Microbiology and Immunology, McGill University and a founding member of the CTG. She holds a Tier 2 Canada Research Chair in Bacterial Pathogenesis. Her expertise is in the field of host: pathogen interactions, with a particular focus on intestinal infections. Dr. Gruenheid investigates bacterial virulence mechanisms and host responses to infection. Her group was the first to apply a genetic approach to infection with the mouse intestinal pathogen *C. rodentium*, and has recently discovered a new link between intestinal infection/inflammation and the regulation of tissue homeostasis. She has also made important contributions towards the elucidation of virulence mechanisms of pathogenic *E. coli*.

	**Jabado, Nada,** MD, is an Associate Professor, Department of Pediatrics, McGill University Health Centre. Her research team has identified two genetic mutations involved in up to 40% of pediatric glioblastomas, a fatal cancer of the brain. They identified changes in an important gene known as histone 3.3 in a significant fraction of children and young adults with glioblastoma. This histone gene is involved in regulating the development and growth of many body tissues, particularly in the brain. These mutations partly explain why this cancer remains unresponsive to treatments. Importantly, they identify a new pathway that may represent a new therapeutic option in glioblastoma and open a more productive approach to treating this and other cancers. Her research breakthrough with Dr. Jacek Majewski (McGill University) was identified in the December 15, 2010 issue of *L'actualité* as **one of 35 inventions that will "change everything."** This research, published in Human Mutation in 2010, demonstrated that the sequencing of one person's exome can permit effective research into mutations indicating a genetic disease, without the need to sequence an entire genome.
	**Malo, Danielle,** DVM, PhD, is a veterinarian and a Professor in the Departments of Medicine and Human Genetics and a founding member of CTG. She is a William Dawson Scholar, and received a prestigious international scholar award from Howard Hughes Medical Institute. She uses mouse models of infection and genetic platforms to discover and characterize genes and pathways that control the host response to infection with *Salmonella* using mouse models of infection. Her lab defined the genetic architecture of host response to *Salmonella* infection in models of acute and chronic infections, including the identification of major host gene effects (*Tlr4*, *Pklr*, *Usp18*, etc.). She also uses comparative genomics to identify host response to *Salmonella* infection in livestock populations and in nonhuman primates.
	**Mandl, Judith,** PhD is an Assistant Professor, Department of Physiology, McGill University and a new member of the CTG. She has an established record of productive research in cellular immunology, particularly in the biology of T cells and in their cross-talk with cells of the innate immune system at steady-state and during infection. She has made important contributions to the field of HIV pathogenesis, demonstrating the absence of ongoing type I interferon production in a natural host for SIV and its impact on downstream adaptive responses. More recently, her work has highlighted the role of interactions of T cells with self-peptides presented by MHC to both the selection of an effective T cell repertoire in the thymus and in their trafficking dynamics through peripheral lymphoid organs. Her current work focuses on T cell recirculation in mouse models of infection or immunodeficiency, making use of cutting-edge research tools that allow linking individual cell-level to population-level processes, including intravital 2-photon and confocal microscopy.
	**Nyzhnyk (Nijnik),** Ana, PhD, is an Assistant Professor, Department of Physiology, McGill University. She is a Canada Research Chair Tier 2 in Hematopoiesis and a member of the CTG since 2011. She is an expert in the biology of hematopoietic stem cells, leukocyte differentiation, and mouse models. Her contributions to the field include demonstrating the essential role of DNA repair and histone deubiquitinase MYSM1 in the maintenance of hematopoietic stem cells, and analyzing the functions of Ligase IV in B cell class switching. Her CIHR-funded research program analyses the mechanisms regulating gene expression and genetic stability in hematopoiesis and immunity, and in particular the roles of the histone H2A deubiquitinase (H2A-DUB) family of chromatin interacting proteins in this system.

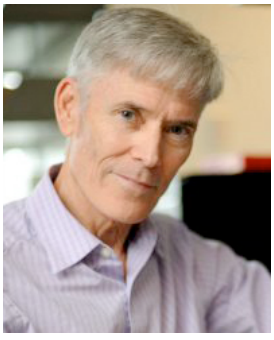
	**Piccirillo, Ciriaco,** PhD, is an Associate Professor, Department of Microbiology and Immunology, McGill University Health Centre. He is an immunologist who trained at the reputed Laboratory of Immunology, National Institute of Allergy and Infectious Diseases (NIAID), National Institutes of Health (NIH). He is currently Principal Investigator of the Laboratory of Immunoregulation unit at the Research Institute of the McGill University Health Center (RI-MUHC) and co-Leader of the Infection and Immunity Axis at the RIMUHC. He is also Director of the Immunophenotyping platform at the RI-MUHC and the Director of McGill's FOCIS Center of Excellence in Translational Immunology and Therapeutics whose mission is to support basic and clinical research in Immunology.
	**Qureshi, Salman T.,** MD, is an Associate Professor, Department of Medicine and Research Director at the Meakins-Christie Laboratories as well as an attending physician in the Department of Critical Care and medical director of Adult Respiratory Therapy at the McGill University Health Centre. He is a recipient of a Tier 2 Canada Research Chair in Host Response to Respiratory Infections. He uses forward genetic strategies to identify and functionally characterize the molecular determinants of susceptibility to pathogenic fungi, bacteria, and viruses that infect the lung including the identification of several loci that mediate host defense against *Cryptococcus neoformans*. He contributed to the initial development of an ENU mutagenesis program platform at McGill to probe host susceptibility to infectious diseases. The overall aim of his research program is to lay a foundation for the development of targeted therapies of human infectious and inflammatory disorders.
	**Saleh, Maya,** PhD, is an Associate Professor, Departments of Medicine and Biochemistry, McGill University and Director of the Inflammation and Cancer Program. She is also a founding member of the CTG, an Associate Member in the Departments of Microbiology and Immunology, Biochemistry, and the Goodman Cancer Centre and a member of the Division of Critical Care of the McGill University Health Centre Research Institute. She is a McGill University Dawson Scholar, a FRSQ Chercheur-Boursier Senior and a Burroughs Wellcome Fund Investigator in the Pathogenesis of Infectious Disease. Her research group investigates the basis of self-nonself/altered-self discrimination by the innate immune system, signalling mechanisms in inflammation, and the role of programmed cell death, in host-pathogen and host-microbiota interactions in complex diseases with a focus on mucosal infections, inflammatory bowel diseases and colorectal cancer. She has experience with industry having completed her postdoctoral work at Merck Research Laboratories and through her ongoing collaborations with Vertex Pharmaceuticals. She received the Andre Dupont Prize (Club de Recherches Cliniques, 2008), the Maude Abbot Prize (McGill University, 2011), the Maud Menten Prize (CIHR, 2010), and the New Investigator Award (Canadian Society for Immunology, 2010).

	**Vinh, Donald,** MD, is an Assistant Professor, Division of Infectious Diseases and in the Division of Allergy & Clinical Immunology (Department of Medicine), as well as in the Department of Medical Microbiology, McGill University Health Centre. He is also an Affiliate member of the Department of Human Genetics. He currently holds a chercheur-boursier clinicien Junior 1 award from the Fonds de recherche du Québec-Santé (FRQS) for his translational research program focusing on defining inborn errors of immunity in humans: By combining genetic approaches with functional immunology on robustly-defined patient cohorts, his bedside-to-bench research aims to understand the molecular mechanisms that confer susceptibility to infections, particularly fungal and viral diseases. His laboratory is an emerging leader in defining the genetic epidemiology of CARD9 deficiency in Québec and dissection of its molecular underpinnings that have therapeutic applications, a program supported by Le Fondation du Grand Défi Pierre Lavoie.

b. Associate members

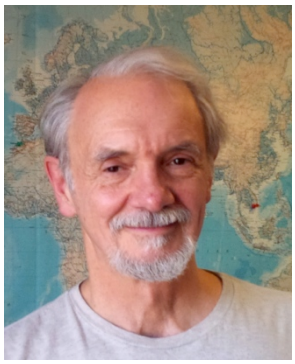
	**Antel, Jack,** MD, is a Professor, Department of Medicine, McGill University Health Centre. He examines how the immune system interacts with cells in the central nervous system. His work deals with immune-mediated neurological diseases, especially multiple sclerosis. His studies with human tissues are often designed in parallel with the mice models used by his colleague, Dr. Trevor Owens, who studies experimental allergic encephalomyelitis (EAE). Another focus of his research is to understand how cells of the immune system injure oligodendrocytes and their myelin membranes. He is also examining how glial cells (astrocytes and microglia) serve as antigen-presenting cells that regulate T-cell reactivity.
	**Awadalla, Philip,** PhD, is a Professor of Genetics, Faculty of Medicine, Université de Montréal and the Ste-Justine Hospital Research Centre. Since his training at the University of Edinburgh, Dr. Awadalla has focused on developing experimental and computational tools to study fundamental processes in genomics in humans and pathogens. His research investigates broad range of chronic and rare diseases, including infectious diseases in the developing world. Dr. Awadalla is also the Principle Investigator and Director of the CARTaGENE Biobank of Quebec. CARTaGENE is a prospective public health survey of Quebec and in its first phase captured biological, clinical, genealogical and genomic data from over 20,000 participants. He is also co-director of the Centre for Child Health Genomics at University of Montreal and he currently holds the Genome Quebec recruitment award for Population and Medical Genomics. He was awarded the 2012 Joe Doupe Young Clinical Investigator of the year.
	**Bar-Or, Amit,** MD is a practicing neuroimmunologist, Montreal Neurological Institute and Hospital. He also serves as Director, Experimental Therapeutics Program and Scientific Director, Clinical Research Unit at the MNI. His lab studies basic principles of immune-regulation, immune-neural interaction and neural-glial interaction, and roles in physiologic processes, inflammatory injury and repair in the human central nervous system. His clinical focus is multiple sclerosis (MS) and he is currently the President of the Canadian Consortium of MS Clinics. He coordinates a number of multi-center national and international translational research initiatives. An overarching theme is translation of basic lab discoveries

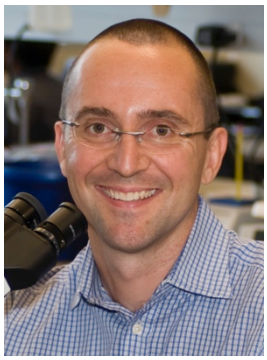
	towards development and understanding of novel experimental therapies and biomarkers for patients with autoimmune and neurological diseases. He serves on several journal editorial boards and on the scientific/advisory boards of the Guthy-Jackson Greater-Good Foundation; the Accelerated Cure Project; the ACTRIMS, ISNI and FOCIS organizations.
	**Barreiro, Luis,** PhD, is an Assistant Professor, Département de biochimie et médecine moléculaire, Université de Montréal. From 2003 to 2008 he worked at the Pasteur Institute of Paris where he did his PhD in Human Population Genetics under the supervision of Lluis Quintana Murci. In 2008 he moved to the department of Human Genetics at the University of Chicago to do a post-Doc in functional genomics. Luis Barreiro started his own laboratory at the University of Montreal and the CHU Ste-Justine in March 2011. His research focuses on a better understanding how natural selection has contributed to the evolution of our species and the extent to which past selection events impact present-day susceptibility to disease. Specifically, Barreiro's lab studies the evolution of immune responses both at the inter-species level as well as among different individuals and human populations.
	**Bourque, Guillaume,** PhD is an Associate Professor, Department of Human Genetics, McGill University and Director of Bioinformatics at the McGill University and Genome Quebec Innovation Center (MUGQIC). He is the lead of the CIHR-funded Epigenomic Data Coordination Center at McGill. His research interests are in comparative and functional genomics with a special emphasis on applications of nextgeneration sequencing technologies. Dr. Bourque has a close partnership with Calcul Québec (Québec component of Compute Canada) to implement computational genomics within the high-performance computing environment, and under his leadership, MUGQIC has become the largest user of Compute Canada resources in Québec. Dr. Bourque serves on Compute Canada's Advisory Council for Research.
	**Danska, Jayne PhD,** is a Professor, Departments of Immunology and Medical Biophysics, Faculty of Medicine, University of Toronto and a Senior Scientist at the Hospital for Sick Children. She has made contributions to understanding immunological, genetic and environmental causes of Type 1 diabetes (T1D), molecular mechanisms of acute lymphoid leukemia (ALL), and innate immune surveillance of leukemia. She has lead large-scale projects applying genetic, genomic and immunological analysis in rodent models to identify T1D-risk genes and determine how they control autoimmune pathogenesis. More recently her group has focused on environment risk factors in T1D, demonstrating in a mouse model of spontaneous T1D that manipulation of the intestinal microbiome influences sex hormone levels metabolism and modifies a high burden of inherited risk for T1D. Dr. Danska serves as a Scientific Director of The Centre for Applied Genomics at the Hospital for Sick Children.

	**Georges, Michel,** PhD, is a Professor in Genetics and Genomics, Faculty of Veterinary Medicine, University of Liège, Belgium. He heads the Unit of Genetics of the GIGA (Groupe Interdisciplinaire de Génoprotéomique Appliquée) Research Institute in the same university. He played an instrumental role in establishing the GIGA Research Institute. He devoted his scientific carrier to the development and use of genomic tools for the identification of genes and mutations underlying complex traits of agronomic and medical importance. He participated in the very first genome scans for QTL in the rat, and then conducted many such scans in livestock. His lab has discovered polar overdominance, identified the "double-muscling" gene and several regulatory QTN including some that perturb miRNA-mediated gene regulation, and discovered a novel CNV generating mechanism underlying the inheritance of colour-sidedness. He made important contributions to the "genomic selection revolution" in livestock. More recently, Georges' team has been involved in the genetics of inflammatory bowel disease and has contributed to the identification of novel risk loci, genes and variants.
	**Haston, Christina,** PhD, is an Associate Professor, Department of Medicine and an Associate Member of the Department of Human Genetics, McGill University. She holds funding from CIHR, CF Canada and the Canadian Cancer Society. Dr. Haston has an international reputation in the pathogenesis of normal tissue responses to radiation. She uses mouse genetic platforms to discover and functionally characterize the genetic basis of pulmonary responses to radiotherapy and of pulmonary fibrosis. Her laboratory recently completed the first genome-wide association study of susceptibility to radiation-induced lung disease in mice and has characterized specific pharmacological mitigators of this effect.
	**Huang, Sidong** PhD, is an Assistant Professor, Department of Biochemistry, McGill University. He is also an Associate Member of the Goodman Cancer Research Centre, and holds a Canada Research Chair in Functional Genomics. He uses functional genomic tools to study cancer-relevant pathways and to guide targeted cancer therapy. His laboratory aims to identify novel genes and networks that modulate response to cancer drugs, and to uncover genetic dependencies between the major signaling pathways in cancer that can be exploited therapeutically. One of his works has identified the potential combination therapy targeting both BRAF and EGFR for BRAF mutant colon cancer patients, which is currently being tested in a clinical trial. He is also in charge of managing the latest Mission TRC shRNA genome-wide collections, which have enhanced the research capacity of the community and initiated new projects and collaborations.
	**Kain, Kevin,** MD, FRCPC**,** is the Director of SAR Laboratories, Sandra Rotman Centre for Global Health, UHN-Toronto General Hospital, the Director of the Tropical Disease Unit at the Toronto General Hospital, and a Professor of Medicine at the University of Toronto. Dr. Kain's research efforts are focused on developing a translational research program that characterizes host response to major global infectious disease threats including malaria and HIV, particularly as they pertain to women and children. Dr Kain was profiled by TIME magazine as one of "Canada's Best in Medicine". He also received the: University of Toronto, Department of Medicine Research Award; Fred Barrett Lectureship, University of Tennessee; Distinguished Service Award, Global Health Education Consortium, University of California; John Evans Lectureship in Global Health; The Henry and

	Sylvia Wong Lectureship In Medicine, MacMaster University), 2005 Forbes Lectureship, University of Melbourne, Australia, and the Senior Investigator Award from the Clinical Research Society of Toronto (CRST). He has served as consultant to many organizations including the Gates Foundation, WHO, Red Cross, Canadian Blood Services, and the CDC.
	**Krawczyk, Connie,** PhD, is an Assistant Professor in the Departments of Microbiology and Immunology and Physiology and a member of the Rosalind and Morris Goodman Cancer Research Center. Her laboratory studies the molecular mechanisms that regulate immune responses, specifically focused on dendritic cell/T cell interactions. She has developed novel tools to manipulate gene expression in primary dendritic cells and uses them to investigate novel mechanisms that drive context-specific immune responses. Her laboratory currently studies diverse mechanisms that regulate dendritic cell activation and function including transcriptional repression, miRNA-regulated gene expression, and cellular metabolism. A goal of her research team is to improve immune function through vaccine development and targeted immunotherapies.
	**Lathrop, Mark,** PhD, is the Scientific Director at McGill University and Genome Quebec Innovation Centre. Renowned Canadian genomics pioneer, Mark Lathrop has been most recently the scientific director of the Centre National de Genotypage (CNG) and of the Fondation Jean Dausset Centre d'Étude du Polymorphism Humain (CEPH) in Paris, two of the major Centres for large scale biological research established by the French government. The principal goal of these Centres is to apply genomics and other large-scale methodologies to understanding human disease. He has also made major contributions to genetic approaches for the study of models of human disease in other mammalian species. His present scientific studies focus on using genetic and other high-throughput genomic approaches to identify DNA variants that predispose people to common diseases, particularly, lung cancer, asthma and cardiovascular disease, and to understand the effects of these in a biological and public health context. He is responsible for the scientific program of the French National Programme in Cancer Genomics.
	**Lesage, Silvie,** PhD, is an Associate Research Professor, Faculty of Medicine, Université de Montréal, Maisonneuve-Rosemont Hospital. From 1999 to 2002, she pursued her post-doctoral training in the world-renowned laboratory of Dr Christopher C. Goodnow in Australia. Her main research interest is aimed at restoring the immune balance to prevent the onset or abrogate the progression of type 1 diabetes. Her research goals are aimed at defining homeostatic regulation of cell populations composing the immune system and to identify their impact on the susceptibility of complex genetic diseases such as autoimmune diseases and cancer. In particular, her lab studies variations of T cell and dendritic cell sub-populations in various strains of mice with the ultimate goal of studying the cellular population dynamics in the immune system to provide the basis for cellular therapy protocols aimed at restoring the immune balance in various auto-immune diseases and lymphoid cancers.

	**Olivier, Martin,** PhD, is a Professor, Department of Microbiology and Immunology, McGill University. Research in his laboratory focuses on understanding how pathogens for major global infectious diseases (malaria, leishmaniasis) can evade the host immune response by manipulating the signaling cascades involved in the regulation of phagocyte microbicidal functions. Major findings include the role of exosome microvesicules containing metalloprotease during Leishmania infection and the role a crystalline metabolic waste (HZ) of the malaria parasite in the severity of inflammation during infection. Dr. Olivier is particularly interested in developing new therapies against those infectious agents, new diagnostic tools based on exo-biomarkers, and potentially in the development of vaccine. He recently (2014) was awarded the Canadian Society for Immunology Investigator Award for his mentoring and excellence in research over his career.
	**Parkinson**, **John F.,** PhD, is Senior Scientific Director, Discovery Immunology, Janssen Research & Development, LLC since January 2015. He was Senior Director, Biology, Vertex Pharmaceuticals Canada Inc., where he has led drug discovery in IBD research since 2010. He directs research in immunology, microbiology, epithelial and stem cell biology, pharmacology and assay development. John led Vertex's alliance with Crohn's and Colitis Canada which supports translational research in Calgary, McGill, McMasters, Sherbrooke and Toronto. From 1991-2007 he led projects in Cardiovascular and Immunology disease at Berlex Biosciences (California), including thrombosis, septic shock/trauma, multiple sclerosis, rheumatoid arthritis, transplant rejection and IBD. These included NOS-2 inhibitors (licensed to Pfizer) and lipoxin A4 analogs (developed to phase Ib by Bayer AG). He was research lead on Bayer's phase II/III development team for recombinant GM-CSF in Crohn's disease. He led LTA4 hydrolase inhibitor discovery at Bayer, acquired these assets to co-found Estrellita Pharmaceuticals in 2008, which have now advanced to clinical trials for cystic fibrosis at Celtaxsys. Since 2006 he has been a supervisory board member for the Cluster of Excellence – "Inflammation at Interfaces" which integrates research initiatives at the campuses of Kiel, Lubeck and Borstel in Schleswig-Holstein, Germany.
	**Pelletier, Jerry, PhD** is a James McGill Professor, Department of Biochemistry and Oncology and member of the Rosalind and Morris Goodman Cancer Research Centre, McGill University. The overarching focus of his research program is to understand how translation, a process fundamental to all cells, becomes deregulated in disease - ranging from orphan diseases to cancer to neurological disorders. Dysregulation of mRNA translation is a frequent feature of neoplasia and Pelletier's studies have identified nodal points that are druggable vulnerabilities as well as unique small molecule inhibitors that interdict this process. He has also developed mouse cancer models that mimic small molecule-mediated targeted inhibition at the organismal level and have used these to validate the concept of targeting translation initiation *in vivo*. Furthermore, he has developed powerful methods for applying genome engineering technology (CRISPR-Cas9) to suppress gene function in a stable manner. He has experience in leading large collaborative research programs (CQDM, CIHR Team Grants, CFI, Terry Fox Research Institute) and has forged strong collaborative links with academic and industry on small molecule targeting to deregulated translational control. He has an internationally

	recognized research program that integrates powerful mouse cancer models, chemical biology, and genome engineering to explore the role of translation in tumor maintenance and cell death mechanisms and characterize their impact on treatment response.
	**Sakuntabhai**, **Anavaj** MD, and Senior Scientist at the Institut Pasteur, Paris where he was recruited in 2000 to develop a program on the genetics of infectious diseases. He discovered a variant on a promoter of DC-SIGN associated with gene expression and outcome of Dengue virus infection. He published an important finding of positive selection of G6PD (glucose 6 phosphate dehydrogenase) and its effect on *Plasmodium vivax* density in Science. His recent research has shown that both gene-gene and gene-environmental interactions play a significant role in susceptibility to malaria and Dengue fever. He successfully coordinated two important projects on genetic susceptibility to malaria and dengue involving teams from France, Thailand, and Senegal. He coordinated a global network for Dengue fever research for the Institut Pasteur International Network. He is a principle investigator of one of the four projects of the Bill and Melinda Gates financed (MalariaGEN consortium). He is now a coordinator of European FP7 project on Dengue Framework for Resisting Epidemics in Europe (DENFREE).
	**Sawcer, Stephen** PhD FRCP, Professor of Neurological Genetics, University of Cambridge, and an Honorary Consultant Neurologist at Addenbrooke's Hospital. Dr. Sawcer uses genome wide association screening to identify genetic variants associated with disease susceptibility and clinical phenotype. To date these efforts have identified 110 variants associated with susceptibility to multiple sclerosis that have confirmed the immunological nature of the disease and provided targets for functional analysis. Within the UK, he runs a National Institute of Health Research portfolio project recruiting patients with multiple sclerosis into genetic studies that involves over 50 Centres. Internationally Dr. Sawcer has led or co-led the two largest genetic studies ever performed in multiple sclerosis. Dr. Sawcer spent his sabbatical in Canada working with Dr. Wee Yong in Calgary and has extensive collaborations with the McGill and Genome Québec Innovation Center in Montreal.
	**Schurr, Erwin,** obtained his Ph.D. in 1986 from the Institute of Biophysics and Radiation Biology at the Albert-Ludwigs University in Freiburg/Br, Germany. He then did his postdoctoral studies in molecular genetics with E. Skamene and P. Gros at McGill University. In 1991, he joined the McGill Centre for the Study of Host Resistance and the Faculty of Medicine at McGill as Assistant Professor. He is a James McGill Professor of Human Genetics and Medicine at McGill University. At the Research Institute of the McGill University Health Centre he is the leader of the program on Infectious Diseases and Immunity in Global Health. His main research interest is the identification of host genetic factors predisposing to tuberculosis and leprosy; research that is supported by both national and international funding agencies. He has been involved in numerous field studies in main endemic countries, and he has published extensively on the human genetics and genetic epidemiology of both leprosy and tuberculosis.

	**Turvey**, **Stuart,** MBBS, DPhil, FRCPC, Associate Professor of Pediatrics, University of British Columbia, where he holds the Aubrey J. Tingle Professorship in Pediatric Immunology. He is a Pediatric Immunologist based at BC Children's Hospital, and Director of Clinical Research at the Child & Family Research Institute. Prior to coming to Vancouver, Dr Turvey completed both his Pediatric Residency and Allergy/Immunology Fellowship at Children's Hospital, Harvard Medical School, Boston. He holds a medical degree from the University of Sydney, Australia and a doctorate in Immunology from Oxford University where he was a Rhodes Scholar. Dr. Turvey is a Fellow of the Royal College of Physicians and Surgeons of Canada and a Diplomate of the American Board of Pediatrics. Dr. Turvey provides clinical care in the specialties of Clinical Immunology and Rheumatology, while his research program focuses on pediatric infectious and inflammatory diseases. Specifically, Dr. Turvey is interested in the role of innate immunity in protecting infants and young children from infectious agents, and how abnormalities of the innate immune system contribute to inflammatory diseases of childhood.
	**Ward, Brian,** PhD, is a professor of Medicine & Microbiology at McGill University, Deputy Director of the Research Institute of the McGill University Health Centre (Fundamental Science), Co-Director of the McGill Vaccine Study Centre and Associate Director of the JD MacLean Center for Tropical Diseases. His laboratory is currently active in three areas: 1) the immunologic evaluation of vaccines and vaccine safety, 2) the evaluation of micronutrient-microbial interactions, and 3) the development of novel therapeutic strategies for microbial pathogens. Although a good deal of the work performed in the laboratory takes place in Montreal, many of the projects have significant or even predominant components overseas. There is a long-standing commitment in the laboratory to collaborative work with developing world researchers in Peru and Zimbabwe. Dr. Ward serves on a wide range of government and industry advisory committees related to vaccines, vaccine safety, international health and parasitology.

VIII. Lab facilities and other resources

a. Existing shared research infrastructure

The MRCCT will be located where the majority of the primary members are currently housed, on the third floor of the Bellini Life Science Building of the McGill Life Sciences Complex. In September 2008, the Complex Traits Group (CTG) moved to the 3rd floor of the Bellini Building. The CTG has a large amount of shared equipment and access to additional instruments in the Life Sciences Complex. The laboratory setting is organized in an open lab concept (wet lab space), supported by access to a large number of adjacent rooms containing core equipment to be used jointly (support areas) and to specialized core areas. The 8 PI of the CTG have assigned individual office space and the lab area, four reading/writing rooms with computer workstations that can accommodate 30-36 students and a conference room. The specialized core areas include a BSL2 containment room for in vitro infection, two tissue culture rooms, one equipment room (tissue processing, qPCR, sonicator, cell separator), one immunophenotyping room (2 FACS machines), an imaging room (epifluorescence, confocal microscopy), a parasitology room and a necropsy room for terminal procedures. A significant part of the research at MRCCT will take place in the mouse vivarium of the Goodman Cancer Centre that includes housing rooms, BSL2 and BSL3 suites, carcinogenesis room, imaging room (VEVO, IVIS Spectrum), and gnotobiotic units suite.

Key Numbers:

- Total Space: 14,300 sq ft. net (24,700 gross)
- Wet Lab: 6,600 sq ft. net
- Specialized core areas: 2,800 sq ft. net (imaging core, genomics core, microbiological BSL-2 procedure room).
- Support areas: 2,100 sq ft. net (sterilizer, dark room, cold rooms, freezer rooms, storage, etc…)
- Office for PIs: 2,800 sq ft. net (PI, students, team room)

The CTG currently coordinates important resources that are of particular relevance to the future MRCCT including the **Phenomics** and **Functional Genomics** platforms. These platforms provide standardized phenotypic characterization of the host response to immune mediated diseases using mouse models of human diseases, with the aim of identifying underlying mechanisms of disease, validating the function of specific gene variants of unknown consequence and targeting therapeutic intervention. The phenomics platform is unique and regroups under the same umbrella the possibility of phenotyping for level 2 and level 3 pathogens (bacteria, virus, parasites and fungus) and for intestinal and cerebral inflammation. The functional genomics platform provides a discovery platform integrating unique gene discovery tools (RCS and mouse chemical (ENU) mutagenesis) and large-scale phenotyping to identify novel host genes and immune pathways that directly impact susceptibility to pathogens of global relevance, and to inflammatory diseases. Additional more recently developed platforms include 1) **Genetics/Genomics Analyses** (to identify and prioritized pathological variants associated with human and infectious diseases); 2) **Immunophenotyping** and 3) **Microbiomics** (to study microbiota-host regulation in health and disease) platforms.

These resources provide the foundation of our activities and as a Center, we hope to continuously enhance and renovate. Currently, our group, including the recent recruit Judith Mandl and our long-term collaborator M. Lathrop, presented a CFI application proposal (CFI-8; *Infection and Inflammation Genomics and Phenomics*), which was put forward by the Faculty of Medicine and the University. Through this competition, we plan to develop and implement novel technologies to study discrete immune cell sub-types by FACS-based methods (BD-Fortessa, 18-colour capability), to expand our microbiomics platform by acquiring additional gnotobiotic units, to develop our capacity of doing in house sequencing (Ion proton system) and to acquire intravital imaging capabilities to investigate the dynamics of individual cells within their complex tissue environments within live animals.

b. Support staff

The day-to-day operation of the Center will be overseen by an administrative coordinator (Marianne Provost). She will handle budgetary issues, generate reports, assist in hiring and training, organize the annual retreat and symposium and ensure the harmonization between the different platforms and collaborators. The MRCCT Coordinator will also be tasked with setting up and maintaining web-based resources that will be put in place to document progress.

c. Budget

See appendix E (pages 58-59)

IX. Appendices

APPENDIX A: SELECTED JOINT PUBLICATIONS

1. **Vidal, S.M.**, **D. Malo**, K. Vogan, E. Skamene, and **P. Gros**. 1993. Natural resistance to infection with intracellular parasites: isolation of a candidate for Bcg. Cell 73:469-485. PMID: 8490962
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effects of host genotype and infection in malaria. Proc Natl Acad Sci U S A 109:16786-16793. PMID: 22949651

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APPENDIX B: LIST OF JOINT FUNDING

Title of Grant	Source	Amount awarded	Dates	Share (%)
Immunopathogenesis of inflammatory diseases: genetic, cellular and molecular pathways regulating acute and chronic inflammation (PI: Silvia Vidal, co-PI: P. Gros) / $150,414/year	Canadian Institutes of Health Research (CIHR)	$752,070	2014-2019	100%
Epigenetic Regulation of Stem Cell Differentiation: Roles of H2AK119ub Epigenetic Mark and Histone H2A Deubiquitinase MYSM1, PIs: Anastasia Nijnik, Philippe Gros, Haruhiko Koseki	McGill-RIKEN Call for Proposals in Health Sciences	$15,000	2014-2015	100%
Host genetic determinants of colon cancer metastasis (PI: Maya Saleh, co-PI: S. Vidal, P. Siegel, N. Beauchemin, P. Metrakos, J. Majewski) / $100,000/year	Canadian Cancer Society Research Institute	$200,000	2012-2014	100%
CIHR Training Program in Integrative Approaches to Human Health (P.I: Mike Hallett, S. Vidal and 25 other McGill professors) / $488,619/year	Canadian Institutes of Health Research (CIHR)	$2,937,714	2009-2015	100%
CIHR team in mutagenesis and infectious diseases (PI: Silvia Vidal, co-PI: P. Gros, D. Malo, S. Qureshi, M. Saleh, M. Blanchette, S. Turvey.) / $1,086,000/year	CIHR operating grant	$5,430,000	2008-2013	100%
Genetic dissection of host response against respiratory virus infection in RCS mice (PI: Emil Skamene, co-PI: S. Vidal, P. Gros, R. Sladek, A. Fortin) / $200,000/year	CIHR operating grant	$950,000	2008-2013	100%
Forwards genetics to identify novel pathways in host response to infection: from mouse models to patients (Silvia Vidal (PI), Danielle Malo (co-PI), S. Qureshi (co-PI) ($1,435,000)	CIHR New Emerging Team program	$287,000	2003-2008	100%
	Total	**$10,571,784**		

APPENDIX C: BYLAWS

1. Location

The main office of the McGill Centre for Complex Traits (MRCCT) will be at the McGill Life Sciences Complex, Bellini Building, 3rd floor, and will be clearly identified by a plaque.

2. Purpose

The purpose of the Centre is to be a world leader in multidisciplinary research, education and entrepreneurship on complex traits, with a special emphasis on infectious and inflammatory diseases.

3. Management

The governance of the MRCCT is directed by an Executive Board. Daily operations are managed by the MRCCT Director who reports to the Executive Board. The Director is responsible for appointing Associate Directors, overseeing daily operations of the MRCCT, implementation of the MRCCT budget, preparation of the Annual Report, applications for external funding, human resources and financial planning. In the event of an extended absence of the Director, an Associate Director will manage the MRCCT.

4. Membership of the Executive Board

The membership of the Executive Board of the MRCCT will include the Vice-Principal (Research and International Relations), or delegate, the Director of the MRCCT, two active Full Members, two graduate students and at least one person from outside the University who is not directly involved in the research centre. The Executive Board will be chaired by the Dean of Medicine (or delegate).

The board members who are also members of the research centre, and who do not serve ex officio, will be elected by their appropriate constituencies. The terms of appointment of the board members, other than the dean(s), Vice-Principal (Research and International Relations), or their delegates, will normally be three years for faculty and one or two years for students.

5. Appointment of the Director

The Executive Board will select the Director of the MRCCT based on recommendations from the Centre membership. The selection will be conveyed to the Provost, who has the responsibility for approval of the appointments. The Director serves at the discretion of the Executive Board for nominal terms of five years, renewable with a limit of two consecutive terms. The positions of Director and Associate Director of the MRCCT do not involve any teaching release.

6. Annual Report

The Director of the MRCCT will prepare the Annual Report, which will include all financial details of the MRCCT operations along with the goals of the MRCCT for the coming year. The Director of the MRCCT will present it to the Board for approval. Following its approval,

the Annual Report will be submitted to the Provost, the Vice-Principal (Research and International Relations) and the Dean of Medicine.

7. Membership

The MRCCT will have classes of membership covering the following categories of membership:

(i) Full Member: A senior researcher, such as a faculty member whose principal research affiliation is with the MRCCT; in consequence, he/she cannot be a Full Member of more than one McGill University Research Centre.

(ii) Associate Member: A senior researcher, such as a faculty member, with significant research affiliation with the MRCCT; a researcher can be an Associate Member of more than one McGill University Research Centre.

(iii) Student, Postdoctoral Fellow, Research Associate Member: a researcher working in the research group of a Full or Associate MRCCT member.

Nominations for new Full and Associate Members of the MRCCT must include full curriculum vitae and an application letter, which must be submitted to the full membership at a General Meeting for approval. Terms of membership are renewable, and each term will be up to three years for Full and Associate Members. Graduate students, postdoctoral fellows, research associates and technical staff in the research groups of Full and Associate MRCCT Members are automatically eligible for MRCCT membership. All members have access to common areas, cutting edge equipment, core facilities and resources. They are expected to participate in all the Centre activities, including the annual general meeting, retreats, research days and regular group meetings. Renewal of membership is overseen by the executive board at the annual meeting. An updated CV highlighting their contributions to the Centre will be required.

8. Research Resource Allocations and Budgets

The MRCCT budget is prepared by the Director and submitted to the Executive Board for approval. Allocations of the MRCCT resources are subject to the approbation of the Executive Board. Appeals concerning resource allocation can be brought by Full and Associate Members to the Executive Board, whose decision will be final.

9. Annual General Meeting

There will be an Annual General Meeting of all members of the MRCCT during which the Annual Report will be presented and approved. All members are eligible to vote on the approval of the Annual Reports and on the nomination of Full and Associate Members before they are presented to the Executive Board.

10. Meetings of the Executive Board

The Executive Board will meet at least once a year to receive the Annual Report, to review activities and membership, to approve the budget, and to resolve any governance issues that may arise.

APPENDIX D: LETTERS OF SUPPORT

Name	Position Held	Institution
Shari Baum *(pages 1-2)*	Associate Dean (Research) Faculty of Medicine	McGill University
Jean – Laurent Casanova *(page 44)*	Investigator, Howard Hughes Medical Institute Senior Attending Physician Professor, St. Giles Laboratory of Human Genetics of Infectious Diseases	The Rockefeller University, New York, New York, USA
Carl Nathan *(page 45)*	Professor of Medicine, Director, Center for Travel and Tropical Medicine	Weill Cornell Medical College, Cornell University, New York, New York, USA
Lluis Quintana-Murci *(page 46)*	Director, Unit of Human Evolutionary Genetics, CNRS URA3012	Institut Pasteur, Paris, France
Marcel Behr *(pages 47-48)*	Professor, Division of Infectious Diseases and Medical Microbiology, Department of Medicine, Director, International McGill University TB Center	International McGill University TB Center, McGill University
Armando Jardim *(page 49)*	Professor, Department of Parasitology Director, Center for Host Parasite Interactions	Center for Host Parasite Interactions, McGill University
John Orlowski *(page 50)*	Professor and Chairman, Department of Physiology	Department of Physiology, McGill University
Albert Berghuis *(pages 51-52)*	Professor and Chairman, Department of Biochemistry	Department of Biochemistry, McGill University
Vassillios Papadopoulos *(pages 53-54)*	Professor, Department of Medicine Executive Director, Research Institute of MUHC	Research Institute of the McGill University Health Center
James G Martin *(page 55)*	Professor and Chair Department of Medicine, McGill University Physician-in-Chief, McGill University Health Centre	Department of Medicine, McGill University
Eric Shoubridge *(pages 56-57)*	Professor and Chairman, Department of Human Genetics	Department of Human Genetics, McGill University
Morag Park *(to come)*	Professor, Department of Biochemistry Director, Rosalind and Morris Goodman Cancer Research Center	Rosalind and Morris Cancer Goodman Cancer Research Center, McGill University

hhmi | Howard Hughes Medical Institute

The Rockefeller University 1901 — SCIENCE FOR THE BENEFIT OF HUMANITY

January 28, 2015

Silvia Vidal, Ph.D.
Canada Research Chair in Host Resistance to Virus Infections
Professor, Department of Human Genetics and
Department of Medicine
Associate Member, Department of Microbiology and Immunology
Director, Complex Traits Group
McGill University

Dear Silvia,

I write with enormous pleasure to express my unreserved enthusiasm for the creation of the MCCT at McGill University. The topic selected -- the genetic determinism of complex conditions, including immunological conditions in particular, -- is central to a variety of key areas in human medicine. The clever idea to pursue genetic studies in both mice and humans will certainly be synergistic. The multidisciplinary nature of the proposal can be seen in many other ways that will also be greatly beneficial. The very strong biological and medical components will enable the MCCT to walk on two legs, unlike some other research centers around the world that tend to be either too fundamental or too medical. Finally, the team assembled is of the highest caliber, and includes giants in the field of genetics and immunology, such as Philippe Gros. Overall, I do not see any weakness in the proposal and very much look forward to witnessing its emergence at McGill, which is an ideal place given its well-known excellence in biomedical research and long tradition of international leadership in the field of genetics.

All best wishes,

Jean-Laurent Casanova, MD, PhD

Jean-Laurent Casanova, MD, PhD
Investigator, Howard Hughes Medical Institute
Professor, The Rockefeller University
Head, St. Giles Laboratory of Human Genetics of Infectious Diseases
Senior Attending Physician, Rockefeller University Hospital

The Rockefeller University
1230 York Avenue, New York, New York 10065
212-327-7332 • Fax 212-327-7330 • casanova@rockefeller.edu

From: "Carl F. Nathan" <cnathan@med.cornell.edu>
Date: January 28, 2015 8:50:30 AM EST (CA)
To: "Silvia Vidal, Dr." <silvia.vidal@mcgill.ca>
Subject: Re: Support to the McGill University Center of Complex Traits

Dear Silvia,

What an excellent idea. Having just had the opportunity to move into contiguous space with colleagues whose interests in global health range from the molecular to the genetic to the clinical, I can vouch for the enormous increase in innovative thinking, collaborative funding and scientific productivity that can result by sharing lab bays, major items of equipment, lab meetings, journal clubs and seminar series. Much can be done to collaborate across a sprawling institution but it helps collaboration immeasurably to be collected together.

The McGill program in disease-associated genetics and underlying biological mechanisms is world-renowned. The proposed MCCT will help it to maintain and advance that position.

Good luck with this project and best personal wishes,

Carl

Carl Nathan, MD
R. A. Rees Pritchett Professor of Microbiology
Chairman, Department of Microbiology & Immunology
Weill Cornell Medical College
B309, Box 62
1300 York Avenue
New York, NY 10065 USA
tel 212 746 6505
fax 212 746 8587
cnathan@med.cornell.edu
http://weill.cornell.edu/research/cnathan/

From: Lluis Quintana-Murci <lluis.quintana-murci@pasteur.fr>
Date: February 11, 2015 6:33:36 AM EST (CA)
To: "Silvia Vidal, Dr." <silvia.vidal@mcgill.ca>
Subject: Re: A new research center at McGill University

Dear Silvia,

I have gone through the description of the new McGill University Center for Complex Traits, and I find it fabulous. I have to say that, for the time being, I have not seen any Research Institute as complete, ground-breaking and translational as MCCT. It integrates hard-core biology, clinics and medicine, and I do think this is the only way to solve biological/medical problems. The extreme multi/inter-disciplinarity of the MCCT is a first mark of success. Moreover, you integrate both human and mice genetics and state-of-the art bioinformatics and integrative biology, and your network goes beyond McGill and include collaborators from other institutions, again, a mark of success and open mind science.
I am very jealous, in the good sense, as the new MCCT will be an amazing place to work, interact with colleagues and do great science. I want to come there!

Best wishes,
Lluis

--

Lluis QUINTANA-MURCI
Unit Director
Unit of Human Evolutionary Genetics, CNRS URA3012
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France

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Lab Website: www.pasteur.fr/research/heg

Centre universitaire de santé McGill
McGill University Health Centre

Hôpital de Lachine
Hôpital de Montréal pour enfants
Hôpital général de Montréal
Hôpital neurologique de Montréal
Hôpital Royal Victoria
Institut thoracique de Montréal
Institut de recherche du CUSM

Lachine Hospital
Montreal Chest Institute
Montreal Children's Hospital
Montreal General Hospital
Montreal Neurological Hospital
Royal Victoria Hospital
Research Institute of the MUHC

cusm.ca muhc.ca

Professor S. Vidal
Human Genetics
Life Sciences Complex

February 20, 2015

Re: Creation of the McGill University Center for Complex Traits (MCCT)

Dear colleagues,

By this I would like to convey my full endorsement to the creation of the proposed Center for Complex Traits. The proposal has immense potential given the significant brainpower from the University, the impressive brochette of Canadian and international associates that you have assembled as well as the technological platform support behind it.

I expect MCCT to be a privileged partner of our McGill International TB Centre.

Your interest in immune-related diseases and approach establishing a discovery platform to identify genetic and environmental determinants complements our focus on Mycobacterial diseases, from diagnosis, to treatment to impact on society. As you know, we have emphasized translational TB research and are accumulating expertise in the development of guidelines for evidence-based medicine and evidence-based research. These activities are increasingly important for an effective control of infectious diseases; as MCCT grows, I am sure that this would be an area of intense interactions between MCCT and the TB Centre.

I welcome the participation of members from our Center (Drs Gros, Piccirillo, Barreiro, Schurr and Olivier). Their involvement will guarantee that we keep abreast of our respective research and training activities and rest alert to potential funding initiatives that could have shared benefit. Moreover, I am confident that through them we will continue to build links between MCCT and the TB Centre.

I greet the timeliness of your proposal. As the MUHC Glen site has become a reality, we are excited to move to what it is probably one of the most inclusive and modern research Centers in the world for fundamental and clinical research. No doubt that the interactions between MCCT and

the TB Centre will capitalize on these gains. We are also aware that this new geography will require a time of adjustment to keep our communications fluid with the McGill downtown campus, for which the proposed MCCT umbrella will certainly be an asset.

Again, in view of our complementary research programs and the numerous collaborations already established, there is little doubt in my mind that the proposed Center will synergize with the McGill International TB Centre to better fulfill our mandate of excellence in research, teaching and service at McGill. This justifies my full support to the creation of the McGill University Center of Complex Traits.

Yours,

Marcel Behr
Professor of Medicine
Director, McGill International TB Centre

McGill

Centre for Host-Parasite Interactions Centre de recherche sur les interactions hôte-parasite

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Université McGill
Campus Macdonald
21 111, chemin Lakeshore
Ste-Anne-de-Bellevue
Québec, Canada H9X3V9
Fax: (514) 398-7857

January 30, 2015

Dear Professor Vidal:

I have read your proposal on the creation of the McGill Center of Complex Traits (MCCT) and fully endorse your application as the fundamental mandate and research agenda are unique from Centre for Host-Parasite Interactions (CHPI) mission. The MCCT primary focus to dissect the genetic factors that predispose a host to infectious or chronic inflammatory disease is highly complementary with the CHPI research objects which focus on the mechanism associated with the emergence of drug resistance, the identification of novel parasite molecules that can used as vaccine candidates or as druggable targets, and the isolation and characterization of parasite molecules that modulate the host immune response. In addition, the diversity of parasite model systems available through CHPI will provide new tools that can be used to understand the interplay of complex traits contributing to host resistance or susceptibility to these pathogens. Indeed, cross fertilization between MCCT and CHPI has already been initiated through the membership of Drs Olivier and Ward in both Centers.

Finally, the complementary aims of MCCT and CHPI has additional value added as it will permit the creation of a more robust and multidisciplinary mentoring environment. For example, the establishment of a shared annual symposium for trainees to present their research will catalyze exchange of knowledge on host and parasite systems. More importantly, these interactive activities will no doubt lead to new linkage and collaborative projects that will exploit the multidisciplinary expertise captured within both Centers.

I wish you success with your proposal and I look forward to working with MCCT in the near future.

Regards

Armando Jardim
Associate Professor
Director, Centre for Host-Parasite Interactions
Institute of Parasitology
McGill University

JOHN ORLOWSKI, Ph.D.

Chair
James McGill Professor
Department of Physiology
McGill University
McIntyre Medical Sciences Bldg.
3655 Promenade Sir-William-Osler
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Directeur
Titulaire de James McGill
Département de Physiologie
Université McGill
Pavillon McIntyre
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E-mail/Courriel: john.orlowski@mcgill.ca

23 February 2015

Silvia Vidal
Human Genetics
Complex Traits Group
McGill Life Sciences Complex

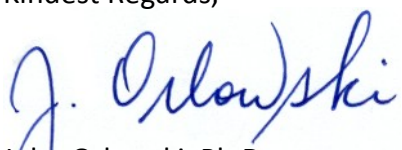
Dear Silvia:

Thank you for sharing your ideas about creating a McGill Center for Complex Traits. I am pleased to hear that a proposal describing this project has been finalized and ready for submission to the Faculty and University. The Department of Physiology enthusiastically supports the establishment of this Centre. This is a unique opportunity to bring together complementary teams of investigators and experimental approaches to tackle longstanding problems in infectious diseases, such as the mechanisms that control host resistance to infection or the pathogenesis of autoimmunity during infection or chronic inflammatory diseases.

Our support is already evident through the strategic recruitment of Drs. Anastasia Nijnik and Judith Mandl, who have been part of the Complex Traits Group since their arrival. Dr Nijnik, trained in UK and UBC, is a Tier 2 CRC in Hematopoiesis and Lymphocyte Differentiation interested in the mechanisms of epigenetic regulation of leukocyte differentiation programs. She joined the Department in 2011. Dr Mandl has just arrived from NIH. She is an internationally recognized young investigator using intravital two-photon imaging to examine immune cell trafficking during homeostasis and infection. The expertise of our recruits is highly sought worldwide and represents a critical addition to our research environment at the Life Sciences Complex. Clearly their work is well aligned with the goals of this new Center to understand the genetic and environmental determinants of immune-related diseases.

I am highly confident that the Center will constitute a pole of attraction for national and international faculty, top students and highly-qualified personnel. I foresee that the growth of the Center will benefit the Department of Physiology by engendering new opportunities for collaborative science and multidisciplinary training. Along the same lines, I am sure that our operations in the Cell Information Systems Group will facilitate the progress towards your goals. I will be delighted to serve on the Scientific Advisory Board of the Center, and this will be another avenue to make the whole even greater than the sum of its parts.

Kindest Regards,



John Orlowski, Ph.D.
James McGill Professor and Chair
Department of Physiology

Department of Biochemistry
McGill University

Albert M. Berghuis, Ph.D.
Canada Research Chair in Structural Biology
Chair, Biochemistry Department

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Email: albert.berghuis@mcgill.ca

February 10, 2015

Silvia Vidal
Department of Human Genetics
Faculty of Medicine
McGill University

Dear Silvia:

The proposed McGill University Center for Complex Traits promises to be a significant advance for our faculty in our capacity to address the pressing need of translating basic scientific results into meaningful research outputs. The complexity of diseases such as infectious diseases, multiple sclerosis, inflammatory bowel disease and many others require that scientists and clinicians across disciplines work together. The integration of multidisciplinary expertise here at the Life Sciences Complex (LSC) and international collaborations with clinicians allowed us to rapidly characterize a new human dendritic cell immunodeficiency caused by mutation of the transcription factor, IRF8. This information can now be used in the clinic to select candidate donors in stem cell transplantation protocols for such condition. This example illustrates well the synergy that can be created by proximity among experts in different fields towards the goal of using results from basic research to impact on the health of patients. By formalizing links with the clinical arena and international collaborators the proposed Center of Complex Traits can foster a larger community of multidisciplinary researchers. This in turn can create many novel research opportunities for our faculty and students. Critical mass and innovative research are key ingredients to be at the frontlines of developing new approaches to understand disease and identify how we ultimately use these findings to improve the management of immune-related diseases.

The proposed Center also promises to be a magnet for talent. The multi-institutional membership of the Center will expose the profile of McGill's research excellence to a large audience. This increased visibility can work both ways, either by attracting top Canadian or international students to McGill as well or by facilitating career opportunities for our trainees. In addition, the proposed Center can expand the opportunities for multidisciplinary training for our Biochemistry students in genetics, genetic epidemiology, immunology, physiology, computer sciences and translational medicine. Garabet Yeretssian, Faculty at the Icahn School of Medicine at Mount Sinai, NY, Gundula Min-Oo, Junior Scientists at Gilead Scientific Inc., CA, Joanne Berghout, Outreach coordinator at the Jackson Laboratory, Main, are just a few examples of the diversity of avenues pursued by Biochemistry students trained at the LSC. I expect that the proposed Center will intensify the occasions for innovative training, and I am looking forward to working together during the development of the Center training activities.

…/2

For all of the above, this letter conveys my strong support to the creation of the McGill University Center of Complex Traits. Pending the Center's approval, we are excited to fully participate with our resources in the new dynamic that will occur.

Sincerely,

Albert M. Berghuis, Ph.D.
Canada Research Chair in Structural Biology
Chair, Biochemistry Department

Institut de recherche
Centre universitaire de santé McGill

Research Institute
McGill University Health Centre

Vassilios Papadopoulos
DPharm PhD

Directeur exécutif et scientifique en chef IR-CUSM
Directeur exécutif associé recherche, CUSM
Executive director and CSO RI-MUHC
MUHC associate executive director for Research

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February 12, 2015

Dr. Silvia Vidal
Department of Human Genetics
Department of Medicine
McGill University
Rm 367 Bellini, Life Sciences Complex
3649 Promenade Sir William Osler
Montreal, QC, H3G 0B1

Dear Silvia and colleagues:

Re: Creation of the McGill University Center for Complex Traits (MCCT)

As Executive Director of the Research Institute of the McGill University Health Center (RI-MUHC) I write this letter to express my strong support of your proposal to create the McGill University Center for Complex Traits (MCCT) at McGill University.

The model for this new center for Complex Traits at McGill University is in line with our aims and vision for the recently inaugurated Research Institute of the McGill University Health Centre at the Glen Campus where translational research from bench to bed is central to our mission. Our newly built Research Institute facilitates the studies on the origin of diseases from paediatric to adulthood and hosts a number of state-of-the-art facilities and research services designed to support multi-disciplinary teams of researchers.

I am pleased to see a strong participation of Clinician Scientists and Clinicians from our Institute at MCCT. The appointment of Dr's Piccirillo, Jabado, Qureshi and Vinh, as primary members, and Dr's Haston, Olivier, Schurr and Ward, as associate members of MCCT, brings world-class expertise in the fields of clinical genetics, human genetics, human immunology, infectious diseases and vaccinology to the proposed Center. Their involvement will nurture a seamless integration of MCCT activities with at least two Programs of our Research Institute; Infectious Diseases and Immunity in Global Health and Translational Research in Respiratory Diseases.

This collaboration will enable the provision of a wealth of information of our well-phenotyped patient populations from the immunodeficiency and autoimmunity clinics as well as the sate-of-the-art-resources for human immunology, and moreover our new clinical research environment based at the Centre for Innovative Medicine (CIM) at the new RI-MUHC Glen site. These interactions are key to maximize the use of both the RI-

MUHC and McGill University resources to propel us to the frontlines of unraveling new diagnostic and prognostic possibilities while providing new targets for drugs and vaccines. Moreover, our thriving community of talented and dedicated trainees will find added value in the training activities at the MCCT.

It is our belief that the interdisciplinary research proposed combined with the dynamic training environment will ultimately lead to knowledge and practical outcomes useful for improving the health of individuals.

Thus, I enthusiastically support the creation of the McGill University Center for Complex Traits.

Yours Sincerely,

Vassilios Papadopoulos, DPharm, PhD
Professor of Medicine, Biochemistry, Pharmacology & Therapeutics
Faculty of Medicine, McGill University
Canada Research Chair in Biochemical Pharmacology
Phil Gold Chair in Medicine

James Martin, MD, DSc

Harry Webster Thorp Professor
Chair, Department of Medicine
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Professeur de médecine
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Tel: 514 843-1578
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james.martin@mcgill.ca

February 23, 2015

Via e-mail

Silvia Vidal, Ph.D
Canada Research Chair in Host Resistance to Virus Infections Professor
McGill Life Sciences Complex
Bellini building
3649 Sir William Osler Promenade, room 367
Montreal, QC
H3G 0B1
silvia.vidal@mcgill.ca

Dear Silvia,

I have read your proposal with interest. It is a very thorough and well-crafted document. You have assembled an impressive team behind the effort. I am sure that the productivity of the investigators in the Centre will continue to excel. It is certainly timely that you formalize the efforts of the group.

There are four medical doctors from our Department listed as primary members and four associate clinicians. The plans to create a Clinical Advisory Committee to establish links to research in the MUHC RI may provide a tool to help promote the translational aspects of the research. This is a great opportunity in my opinion to formalize collaborations with the clinical arena and foster a true multidisciplinary spirit of research. It is with great pleasure that I accept to participate in the Clinical Advisory Committee.

I wish you every success and I have no doubt that indeed the stellar investigators in the Centre will continue to do us all proud.

Sincerely,

James Martin, MD, DSc

JM: edl

Department of Human Genetics
McGill University Faculty of Medicine
1205 Doctor Penfield Avenue, Room N5/13
Montreal, QC H3A 1B1
Tel.: 514-398-3600 / Fax: 514-398-2430

February 25, 2015

Silvia Vidal, Ph.D.
Canada Research Chair in Host Resistance to Virus Infections
Professor, Department of Human Genetics and
Department of Medicine
Associate Member, Department of Microbiology and Immunology
Director, Complex Traits Group
McGill University

Dear Dr. Vidal,

I am pleased to provide my full support to the creation of the McGill University Centre for Complex Traits. The Centre is strategically aligned with the goals of the Department of Human Genetics that has fostered multidisciplinary research groups since its inception. Our participation in the "Institut interuniversitaire de recherche sur les populations" directed by Gérard Bouchard in 1977, as well as our presence in the McGill University and Genome Québec Innovation Centre (MUGQIC), the Jewish General Hospital, the Montreal Neurological Institute, and the Douglas among other sites, shows the varied expertise, interactions and exposure to clinical, research and training environment of our Faculty.

We are, however, missing a Centre dedicated to the study of immune-related diseases, as proposed here. This Centre would bring together experts from different disciplines totaling more than 30 exceptional scientists, clinicians and clinician-scientists. I note that several leaders amongst our faculty including Dr. M. Lathrop, director of the MUGQIC, Dr. S. Vidal, director of the Complex Traits Group, and Dr. G. Bourque, director of Bioinformatics at MUGQIC are implicated in the Centre. In addition, the Centre has attracted many other clinician-scientists and clinicians specialized in fundamental and clinical aspects of multiple sclerosis, inflammatory bowel disease and rheumatoid arthritis.

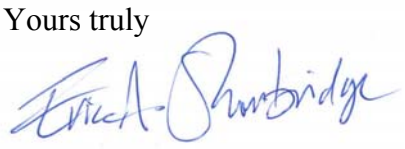
I also note the participation of several international leaders in genome-wide association studies, as well as many individuals with experience in industry and start-up companies, and leaders in the area of genetic engineering. The Centre consolidates a compendium of expertise that is poised to attract other members of our Department as it becomes more publicized.

It is also aligned with the training goals of our Department, which currently houses more than 100 graduate students on five different sites. We welcome the opportunity to gather and learn. The Centre would offer excellent opportunities in the form of seminars and workshops.

In addition the proposed research model is integrative and original, which in itself is an excellent demonstration tool that can serve to attract students from the Faculty of Medicine and the Faculty of Science, where many of our professors teach.

Best of luck with this important initiative.

Yours truly



Eric Shoubridge, PhD, FRSC
Professor and Chair

APPENDIX E: BUDGET

a) Sources of Income/Revenue

From Faculty of Medicine	**$65,000.00**
Additional request to the Faculty of Medicine	$10,000.00
Seminars: Burroughs Wellcome Fund	$2,000.00
Workshops: Vertex Pharmaceuticals Inc. and Crohn's & Colitis Canada (CCC)(2014-2015)	$30,000.00
CFI6 / IOF (yearly amount/up to 2018)	$118,643.56
TOTAL Income/Revenue:	$225,643.56

b) Anticipated Expenses

Description	Budgeted
Personnel Salaries and related costs	
1 X Senior Admin. Coordinator (salary + benefits)	$41,014.35
1 X Animal Health Technician (salary + benefits: CFI6)	$49,935.68
1 X Animal Health Technician (salary + benefits: CFI6)	$68,707.88
MCCT Retreat / Annual Symposium	
Travel expenses, hotel, refreshments, … (29 local - 3 national - 2 International)	$6,000.00
Student Awards	$1,500.00
Centre miscellaneous expenses and maintenance	
Materials & Supplies and Specialized equipment purchase or upgrade/repair	$6,000.00
Printing	
Regular printing, uPrint, McGill Printing Services	$200.00
Contract Service (laundry, linen + equipment), spring water	$1,500.00
Network connection	
Telephone (equipment, long distance, fax, jacks, backbone connection, …)	$2,000.00
Seminars + Workshops	
Travel expenses, hotel, taxi, meals, …	$38,000.00
TOTAL	$214,857.91

c) Source of Revenue for the Next Five Years

Source of Revenue	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	Expected revenue next 5 years	Activity
Faculty of Medicine	$65,000.00	$65,000.00	$65,000.00	$65,000.00	$65,000.00	$325,000.00	Faculty of Medicine
Fundraising	$5,000.00	$5,000.00	$5,000.00	$5,000.00	$5,000.00	$25,000.00	Fundraising
Sponsorship/Seminars	$30,000.00	---	---	---	---	$30,000.00	Fundraising (Vertex)
CFI8 (IOF)	$40,000.00	$40,000.00	$40,000.00	$40,000.00	$40,000.00	$200,000.00	FACS platform
CFI6 (IOF)	$118,643.50	$118,643.50	$118,643.50	$118,643.50	---	$474,574.00	Mouse platform
IOF Reserve Fund 1	$25,000.00	$25,000.00	$25,000.00	$25,000.00	$25,000.00	$125,000.00	Phenomic platform
IOF Reserve Fund 2	$30,000.00	$30,000.00	$30,000.00	$30,000.00	$30,000.00	$150,000.00	FACS platform
Yearly expected revenue	$313,643.50	$283,643.50	$283,643.50	$283,643.50	$165,000.00	$1,329,574.00	

Budget Justification:

The Faculty of Medicine has supported the Complex Traits Group (CTG) with the amount of $ 65,000 since its inception. We would like to request a supplemental amount of $ 10, 000 for a total yearly budget of $75,000 to support the increased expenses of our operations. The additional sum will be used as follows:

i) $5,000 will serve to pay a portion of the salary increase of our Administrative Coordinator, Marianne Provost. Marianne has become a key player in the group. Not only she provides sound administrative support but she is also a leader in promoting our activities. In addition to her regular tasks, Marianne will be in charge of coordinating the Center yearly retreats, meetings with the Scientific Advisory Board and meetings or teleconferences between members of the Center. She will maintain a new MCCT website and produce regular updates to MCCT members. She will maintain MCCT financial records.

ii) $2,500 will serve to defray a portion of our yearly Retreat/Symposium

iii) $2,500 will serve to defray a portion of non-eligible expenses for CIRH/NSERC grants (e.g. contract services, network connection) and repairs/upgrade of common equipment.

APPENDIX F: CVs OF PROPOSED DIRECTORS

Dr. Silvia Vidal: pages 61-78
Dr. Philippe Gros: pages 79-103

Dr. Silvia Vidal

Correspondence language: English
Sex: Female
Date of Birth: 8/19
Canadian Residency Status: Canadian Citizen
Country of Citizenship: Canada

Contact Information

The primary information is denoted by (*)

Address

Primary Affiliation (*)

Department of Human Genetics
McGill Life Sciences Complex
Bellini building, room 367
3649 Sir William Osler Promenade
Montréal Quebec H3G 0B1
Canada

Telephone

Fax	514-3982603
Laboratory (*)	514-3982362

Email

Work (*)	silvia.vidal@mcgill.ca

Website

Corporate	http://www.mcgill.ca/complextraits/scientists/silvia-vidal

Dr. Silvia Vidal

Language Skills

Language	Read	Write	Speak	Understand
English	Yes	Yes	Yes	Yes
French	Yes	Yes	Yes	Yes
Spanish; Castilian	Yes	Yes	Yes	Yes

User Profile

Disciplines Trained In: Genetics, Virology

Research Disciplines: Genetics, Immunology

Areas of Research: Host Genetics, Susceptibility Genes, Transgenic Model, Viral Infections

Fields of Application: Biomedical Aspects of Human Health, Pathogenesis and Treatment of Diseases

Research Specialization Keywords: antiviral response, complex trait analysis, herpes virus infection, influenza virus infection, innate immunity, molecular genetics, mouse ENU-mutagenesis, mouse genetics, natural killer cells, viral myocarditis

Degrees

1990/9 - 1995/1	Post-doctorate, Post-doctoral fellow, Mouse and molecular genetics, McGill University Degree Status: Completed Supervisors: Prof. Philippe Gros
1984/10 - 1990/6	Doctorate, Doctorat ès sciences, Molecular virology, University of Geneva Degree Status: Completed Supervisors: Prof. Daniel Kolakofsky
1983/4 - 1984/9	Diploma, Diplôme, Biologie, University of Geneva Degree Status: Completed Supervisors: Prof. Marco Crippa

Recognitions

2011/7 - 2018/6	Canada Research Chair in Host Response to Virus Infection Canada Research Chairs Prize / Award

2004/7 - 2011/6 Canada Research Chair in Host Response to Virus Infection
Canada Research Chairs
Prize / Award

2001/5 Michael Smith Promising Scientist Award (Canadian dollar)
Ottawa Life Sciences Council
Prize / Award

2000/7 - 2003/6 Premier's Research Excellence Award
Government of Ontario
Prize / Award

1997/9 - 2002/8 CIHR Young Investigator
Canadian Institutes of Health Research
Prize / Award

1995/9 - 1997/8 Chercheur-boursier Junior 1
Fonds de recherche du Québec - Santé (FRQS)
Prize / Award

1994/4 - 1997/3 The Montreal General Research Institute Scholarship (Canadian dollar)
The Research Institute of the McGill University Health Centre
Prize / Award

1993/5 - 1994/4 Canadian Genetic Diseases Network /Merk Frosst Award Postdoctoral Fellowship (Canadian dollar)
Canadian Genetics Diseases Network
Prize / Award

1990/9 - 1993/4 Advanced Post-doctoral fellowship from the Swiss National Science Foundation (Canadian dollar)
Swiss National Science Foundation
Prize / Award

Employment

2013/9 Director
Medicine, Medicine / McGill University, Complex Traits Group

2011/4 Professor
Medicine, Medicine, McGill University

2011/4 Professor
Human Genetics, Medicine, McGill University

2003/9 - 2011/3 Associate Professor
Medicine, Medicine, McGill University

2003/9 - 2011/3 Associate Professor
Microbiology and Immunology, Medicine, McGill University

2003/9 - 2011/3 Associate Professor
Human Genetics, Medicine, McGill University

2001/5 - 2003/9 Associate Professor
Biochemistry, microbiology and immunology, Medicine, University of Ottawa

1998/4 - 2001/4 Assistant Professor
Biochemistry, microbiology and immunology, Medicine, University of Ottawa

1995/3 - 1998/3 Assistant Professor
Microbiology and Immunology, Medicine, McGill University

1995/3 - 1998/3 Assistant Professor
Medicine, Medicine, The Research Institute of the McGill University Health Centre

Affiliations

The primary affiliation is denoted by (*)

(*) 2003/11 Professor, McGill University

Leaves of Absence and Impact on Research

2014-02-21 - 2014-05-19 Medical, McGill University
I was on sick leave from research, teaching and service from February 25 to May 25, 2014. As a consequence, there was a delay in the publication of articles that were in revision and in preparation at the time.

2000-01-25 - 2000-03-25 Parental, University of Ottawa
Maternity leave.

Research Funding History

Awarded [n=6]

2014/3 - 2019/2
Principal Applicant

Immunopathogenesis of inflammatory diseases: genetic, cellular and molecular pathways regulating acute and chronic inflammation.

Co-applicant : Philippe Gros;

Collaborator : Amit Bar-Or; Jack Anter; Stephen Sawcer

Funding Sources:

2014/4 - 2019/3 Canadian Institutes of Health Research (CIHR)
Operating Program
Total Funding - 750,000 (Canadian dollar)
Funding Competitive?: Yes

2010/10 - 2015/9
Collaborator

Genetic Dissection of Airway Hyperresponsiveness and Susceptibility to Allergic Asthma

Co-applicant : Emil Skamene;

Principal Investigator : Radzioch, Danuta

Funding Sources:

2010/10 - 2015/9 Canadian Institutes of Health Research (CIHR)
Operating
Total Funding - 713,165 (Canadian dollar)
Funding Competitive?: Yes

2010/10 - 2015/9
Principal Investigator

Genetics of the natural killer cell antiviral response

Funding Sources:

2010/10 - 2015/9 Canadian Institutes of Health Research (CIHR)
Operating
Total Funding - 850,000 (Canadian dollar)
Funding Competitive?: Yes

2008/10 - 2013/9
Co-investigator

Genetic dissection of host response against respiratory virus infection in recombinant congenic strains of mice

Co-applicant : Robert Sladek;

Collaborator : Philippe Gros;

Principal Investigator : Skamene, Emil

Funding Sources:

2008/10 - 2013/9 Canadian Institutes of Health Research (CIHR)
Operating
Total Funding - 950,000 (Canadian dollar)
Funding Competitive?: Yes

2008/9 - 2013/8
Principal Investigator

An integrative forward genetic approach to identify novel pathways in host response to infection: from mouse models to patients

Co-applicant : Danielle Malo; Mathieu Blanchette; Maya Saleh; Philippe Gros; Stuart Turvey;

Co-investigator : Salman Qureshi;

Collaborator : Jean-Laurent Casanova;

Principal Investigator : Vidal, Silvia

Funding Sources:

2008/9 - 2013/8 Canadian Institutes of Health Research (CIHR)
Team Grant
Total Funding - 5,000,000 (Canadian dollar)
Funding Competitive?: Yes

2008/4 - 2013/3
Principal Investigator

Molecular genetics of host susceptibility to cardiovirulent coxsackievirus infection.

Principal Investigator : Vidal, Silvia

Funding Sources:

2008/4 - 2013/3 Canadian Institutes of Health Research (CIHR)
Operating
Total Funding - 650,000 (Canadian dollar)
Funding Competitive?: Yes

Completed [n=2]

2004/8 - 2011/8
Principal Investigator

Forward genetics of host response against virus infection

Funding Sources:

2004/7 - 2011/6 Canada Research Chairs (CRC)
Host Response to Virus Infections
Total Funding - 1,400,000 (Canadian dollar)
Funding Competitive?: Yes

2005/9 - 2010/8
Principal Investigator

Molecular mechanisms of innate resistance to cytomegalovirus infection

Principal Investigator : Vidal, Silvia (PI)

Funding Sources:

2005/9 - 2010/8 Canadian Institutes of Health Research (CIHR)
Operating
Total Funding - 650,000 (Canadian dollar)
Funding Competitive?: Yes

Under Review [n=1]

2015/1 - 2015/5
Co-applicant

NK2015, the 15th Meeting of the Society for Natural Immunity

Co-applicant : André Veillette;

Principal Applicant : Andrew Makrigiannis

Funding Sources:

2015/1 - 2015/5	Canadian Institutes of Health Research (CIHR) Planning and Dissemination Grants – Institute Community Support (Summer 2014 Competition) Total Funding - 10,000 (Canadian dollar) Funding Competitive?: Yes

Student/Postdoctoral Supervision

Principal Supervisor	Mathieu Mancini, Master's Thesis (In Progress) , McGill University Student Degree Start Date: 2013/9 Project Description: Characterization of ENU-induced Smurf2 mutant Present Position: Graduate student
Principal Supervisor	Justine Latremouille, Bachelor's (Completed) , McGill University Student Degree Start Date: 2013/5 Student Degree Received Date: 2014/5 Project Description: Study of two novel candidate genes, Smurf2 and Stat5, for host susceptibility to viral encephalitis. Present Position: Medical student, St George's U., Grenade
Principal Supervisor	Si Yu Wu, Master's Thesis (Completed) , McGill University Student Degree Start Date: 2013/9 Student Degree Received Date: 2014/5 Present Position: Medical student, Toronto U.
Principal Supervisor	Gabriel Leiva Torres, Doctorate (In Progress) , McGill University Student Degree Start Date: 2012/9 Project Description: Functional genetics approach in mice to identify susceptibility genes to herpes encephalitis. Present Position: FRSQ graduate student
Principal Supervisor	Erika Williston, Bachelor's (Completed) , McGill University Student Degree Start Date: 2012/4 Student Degree Received Date: 2013/5 Project Description: Validation of candidate genes that control either early or late host responses against coxsackievirus infection Present Position: Dentistry student, McGill U.
Principal Supervisor	Marton Jennifer, Doctorate (In Progress) , McGill University Student Degree Start Date: 2011/5 Project Description: Genetic determinants of viral hepatitis Present Position: FRSQ graduate student
Principal Supervisor	Peter Moussa, Master's Thesis (In Progress) , McGill University Student Degree Start Date: 2011/9 Student Degree Expected Date: 2014/1 Project Description: Characterizing the role of a genetic modulator of susceptibility to MCMV resistance; CMV5 Present Position: Medical student, St George's U., Grenade
Principal Supervisor	Michael Leney-Greene, Bachelor's (Completed) , McGill University Student Degree Start Date: 2011/4 Student Degree Received Date: 2012/5 Project Description: The effect of a novel ENU induced mutation in HPS5 on TLR9 dependent type I interferon production. Present Position: Ph.D. student, Clinical Genomics, NIH

Principal Supervisor Joyce Chen, Bachelor's (Completed) , McGill University
Student Degree Start Date: 2011/4
Student Degree Received Date: 2012/5
Project Description: Understanding the immune defect of the ENU induced mutant Glynn, which is susceptible to cytomegalovirus infection.
Present Position: N/A

Principal Supervisor Robin Park, Bachelor's (Completed) , McGill University
Student Degree Start Date: 2011/4
Student Degree Received Date: 2012/5
Project Description: Transcriptomic regulation of Abcc6 deficient mice during cardiovirulent coxsackievirus infection.
Present Position: Medical student, Korea U. School of Medicine

Principal Supervisor Caignard Gregory, Post-doctorate (In Progress) , McGill University
Student Degree Start Date: 2011/1
Student Degree Expected Date: 2014/12
Project Description: Forward genetic screen of immunity to viral infection
Present Position: Researcher, Ecole Nationale Veterinaire d'Alford

Principal Supervisor Gregory Boivin,, Doctorate (In Progress) , McGill University
Student Degree Start Date: 2008/9
Student Degree Expected Date: 2013/9
Project Description: Dissection of regulatory networks and fundamental mechanisms of host resistance to Pathogenic Influenza Virus Infection in Mice
Present Position: CIHR Graduate student

Principal Supervisor Julien Pothlichet, Post-doctorate (Completed) , McGill University
Student Degree Start Date: 2009/8
Student Degree Received Date: 2012/6
Project Description: Control of host resistance mechanisms against influenza virus
Present Position: Investigator Pasteur Institute, Paris

Principal Supervisor Sean Wiltshire,, Doctorate (In Progress) , McGill University
Student Degree Start Date: 2007/9
Student Degree Expected Date: 2012/12
Project Description: Identification of host susceptibility genes to cardiotropic coxsackievirus infection in mice
Present Position: Director of Analytics, Liberal Party

Principal Supervisor Michal Pyzik,, Doctorate (All But Degree) , McGill University
Student Degree Start Date: 2007/1
Project Description: Molecular interactions between NK cell receptors and MHC class I molecules in innate resistance to cytomegalovirus infection
Present Position: PDF in Richard Blumber lab, Harvard Medical School

Principal Supervisor Agnieszka Kielczewska, Doctorate (Completed) , McGill University
Student Degree Start Date: 2001/9
Student Degree Received Date: 2007/1
Project Description: Natural Killer Cell receptors and their MHC ligand interactions in innate resistance to mouse cytomegalovirus
Present Position: Scientist at Amgen, Pharmaceuticals

Principal Supervisor Fodil Nassima, Post-doctorate (Completed) , McGill University
Student Degree Start Date: 2004/6
Student Degree Received Date: 2009/6
Project Description: Identification of novel pahtways of cytomegalovirus susceptibility by whole genome ENU mutagenesis
Present Position: Research Associate, McGill U.

Principal Supervisor	Hee-Seo Kim, Post-doctorate (Completed) , McGill University Student Degree Start Date: 2004/11 Student Degree Received Date: 2006/1 Project Description: Molecular determinants of direct and functional infected cell by the natural killer receptor, Ly49H Present Position: Research Associate, Korea Res Inst Biosc
Principal Supervisor	Sonia Girard, Master's Thesis (Completed) , McGill University Student Degree Start Date: 2002/9 Student Degree Received Date: 2004/3 Project Description: Innate resistance to cytomegalovirus infection in wild-derived mice: role of natural killer cell receptors. Present Position: N/A
Principal Supervisor	Mahmud Aly, Doctorate (Completed) , University of Ottawa Student Degree Start Date: 2002/9 Student Degree Received Date: 2006/1 Project Description: Genome-wide analysis of host susceptibility to coxsackievirus-induced myocarditis in a mouse model of infection Present Position: N/A
Principal Supervisor	Kwan Sin Kim, Master's Thesis (Completed) , University of Ottawa Student Degree Start Date: 2002/9 Student Degree Received Date: 2005/4 Project Description: The host resistance locus Cmv1/Ly49h dramatically regulates global gene expression in spleen DX5+ (NK) cells in response to murine cytomegalovirus infection. Present Position: Technician, S. Subash lab, U. Ottawa
Principal Supervisor	Rim Mrad, Master's Thesis (Completed) , University of Ottawa Student Degree Start Date: 2002/9 Student Degree Received Date: 2005/5 Project Description: Pathological and genetic analysis of host susceptibility to cardiovirulent coxsackievirus infection in mice Present Position: Scientific evaluator, health products, Health Canada
Principal Supervisor	Marie-Pierre Desrosiers, Master's Thesis (Completed) , McGill University Student Degree Start Date: 2002/3 Student Degree Received Date: 2004/4 Project Description: Genetic interaction between H2 and NKC receptor genes confers innate resistance to cytomegalovirus infection Present Position: Research Activities Director, CSSS, Gatineau
Principal Supervisor	Seung-Hwan Lee, Doctorate (Completed) , University of Ottawa Student Degree Start Date: 1999/9 Student Degree Received Date: 2004/4 Project Description: From the host resistance locus against cytomegalovirus infection, Cmv1 to the natural killer activating receptor Ly49H: molecular genetics, haplotype analysis and transgenesis Present Position: Tier 2 CRC and Assistant Prof. U. Ottawa
Principal Supervisor	Chantal Depatie, Doctorate (Completed) , McGill University Student Degree Start Date: 1996/9 Student Degree Received Date: 2000/5 Project Description: Functional, genetic and molecular analysis of the host resistance locus Cmv1 on mouse chromosome 6. Present Position: Primary/Secondary education, CEPEO

Community and Volunteer Activities

2012/8	Ad-hoc reviewer, Cell Host and Microbe

2012/8	Ad-hoc reviewer, Journal of Immunology
2012/7	Ad-hoc reviewer, PLoS One
2012/5	Grant Reviewer, CIHR Peer Review - Committee Member : Immunology and Transplantation
2012/5	Ad-hoc reviewer, PLoS Genetics
2011/12	Grant Reviewer, CIHR Member of review committee : Special Emphasis Panel to evaluate grants in response to RFA “An Integrated Approach to Understanding Host-Pathogens Interactions”
2011/10	Grant Reviewer, National Institutes of Health (USA) Special Emphasis Panel to evaluate grants in response to RFA “An Integrated Approach to Understanding Host-Pathogens Interactions” Member of review committee
2011/9	Grant Reviewer, The Welcome Trust (UK) External reviewer
2011/7	Grant Reviewer, French National Research Agency External reviewer for the Microbiology, Immunology and Infection Committee
2011/6	Grant Reviewer, Israel Science Foundation External reviewr
2011/5	Symposium Scientific Organizer, CIHR Team in Mutagenesis and Infectious Diseases 2011 Montreal Symposium in Genetics and Infectious Diseases, Montreal
2011/5	Symposium Scientific Organizer, American Association for Immunologists Co-organizer of the symposium "Self-Non-Self Discrimination by Natural Killer Cells" in collaboration with Dr. Kevin Kane, University of Alberta
2010/10	Grant Reviewer, Heart & Stroke Foundation External Reviewer
2010/5	Grant Reviewer, French National Research Agency Member of the Evaluation Committee in Microbiology, Immunology and Infection
2010/5	Symposium Scientific Organizer, CIHR Team in Mutagenesis and Infectious Diseases 2010 Montreal Symposium in Genetics and Infectious Diseases
2010/4	Grant Reviewer, The Welcome Trust (UK) External Reviewer
2010/4	Grant Reviewer, Institut Pasteur/ Hemlholtz Center Transverse Research Programs External reviewr
2009/11	Grant Reviewer, Heart & Stroke Foundation External Reviewr
2009/4	Grant Reviewer, The Welcome Trust (UK) External Reviewer
2009/4	Grant Reviewer, Institut Pasteur/ Hemlholtz Center Transverse Research Programs External reviewer
2008/10	Grant Reviewer, Heart & Stroke Foundation External Reviewer
2008/6	Grant Reviewer, Institut Pasteur/ Hemlholtz Center Transverse Research Programs External reviewer
2008/5	Scientific organizer of the meeting, Complex Trait Consortium 7th Annual Meeting of the Complex Trait Consortium
2008/4	Grant Reviewer, The Welcome Trust (UK) External Reviewer

Knowledge and Technology Translation

2015/5 - 2015/5 — Member organization committee, Community Engagement
Target Stakeholder: Academic Personnel
Activity Description: Organization of the 15th conference of the Society for Natural Immunity. This is the leading conference on all aspects of natural killer (NK) cell biology, bringing together around 400 leading international experts to present cutting edge research. The meeting gathers immunologists, microbiologists, cancer biologists, clinicians and industrial representatives interested in NK cells and their implications in human diseases. From May 2-4, NK2015 will take place at Le Château Montebello hotel where all participants will be housed, providing numerous networking opportunities. Oral presentations, poster session and structured free time will provide many opportunities for discussion and debate around the latest developments on the role of NK cells in the control of infections, malignancies and pregnancy. The conference will also highlight the latest clinical research developments related to NK cells, ranging from antibody-based therapies to new concepts of NK cell-based immunotherapy.

2012/9 - 2012/9 — Member Organizing Committee, Community Engagement
Target Stakeholder: Academic Personnel
Activity Description: Organization of the 6th Orthomyxovirus Research Conference. These meetings are organized every 2-3 years to provide young researchers interested in various aspects of orthomyxovirus biology the opportunity to present their results, exchange ideas and develop their professional network. Conference sites alternate between Europe and North America. The meeting took place at Château Bromont, Québec, from September 19-22, gathering about 120 participants including 86 students and post-docs. In addition to 5 sessions of short oral presentations, poster sessions and shared housing provided ample opportunity for exchanges and debate about influenza pathogenesis, host responses, evolution, virus-cell interactions, systems biology, vaccines and antiviral. The keynote speaker, Dr. Ron Fouchier from Erasmus University in the Netherlands, presented the opening lecture spearing debate among participants about the controversy surrounding biosecurity and influenza research.

2010/5 - 2010/5 — Co-organizer, Community Engagement
Target Stakeholder: Academic Personnel
Activity Description: American Association of Immunologists' 98th Annual Meeting; San Francisco, California. May 13-17, 2011 Co-organizer of the symposium "Self-Non-Self Discrimination by Natural Killer Cells" in collaboration with Dr. Kevin Kane, University of Alberta.

Presentations

1. (2014). Forward genetics in mice to understand immunity to infection.. Capita Selecta in Complex Disease Analysis (CSCDA2010.), Montreal, Belgium
   Main Audience: Researcher
   Invited?: Yes

   Funding Sources: Canadian Institutes of Health Research (CIHR) - CTP-87520

2. (2014). The interplay of NK cell receptors, MHC class I and viral determinants in host response against cytomegalovirus. Memorial Sloane-Kettering Center Seminar Series, New York, United States
   Main Audience: Researcher
   Invited?: Yes

3. (2014). Genome-wide search for new mechanisms that regulate immunity to infection through mouse ENU mutagenesis and high-through put in vivo phenotyping. Queen's University Group for Research on the Reproductive and Developmental Origins of Health, Disability and Disease, Keystone, Canada
   Main Audience: Researcher
   Invited?: Yes

4. (2012). Mouse ENU mutagenesis to understand gene function during inflammatory and immune responses against pathogens. Canadian Human and Statistical Genetics Meeting, Canada
   Main Audience: Researcher
   Invited?: Yes

   Funding Sources: Canadian Institutes of Health Research (CIHR) - CTP-87520

5. (2012). Mouse ENU mutagenesis to identify new mechanisms of host response against pathogens. Meakins-Christie Laboratories Beer Seminar, Montreal, Canada
   Main Audience: Researcher
   Invited?: Yes

6. (2012). Genome-wide ENU mutagenesis to identify new pathways that regulate host responses against infection. Ottawa Health Research Hospital Seminar Series, Ottawa, Canada
   Main Audience: Researcher

   Funding Sources: Canadian Institutes of Health Research (CIHR) - MOP-7781

7. (2012). Genome-wide ENU mutagenesis to identify new pathways that regulate host responses against infection. Ottawa Health Research Hospital Seminar Series, Ottawa, Canada
   Main Audience: Researcher
   Invited?: Yes

8. (2011). Genetic control of the antiviral response. EMBO/Pasteur Institute Conference on the Host Genetic Control of Infectious Diseases, France
   Main Audience: Researcher
   Invited?: Yes

   Funding Sources: Canadian Institutes of Health Research (CIHR) - CTP-87520

9. (2011). NK cell receptors and their MHC class I ligands govern host response to virus infection. Seminar series of the University of Toronto Department of Immunology, Toronto, Canada
   Main Audience: Researcher

   Funding Sources: Canadian Institutes of Health Research (CIHR) - MOP-7781

10. (2011). MHC class I receptors and their ligands modulate the NK cell antiviral response. AAI 98th Annual Meeting, San Francisco, United States
    Main Audience: Researcher
    Invited?: Yes

    Funding Sources: Canadian Institutes of Health Research (CIHR) - MOP-7781

11. (2011). Input of MHC class I receptor signals quantitatively modulates host resistance to viral infection through virus-specific receptors. NIH Twinbrook Seminar Series, Rockville, United States
    Main Audience: Researcher
    Invited?: Yes

    Funding Sources: Canadian Institutes of Health Research (CIHR) - MOP-7781

12. (2010). Role of activating NK cell receptors in host resistance to virus infection. 12th Meeting of the Society for Natural Immunity, Dubrovnik, Croatia
    Main Audience: Researcher
    Invited?: Yes

    Funding Sources: Canadian Institutes of Health Research (CIHR) - MOP-7781

13. (2010). MHC class I molecules and activating NK cell receptor interactions control host resistance to virus infection. From Genes to Pathogenesis of Multiple Sclerosis-COST Neurinfnet BM0603, Hennigsvaer, Norway
    Main Audience: Researcher
    Invited?: Yes

    Funding Sources: Canadian Institutes of Health Research (CIHR) - MOP-7781

14. (2010). Role of activating NK cell receptors, MHC class I and viral determinants in host resistance to cytomegalovirus. Seminars of the Infection Immunity and Inflammation Research Theme of the University of Montreal Hospital Research Centre (CRCHUM), Montreal, Canada
Main Audience: Researcher
Invited?: Yes

    Funding Sources: Canadian Institutes of Health Research (CIHR) - MOP-7781

15. (2010). Mouse ENU mutagenesis to identify susceptibility genes to infection: a global approach to global health. Montreal Symposium on Genetics and Infectious Diseases, Montreal, Canada
Main Audience: Researcher

16. (2009). Activating NK cell receptors mediate host resistance against cytomegalovirus via MHC-dependent and MHC-independent mechanisms. The Scripps Research Institute Seminar Series in La Jolla, La Jolla, United States
Main Audience: Researcher
Invited?: Yes

    Funding Sources: Canadian Institutes of Health Research (CIHR) - MOP-7781

17. (2009). NK cell-mediated mechanisms of innate resistance against cytomegalovirus infection. Howard Hughes Medical Institute Conference on Viral Subversion and Immune Response, Rijeka, Croatia
Main Audience: Researcher

    Funding Sources: Canadian Institutes of Health Research (CIHR) - MOP-7781

18. (2009). Forward genetics of host susceptibility genes in mouse models of virus infection: common and distinct pathways against +RNA, -RNA and large DNA viruses. Howard Hughes Medical Institute Conference on Viral Subversion and Immune Response, Rijeka, Croatia
Main Audience: Researcher
Invited?: Yes

    Funding Sources: Canadian Institutes of Health Research (CIHR) - MOP-86592; Canadian Institutes of Health Research (CIHR) - MOP-7781

19. (2009). ENU mutagenesis to identify susceptibility genes to infection: a global approach to global health. Second International Conference on Functional Annotation of the Mammalian Genome, Banff, Canada
Main Audience: Researcher
Invited?: Yes

    Funding Sources: Canadian Institutes of Health Research (CIHR) - CTP-87520

20. (2008). Innate resistance to cytomegalovirus is mediated by multiple mechanisms of Ly49-mediated recognition of the infected cell. Australasian Society for Immunolgy Annual Scientific Meeting, Sydney, Australia
Main Audience: Researcher
Invited?: Yes

    Funding Sources: Canadian Institutes of Health Research (CIHR) - MOP-7781

21. (2008). Susceptibility to influenza virus is influenced by the genetic make-up of the host” to influenza virus. Canadian Pandemic Preparedness Meeting: From Frontlines to Discovery, Winnipeg, Canada
Main Audience: Researcher
Invited?: Yes

    Funding Sources: Canadian Institutes of Health Research (CIHR) - MOP-89821

22. (2008). Virus-host molecular interactions shape NK cell antiviral immunity. 1st Microbiology Symposium of the University of Geneva Medical School, Geneva, Switzerland
Main Audience: Researcher
Invited?: Yes

23. (2008). Recognition of the cytomegalovirus infected cell by NK cell in host resistance to infection. Keystone symposium: NK and NKT biology, Keystone,
Main Audience: Researcher
Invited?: Yes

Publications

Journal Articles

1. Fodil, N., Langlais, D., Moussa, P., Boivin, G., Di Pietrantonio, T., Radovanovic, I., Dumaine, A., Blanchette, M., Schurr, E., Gros, P., and Vidal, S.. Specific dysregulation of IFNg production by Natural Killer cells confers susceptibility to viral infection.. PLOS Pathogens.
   Last Author
   Accepted
   Refereed?: Yes
   Number of Contributors: 11

   Funding Sources: Canadian Institutes of Health Research (CIHR) - MOP-89821; Canadian Institutes of Health Research (CIHR) - MOP-77781

2. Sabrina Torre, Sébastien Faucher, Nassima Fodil-Cornu, Silayuv Bongfen, Joanne Berghout, Jeremy Schwartzentruber, Jacek Majewski, Mark Lathrop, Andrea Cooper, Silvia Vidal, and Philippe Gros. (2014). THEMIS is Required for Pathogenesis of Cerebral Malaria and for Protection Against Pulmonary Tuberculosis. Infection and Immunity.
   Co-Author
   Revision Requested
   Refereed?: Yes
   Number of Contributors: 11

   Funding Sources: Canadian Institute for Health Information (CIHI) - CTP-87520

3. Moussa, P., Abrahmanson, G., Fodil-Cornu, N., Ramakrishna, G., Dissen, E., Saether, PC, Boivin, G., Caignard, G., Spurkland, A., Vidal, S.. (2014). MCMV viral clearance in the absence of TSAd. Scientifc Reports.
   Last Author
   Revision Requested
   Refereed?: Yes
   Number of Contributors: 10

   Funding Sources: Canadian Institutes of Health Research (CIHR) - MOP-77781

4. Pyzik M , Dumaine AA , Charbonneau B , Fodil-Cornu N , Jonjic S , Vidal SM. (2014). Viral MHC Class I-like Molecule Allows Evasion of NK Cell Effector Responses In Vivo.. Journal of immunology (Baltimore, Md. : 1950).
   Published

5. Marton*, J., Albert*, D., Park*, R., Vidal, S.. (2014). Positional Identification, Functional Characterization, and Therapeutic Targeting of a New Coxsackievirus Susceptibility Gene: Abcc6.. Circulation Genetics.
   Last Author
   Submitted
   Refereed?: Yes
   Number of Contributors: 4

   Funding Sources: Canadian Institutes of Health Research (CIHR) - MOP-86592

6. Wiltshire, S., Marton, J., and Leiva-Torres, G.A., and Vidal, S.M.. (2014). Mapping of a Quantitative Trait Locus Controlling Susceptibility to Coxsackievirus B3 Induced Viral Hepatitis. Genes and Immunity.
   Last Author
   Submitted
   Refereed?: Yes
   Number of Contributors: 4

   Funding Sources: Canadian Institutes of Health Research (CIHR) - MOP-89821

7. Kennedy, J.M., Fodil-Cornu, N., Torre, S., Bongfen, S., Olivier, J.F., Leung, V., Meunier, C., Langlais, D., Berghout, J., Langat, P., Schwartzentruber, J., Majewski, J., Lathrop, M., Vidal, S. and Gros, P.. (2014). CCDC88B is a novel regulator of maturation and effector functions of T cells and is required for pathological inflammation. The Journal of Experimental Medicine.
   Co-Author
   Accepted
   Refereed?: Yes
   Number of Contributors: 15

   Funding Sources: Canadian Institutes of Health Research (CIHR) - CTP-87520

8. Lafferty EI , Flaczyk A , Angers I , Homer R , d'Hennezel E , Malo D , Piccirillo CA , Vidal SM , Qureshi ST. (2014). An ENU-induced splicing mutation reveals a role for Unc93b1 in early immune cell activation following influenza A H1N1 infection.. Genes and immunity. 15(5): 320-32.
   Published

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   Published

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    Published

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    Published

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    Published

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    Published

14. Dauphinee SM , Eva MM , Yuki KE , Herman M , Vidal SM , Malo D. (2013). Characterization of two ENU-induced mutations affecting mouse skeletal morphology.. G3 (Bethesda, Md.). 3(10): 1753-8.
    Published

15. Caignard G , Leiva-Torres GA , Leney-Greene M , Charbonneau B , Dumaine A , Fodil-Cornu N , Pyzik M , Cingolani P , Schwartzentruber J , Dupaul-Chicoine J , Guo H , Saleh M , Veillette A , Lathrop M , Blanchette M , Majewski J , Pearson A , Vidal SM. (2013). Genome-wide mouse mutagenesis reveals CD45-mediated T cell function as critical in protective immunity to HSV-1.. PLoS pathogens. 9(9): e1003637.
    Published

16. Torre S , van Bruggen R , Kennedy JM , Berghout J , Bongfen SE , Langat P , Lathrop M , Vidal SM , Gros P. (2013). Susceptibility to lethal cerebral malaria is regulated by epistatic interaction between chromosome 4 (Berr6) and chromosome 1 (Berr7) loci in mice.. Genes and immunity. 14(4): 249-57.
    Published

17. Pothlichet J , Meunier I , Davis BK , Ting JP , Skamene E , von Messling V , Vidal SM. (2013). Type I IFN triggers RIG-I/TLR3/NLRP3-dependent inflammasome activation in influenza A virus infected cells.. PLoS pathogens. 9(4): e1003256.
Published

18. Yuki KE , Eva MM , Richer E , Chung D , Paquet M , Cellier M , Canonne-Hergaux F , Vaulont S , Vidal SM , Malo D. (2013). Suppression of hepcidin expression and iron overload mediate Salmonella susceptibility in ankyrin 1 ENU-induced mutant.. PloS one. 8(2): e55331.
Published

19. Marcoe JP , Lim JR , Schaubert KL , Fodil-Cornu N , Matka M , McCubbrey AL , Farr AR , Vidal SM , Laouar Y. (2012). TGF-β is responsible for NK cell immaturity during ontogeny and increased susceptibility to infection during mouse infancy.. Nature immunology. 13(9): 843-50.
Published

20. Wiltshire SA , Diez E , Miao Q , Dubé MP , Gagné M , Paquette O , Lafrenière RG , Ndao M , Castellani LW , Skamene E , Vidal SM , Fortin A. (2012). Genetic control of high density lipoprotein-cholesterol in AcB/BcA recombinant congenic strains of mice.. Physiological genomics. 44(17): 843-52.
Published

21. Boivin GA , Pothlichet J , Skamene E , Brown EG , Loredo-Osti JC , Sladek R , Vidal SM. (2012). Mapping of clinical and expression quantitative trait loci in a sex-dependent effect of host susceptibility to mouse-adapted influenza H3N2/HK/1/68.. Journal of immunology (Baltimore, Md. : 1950). 188(8): 3949-60.
Published

22. Mitrović M , Arapović J , Jordan S , Fodil-Cornu N , Ebert S , Vidal SM , Krmpotić A , Reddehase MJ , Jonjić S. (2012). The NK cell response to mouse cytomegalovirus infection affects the level and kinetics of the early CD8(+) T-cell response.. Journal of virology. 86(4): 2165-75.
Published

23. Moussa P , Marton J , Vidal SM , Fodil-Cornu N. (2012). Genetic dissection of NK cell responses.. Frontiers in immunology. 3: 425.
Published

24. Bongfen SE , Rodrigue-Gervais IG , Berghout J , Torre S , Cingolani P , Wiltshire SA , Leiva-Torres GA , Letourneau L , Sladek R , Blanchette M , Lathrop M , Behr MA , Gruenheid S , Vidal SM , Saleh M , Gros P. (2012). An N-ethyl-N-nitrosourea (ENU)-induced dominant negative mutation in the JAK3 kinase protects against cerebral malaria.. PloS one. 7(2): e31012.
Published

25. Vidal SM , Khakoo SI , Biron CA. (2011). Natural killer cell responses during viral infections: flexibility and conditioning of innate immunity by experience.. Current opinion in virology. 1(6): 497-512.
Published

26. Wiltshire SA , Leiva-Torres GA , Vidal SM. (2011). Quantitative trait locus analysis, pathway analysis, and consomic mapping show genetic variants of Tnni3k, Fpgt, or H28 control susceptibility to viral myocarditis.. Journal of immunology (Baltimore, Md. : 1950). 186(11): 6398-405.
Published

27. Pyzik M , Charbonneau B , Gendron-Pontbriand EM , Babić M , Krmpotić A , Jonjić S , Vidal SM. (2011). Distinct MHC class I-dependent NK cell-activating receptors control cytomegalovirus infection in different mouse strains.. The Journal of experimental medicine. 208(5): 1105-17.
Published

28. Fodil-Cornu N , Loredo-Osti JC , Vidal SM. (2011). NK cell receptor/H2-Dk-dependent host resistance to viral infection is quantitatively modulated by H2q inhibitory signals.. PLoS genetics. 7(4): e1001368.
Published

29. Pyzik M , Gendron-Pontbriand EM , Fodil-Cornu N , Vidal SM. (2011). Self or nonself? That is the question: sensing of cytomegalovirus infection by innate immune receptors.. Mammalian genome : official journal of the International Mammalian Genome Society. 22(1-2): 6-18.
Published

30. Pyzik M , Gendron-Pontbriand EM , Vidal SM. (2011). The impact of Ly49-NK cell-dependent recognition of MCMV infection on innate and adaptive immune responses.. Journal of biomedicine & biotechnology. 2011: 641702.
Published

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Published

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Published

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Published

34. Fodil-Cornu N , Pyzik M , Vidal SM. (2010). Use of inbred mouse strains to map recognition receptors of MCMV infected cells in the NK cell gene locus.. Methods in molecular biology (Clifton, N.J.). 612: 393-409.
Published

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Published

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Published

37. Pyzik M , Vidal SM. (2009). Natural killer cells: NK cells stroll down the memory lane.. Immunology and cell biology. 87(4): 261-3.
Published

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Published

39. Pyzik M , Kielczewska A , Vidal SM. (2008). NK cell receptors and their MHC class I ligands in host response to cytomegalovirus: insights from the mouse genome.. Seminars in immunology. 20(6): 331-42.
Published

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Published

41. Fodil-Cornu N , Lee SH , Belanger S , Makrigiannis AP , Biron CA , Buller RM , Vidal SM. (2008). Ly49h-deficient C57BL/6 mice: a new mouse cytomegalovirus-susceptible model remains resistant to unrelated pathogens controlled by the NK gene complex.. Journal of immunology (Baltimore, Md. : 1950). 181(9): 6394-405.
Published

42. Richer E , Qureshi ST , Vidal SM , Malo D. (2008). Chemical mutagenesis: a new strategy against the global threat of infectious diseases.. Mammalian genome : official journal of the International Mammalian Genome Society. 19(5): 309-17.
Published

43. Fodil-Cornu N , Vidal SM. (2008). Type I interferon response to cytomegalovirus infection: the kick-start.. Cell host & microbe. 3(2): 59-61.
Published

44. Vidal SM , Malo D , Marquis JF , Gros P. (2008). Forward genetic dissection of immunity to infection in the mouse.. Annual review of immunology. 26: 81-132.
Published

45. Aly M , Wiltshire S , Chahrour G , Osti JC , Vidal SM. (2007). Complex genetic control of host susceptibility to coxsackievirus B3-induced myocarditis.. Genes and immunity. 8(3): 193-204.
Published

46. Kielczewska A , Kim HS , Lanier LL , Dimasi N , Vidal SM. (2007). Critical residues at the Ly49 natural killer receptor's homodimer interface determine functional recognition of m157, a mouse cytomegalovirus MHC class I-like protein.. Journal of immunology (Baltimore, Md. : 1950). 178(1): 369-77.
Published

47. Kielczewska A , Vidal SM. (2006). Enemy at the gates: forward genetics of the mouse antiviral response.. Current opinion in immunology. 18(5): 617-26.
Published

48. Adam SG , Caraux A , Fodil-Cornu N , Loredo-Osti JC , Lesjean-Pottier S , Jaubert J , Bubic I , Jonjic S , Guénet JL , Vidal SM , Colucci F. (2006). Cmv4, a new locus linked to the NK cell gene complex, controls innate resistance to cytomegalovirus in wild-derived mice.. Journal of immunology (Baltimore, Md. : 1950). 176(9): 5478-85.
Published

49. Desrosiers MP , Kielczewska A , Loredo-Osti JC , Adam SG , Makrigiannis AP , Lemieux S , Pham T , Lodoen MB , Morgan K , Lanier LL , Vidal SM. (2005). Epistasis between mouse Klra and major histocompatibility complex class I loci is associated with a new mechanism of natural killer cell-mediated innate resistance to cytomegalovirus infection.. Nature genetics. 37(6): 593-9.
Published

50. Lee SH , Girard S , Macina D , Busà M , Zafer A , Belouchi A , Gros P , Vidal SM. (2001). Susceptibility to mouse cytomegalovirus is associated with deletion of an activating natural killer cell receptor of the C-type lectin superfamily.. Nature genetics. 28(1): 42-5.
Published

51. Vidal SM , Malo D , Vogan K , Skamene E , Gros P. (1993). Natural resistance to infection with intracellular parasites: isolation of a candidate for Bcg.. Cell. 73(3): 469-85.
Published

52. Vidal S , Curran J , Kolakofsky D. (1990). A stuttering model for paramyxovirus P mRNA editing.. The EMBO journal. 9(6): 2017-22.
Published

Book Chapters

1. Vidal, S., Krmpotic, A., Pyzik*, M. and Jonjic S.. (2013). Innate Immunity to Cytomegalovirus in the Murine Model.. Cytomegaloviruses: From Molecular Pathogenesis to Intervention. (2)
First Listed Author
Published, Caister Academic Press
Refereed?: Yes

2. Wiltshire*, S., Watkins, D.I., Skamene, E., and Vidal, S.. (2011). Immunogenetics of Virus Pathogenesis. The Immune Response to Infection.
Last Author
Published, ASM Press
Refereed?: Yes

Funding Sources: Canadian Institutes of Health Research (CIHR) - MOP-86592

Intellectual Property

Patents

1. DNA sequences that encode natural resistance to infection with intracellular parasites. United States. 6184031. 1996-05-08.
Patent Status: Completed
Date Issued: 2001-02-06

Funding Sources: Medical Research Council of Canada (MRC) - MRC

Disclosures

1. Application of the human and mouse gene GNL1 as a marker for susceptibility to viral infection, a model for inflammatory disease and a therapeutic target to modulate NK cells population.
Protected
Filing Date: 2014-09-12
2. Malo, D. and Vidal, S. A novel in vivo approach to identify key genetic risk factors/ pathways controlling susceptibility and severity of systemic Gram negative infection.
Protected
Filing Date: 2014-05-29
3. A novel method to identify targets for anti-inflammatory drug discovery: Validation and identification of novel targets
Protected
Filing Date: 2011-07-27

Professor Philippe Gros

Correspondence language: English
Sex: Male
Date of Birth: 10/07
Canadian Residency Status: Canadian Citizen
Country of Citizenship: Canada

Contact Information

The primary information is denoted by (*)

Address

Courier (*)

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Website

Corporate	http://www.mcgill.ca/complextraits/

Professor Philippe Gros

Language Skills

Language	Read	Write	Speak	Understand	Peer Review
English	Yes	Yes	Yes	Yes	
French	Yes	Yes	Yes	Yes	

Degrees

1983/12 - 1985/9
Post-doctorate, Post-doctoral training, Molecular Genetics, Massachusetts Institute of Technology
Degree Status: Completed

Supervisors: David E. Housman

1983/4 - 1983/12
Post-doctorate, Post-doctoral training, Molecular Endocrinology, Harvard University
Degree Status: Completed

Supervisors: Joel F. Habener

1979/9 - 1983/3
Doctorate, Doctorate in Sciences, Experimental Medicine, McGill University
Degree Status: Completed

Supervisors: Emil Skamene

1977/1 - 1979/9
Master's Thesis, Masters in Sciences, Microbiology and Immunoglogy, Université de Montréal
Degree Status: Completed

Supervisors: Adrien Forget

1973/9 - 1976/5
Bachelor's, Bachelor's of Science, Biochemistry, Université de Montréal
Degree Status: Completed

Supervisors: Forget, Adrien

Recognitions

2014/11
McLaughlan Medal for Scientific Excellence - 0 (Canadian dollar)
Royal Society of Canada
Prize / Award

Research Disciplines: Genetics

2013/7
Queen Elizabeth II Diamond Jubilee Medal (Canadian dollar)
Association of Universities and Colleges of Canada
Honor

Research Disciplines: Genetics

2011/2
Scientific Achievements Award (Canadian dollar)
Charity
Honor

Research Disciplines: Genetics

2010/1 - 2017/1	James McGill Professor of Biochemistry (Canadian dollar) McGill University Prize / Award Research Disciplines: Genetics
2009/1	Killam Prize in Health Sciences Canada Council for the Arts Prize / Award
2008/1	Prix du Quebec. Prix Wilder Penfield (Canadian dollar) Gouvernement du Québec Prize / Award Health Sciences Research Disciplines: Genetics
2003/6	Fellow - 0 The Royal Society of Canada Honor Life Sciences
2001/3 - 2008/3	Distinguished Scientist Award (Canadian dollar) Canadian Institutes of Health Research Prize / Award
1996/1 - 2002/1	International Research Scholar (United States dollar) Howard Hughes Medical Institute Prize / Award
1995/9 - 2001/8	Senior Scientst Award (Canadian dollar) Medical Research Council of Canada Prize / Award
1995/1	Michael Smith Medal of Excellence Medical Research Council of Canada Honor
1993/1	W.E Rawles Prize National cancer Institute Prize / Award
1992/1	E.W.R. Steacie Prize Natural Sciences and Engineering Research Council of Canada Prize / Award

User Profile

Researcher Status: Researcher
Engaged in Clinical Research?: No

Research Interests: Genetic control of susceptibility to infectious diseases Genetic basis of susceptibility to neural tube defects

Fields of Application: Pathogenesis and Treatment of Diseases, Public Health

Disciplines Trained In: Biochemistry, Genetics

Technological Applications: Clinical biological analyses, DNA probes, Immunological reagents

Areas of Research: Bacterial Infections, Genetic Mapping, Host Genetics, Tropical Diseases, Tuberculosis

Research Specialization Keywords: Development, Drug Resistance, Genetics, Infections, Inflammatory diseases, Macrophages, Membrane Proteins, Mouse, Positional Cloning, Transgenesis

Research Centres: None

Research Disciplines: Genetics, Immunology

Employment

2005/6	Director, Complex Traits Program Biochemistry, McGill University
1993/10	Full Professor Biochemistry, McGill University
2009/1 - 2012/7	Scientific Advisory Board Member Dafra Pharma Inc
1997/1 - 2009/3	Scientific Advisory Board Member RGS Genome/Xenon Therapeutics Inc./Emerillon Therapeutics
2005/3 - 2007/8	Scientific Director Canadian Genetic Diseases Network
1997/1 - 2006/1	Scientific Advisory Board Member Phagetech/Targanta Therapeutic
1989/1 - 1993/1	Associate Professor Biochemistry, McGill University
1985/1 - 1989/1	Assistant Professor Biochemistry, McGill University

Affiliations

The primary affiliation is denoted by (*)

2010/8	Associate Member, Department of Microbiology and Immunology, McGill University
2008/9	Associate Member, Department of Human Genetics, McGill University
(*) 1993/1	Professor, Department of Biochemistry, McGill University

Research Funding History

Awarded [n=7]

2014/4 - 2019/4
Co-applicant

Immunopathogenesis of Inflammatory Diseases: genetic, cellular and molecular pathways regulating acute and chronic inflammation, Grant, Operating
Clinical Research Project?: No
Project Description: Characterize the functional role of several genes in pathological neuroinflammation

Research Settings: Canada (Urban)

Research Disciplines: Biochemistry

Areas of Research: Biological and Biochemical Mechanisms

Research Uptake Stakeholders: Academic Personnel

Fields of Application: Biomedical Aspects of Human Health

Funding by Year:

2014/4 - 2015/4	Total Funding - 150,000 (Canadian dollar) Portion of Funding Received - 75,000 (Canadian dollar) Time Commitment: 10

Funding Sources:

2014/4 - 2019/4 Canadian Institutes of Health Research (CIHR)
Open grants competition
Total Funding - 750,000 (Canadian dollar) (Canadian dollar)
Funding Renewable?: Yes
Funding Competitive?: Yes
Funding Reference Number: MOP-133487

Principal Applicant : Silvia Vidal

2012/3 - 2017/4
Principal Investigator
Genetic studies of blood stage malaria: from mouse models to human disease, Grant
Clinical Research Project?: No

Funding Sources:

2012/3 - 2017/4 Canadian Institutes of Health Research (CIHR)
Open Competition
Total Funding - 711,115 (Canadian dollar)
Portion of Funding Received - 711,115 (Canadian dollar)
Funding Competitive?: Yes

Principal Investigator : P. Gros

2011/10 - 2016/9
Principal Investigator
Role of Vangl proteins in normal development and in neural tube defects, Grant, Operating
Clinical Research Project?: No

Funding Sources:

2011/10 - 2016/9 Canadian Institutes of Health Research (CIHR)
Open Competition
Total Funding - 730,740 (Canadian dollar)
Portion of Funding Received - 730,740 (Canadian dollar)
Funding Competitive?: Yes

Principal Investigator : Philippe Gros

2011/4 - 2015/12
Principal Investigator
Genetic determinants of susceptbility to mycobacterial infections, Grant, Operating
Clinical Research Project?: No

Funding Sources:

2011/4 - 2015/12 National Institutes of Health (NIH) (USA)
RO1 Investigator initiated research
Total Funding - 886,550 (Canadian dollar)
Portion of Funding Received - 886,550 (Canadian dollar)
Funding Competitive?: Yes

Principal Investigator : "Philippe Gros"

2013/12 - 2014/12
Principal Applicant
The validation and role of USP15 in neuroinflammation and identification and partial optimization of small molecules modulators

Funding Sources:

2013/12 - 2014/12 Amorchem LLP
Discovery
Total Funding - 430,000 (Canadian dollar)
Funding Competitive?: Yes

2008/9 - 2013/8
Co-investigator
CIHR Team in ENU mutagenesis and infectious diseases P. Gros portion (150k/y), Grant, Operating
Clinical Research Project?: No

Funding Sources:

2008/9 - 2013/8 Canadian Institutes of Health Research (CIHR)
team grant
Total Funding - 4,600,000 (Canadian dollar)
Portion of Funding Received - 750,000 (Canadian dollar)
Funding Competitive?: Yes

Co-applicant : Vidal, S. et al. and 5 co-applicants

2010/9 - 2012/9
Co-investigator
Genetic control of susceptibility to colon cancer development, Grant, Operating
Clinical Research Project?: No

Funding Sources:

2010/9 - 2012/9 Cancer Research Society (The)
Operating Grants
Total Funding - 120,000 (Canadian dollar)
Portion of Funding Received - 60,000 (Canadian dollar)
Funding Competitive?: Yes

Principal Investigator : Beauchemin, Nicole (P. Gros portion is $30K/y);"Nicole Beauchemin; Philippe Gros"

Completed [n=10]

2008/4 - 2011/4
Co-investigator
Genetic Dissection of Host Response Against Respiratory Virus Infections in Recombinant Congenic P. Gros portion (40k/y), Grant, Operating
Clinical Research Project?: No

Funding Sources:

2008/4 - 2011/4 Canadian Institutes of Health Research (CIHR)
Operating Grant Priority Competition
Total Funding - 600,000 (Canadian dollar)
Portion of Funding Received - 50,000 (Canadian dollar)
Funding Competitive?: Yes

Principal Investigator : Skamene, Emil;Silvia Vidal; Anny Fortin; Philippe Gros"

2006/5 - 2011/3
Principal Investigator
Genetic determinants of suceptibility to blood-stage malaria, Grant, Operating
Clinical Research Project?: No

Funding Sources:

2006/5 - 2011/3 Canadian Institutes of Health Research (CIHR)
Operating grant
Total Funding - 711,000 (Canadian dollar)
Portion of Funding Received - 711,000 (Canadian dollar)
Funding Competitive?: Yes
Funding Reference Number: MOP79343

Principal Investigator : Gros, Philippe; M. M. Stevenson

2006/4 - 2011/3
Co-investigator
CIHR Team Grant in Fungal Pathogenesis P. Gros portion (86k/y), Grant, Operating
Clinical Research Project?: No

Funding Sources:

2006/4 - 2011/3 Canadian Institutes of Health Research (CIHR)
Team grants
Total Funding - 3,955,000 (Canadian dollar)
Portion of Funding Received - 430,000 (Canadian dollar)
Funding Competitive?: Yes
Funding Reference Number: CTP 79843

Co-applicant : Raymond, M. and 8 co-applicants

2006/5 - 2011/3
Principal Investigator

Role of Vangl proteins in neural tube defects and other aspects of development, Grant, Operating
Clinical Research Project?: No

Funding Sources:

2006/5 - 2011/3 Canadian Institutes of Health Research (CIHR)
Operating Grant
Total Funding - 658,000 (Canadian dollar)
Portion of Funding Received - 658,000 (Canadian dollar)
Funding Competitive?: Yes
Funding Reference Number: MOP13425

Principal Investigator : Gros, Philippe;"Philippe Gros"

2010/10 - 2011/3
Principal Investigator

Genetic determinants of susceptibility to mycobacterial infections, Grant, Operating
Clinical Research Project?: No

Funding Sources:

2010/10 - 2011/3 Canadian Institutes of Health Research (CIHR)
Operating grant
Total Funding - 80,000 (Canadian dollar)
Portion of Funding Received - 80,000 (Canadian dollar)
Funding Competitive?: Yes

Principal Investigator : Bridge funding for NIH award. 85K for 6 months;"Philippe Gros"

2006/4 - 2011/3
Co-investigator

CIHR Team grant in malaria P. Gros portion (175k/y), Grant, Operating
Clinical Research Project?: No

Funding Sources:

2006/4 - 2011/3 Canadian Institutes of Health Research (CIHR)
Team Grant
Total Funding - 4,360,000 (Canadian dollar)
Portion of Funding Received - 875,000 (Canadian dollar)
Funding Competitive?: Yes
Funding Reference Number: CTP 79842

Co-applicant : Kain, Kevin and 5 co-applicants

2007/7 - 2010/6
Principal Investigator

Genetic control of susceptibility to carcinogen-induced colon cancer, Grant, Operating
Clinical Research Project?: No

Funding Sources:

2007/7 - 2010/6 National Cancer Institute of Canada (NCIC)
Operating
Total Funding - 369,000 (Canadian dollar)
Portion of Funding Received - 180,000 (Canadian dollar)
Funding Competitive?: Yes

Principal Investigator : "P. Gros"

2003/4 - 2010/4
Principal Investigator

James McGill Professor, Fellowship
Clinical Research Project?: No

Funding Sources:

2003/4 - 2010/4 McGill University
James McGill Professor
Total Funding - 105,000 (Canadian dollar)
Portion of Funding Received - 105,000 (Canadian dollar)
Funding Competitive?: Yes

2008/1 - 2009/12
Principal Investigator

Pre-clinical studies of cysteamine as a new anti-malarial drug, Grant, Operating
Clinical Research Project?: No

Funding Sources:

2008/1 - 2009/12 Canadian Institutes of Health Research (CIHR)
POP2
Total Funding - 200,000 (Canadian dollar)
Portion of Funding Received - 200,000 (Canadian dollar)
Funding Competitive?: Yes

Principal Investigator : Philippe Gros; Lisa Mackarecker

2005/4 - 2009/12 Nramp1 in macrophage defenses against infections, Grant, Operating
Principal Investigator Clinical Research Project?: No

Funding Sources:

2005/4 - 2009/12 National Institutes of Health (NIH) (USA)
operating grant
Total Funding - 916,650 (Canadian dollar)
Portion of Funding Received - 916,650 (Canadian dollar)
Funding Competitive?: Yes
Funding Reference Number: AI035237

Principal Investigator : Gros, Philippe;"P. Gros"

Student/Postdoctoral Supervision

Principal Supervisor Christian Gualtieri, Master's Thesis (In Progress) , McGill University
Student Degree Start Date: 2014/6
Student Degree Expected Date: 2016/6
Project Description: Effect of loss of function of Bpgm1 on susceptibility to blood-stage malaria

Principal Supervisor Maria Polyak, Research Associate (Completed) , McGill University
Student Degree Start Date: 2014/3
Project Description: Role of USP15 in regulation of type I interferon response

Principal Supervisor Jean-Frederic Olivier, Master's Thesis (In Progress) , McGill University
Student Degree Start Date: 2013/9
Project Description: Characterization of the CCDC88B protein and its role in inflammation

Principal Supervisor Nassima Fodil, Post-doctorate (In Progress) , McGill University
Student Degree Start Date: 2013/7
Project Description: Characterization of USP15 as a novel target for anti-inflammatory drug discovery

Principal Supervisor Rebekah Van Bruggen, Master's Thesis (In Progress) , McGill University
Student Degree Start Date: 2012/1
Project Description: Gene discovery in acute inflammatory conditions

Principal Supervisor Kennedy James, Doctorate (In Progress) , McGill University
Student Degree Start Date: 2011/8
Project Description: Identification of host genes underlying acute inflammation

Principal Supervisor David Langlais,, Post-doctorate (In Progress) , McGill University
Student Degree Start Date: 2011/6
Project Description: Transcriptional regulation by IRF1, IRF8 and PU.1

Principal Supervisor Vicki Leung, Doctorate (In Progress) , McGill University
Student Degree Start Date: 2011/3
Project Description: Study of Vangl2 in retinal development

Principal Supervisor Sebastien Faucher, Post-doctorate (Completed) , McGill University
Student Degree Start Date: 2010/6
Student Degree Received Date: 2011/7
Project Description: Novel protective genetic effects in cerebral malaria
Present Position: Assistant Professor, McGill University

Student Recognitions

00000000000000000000000014003151

Principal Supervisor Sabrina Torre,, Doctorate (In Progress) , McGill University
Student Degree Start Date: 2009/9
Project Description: ENU mutagenesis screen for resistance to cerebral malaria

Principal Supervisor Lauren Vanderkraak, Doctorate (In Progress) , McGill University
Student Degree Start Date: 2008/9
Project Description: Genetic control of susceptibility to colitis associated colorectal cancer

Principal Supervisor Kanny Diallo,, Master's Thesis (Completed) , NGO, Bamako
Student Degree Start Date: 2008/9
Student Degree Received Date: 2010/12
Project Description: Transcriptional response of macrophages to intracellular infections
Present Position: Public Health Worker

Principal Supervisor Aurelie Laroque,, Doctorate (In Progress) , McGill University
Student Degree Start Date: 2008/1
Project Description: Positional cloning of the Char10 malaria susceptibility locus

Principal Supervisor Sandra Salem, Doctorate (In Progress) , McGill University
Student Degree Start Date: 2007/9
Project Description: Role of IRF1 and IRF8 in acute mycobacteriosis

Principal Supervisor Alexandra Iliescu,, Doctorate (In Progress) , McGill University
Student Degree Start Date: 2007/1
Project Description: Functional characterization of Vangl1 variants found in spina bifida patients

Principal Supervisor Oksana Kapoustina,, Master's Thesis (Completed) , McGill University
Student Degree Start Date: 2007/1
Student Degree Received Date: 2009/7
Project Description: Identification of moelcualr targets of ICSBP1
Present Position: Graduate studies in Nursing, McGill University

Principal Supervisor Irena Radovanovic, Doctorate (In Progress) , McGill University
Student Degree Start Date: 2006/9
Project Description: Genetic control of susceptibility to Candida albicans

Principal Supervisor Dien Liu,, Master's Thesis (Completed) , McGill University
Student Degree Start Date: 2006/9
Student Degree Received Date: 2008/9
Project Description: Identification of Transciptional targets of Icsbp1/IRF8 in leukemic cells
Present Position: Dentistry

Principal Supervisor Charles Meunier, Doctorate (Completed) , McGill University
Student Degree Start Date: 2004/6
Student Degree Received Date: 2011/12
Project Description: Genetic control of susceptibility to chemically-induced colon cancer
Present Position: Post-doctoral fellow, Netherlands

Principal Supervisor	Jean-Francois Marquis,, Post-doctorate (Completed) , Vertex Student Degree Start Date: 2004/3 Student Degree Received Date: 2011/2 Project Description: Role of Trl3 and Trl4 in susceptibility to pulmonary tuberculosis in mice Present Position: Research Director
Principal Supervisor	Gundula Min-oo,, Doctorate (Completed) , UCSF Student Degree Start Date: 2002/9 Student Degree Received Date: 2009/7 Project Description: Genetic regulation of reticulocytosis and susceptibility to malaria Present Position: Post-doctoral fellow
	Student Recognitions 00000000000000000000000014003151
Principal Supervisor	Anne Fortier,, Doctorate (Completed) , Vertex Inc. Student Degree Start Date: 2002/9 Student Degree Received Date: 2009/7 Project Description: Role of Naip proteins in Legionella infection Present Position: Senior scientist
Principal Supervisor	Isabelle Carrier,, Doctorate (Completed) , Ladis Davis RI Student Degree Start Date: 1998/9 Student Degree Received Date: 2008/9 Project Description: Purification of P-glycoprotein mutants from Pichia pastoris Present Position: Research Associate
2014/4 Principal Supervisor	Christian Gualtieri, Master's Thesis (In Progress) , McGill University Student Degree Start Date: 2014/4 Student Canadian Residency Status: Canadian Citizen Thesis/Project Title: Role of Human PKLR variants in susceptibility to malaria Project Description: The project aims to study the role of naturally occuring variants in the enzyme pyruvate kinase in the the susceptibility of humans (Thai and Senegalese cohorts) to blood stage malaria.
2014/1 Principal Supervisor	Neda Moradin, Post-doctorate (In Progress) , McGill University Student Degree Start Date: 2014/1 Student Canadian Residency Status: Permanent Resident Thesis/Project Title: Role of the CCDC88B protein in intestinal colitis Project Description: To study the role of the CCDC88B gene in pathological inflammation of the intestine, and to understand its protective effect against inflammation at the cellular and molecular levels.
2008/1 - 2013/1 Principal Supervisor	Silayuv Bongfen,, Post-doctorate (Completed) , McGill University Student Degree Start Date: 2008/1 Student Degree Received Date: 2013/1 Project Description: Genetic control of susceptibility to cerebral malaria
2005/9 - 2012/4 Principal Supervisor	Johanne Berghout,, Doctorate (Completed) , McGill University Student Degree Start Date: 2005/9 Student Degree Received Date: 2012/4 Project Description: Genetic control of susceptibility to Plamodium berghei

Staff Supervision

Number of Scientific and Technical Staff: 8

Number of Visiting Researchers: 2

Mentoring Activities

2012/6 - 2012/7 — Mentor, Government of France
Number of Mentorees: 1
Exchange program for a "stage en Entreprise". This program aims at introducing high school students to different work environment. My laboratory provided a research environment for this program.

2012/1 - 2012/2 — Mentor, McGill University
Number of Mentorees: 2
Gene researchers for a week program. Mentoring of two high school students during a one week stay in the lab, sponsored by the Canadian Gene Cure Foundation. Introduced high school students to life in a research laboratory and organized a small research project for them.

2010/9 - 2010/11 — Mentor, University of Antioquia
Number of Mentorees: 1
Foreign exchange program. Quebec-Mexico partnership program. Trainee a Ph. D. student on modern laboratory techniques in genomics. Organized knowledge and technology transfer between McGill and the University of Antioquia.

Community and Volunteer Activities

2008/1 — Senior Editor, Genes and Immunity
Acted as Editor of the journal

2008/1 — Advisory Editor, The Journal of Experimental Medicine
Acted as Advisory Editor of the journal

2008/1 — Editorial Board Member, Mammalian Genome
Acted as Editorial Board of the Journal

2008/2 - 2012/7 — Board Member, Canadian Gene Cure Foundation
Participated in all activities of the Board; Acted as reviewer for CGCF funding program

2008/1 - 2011/9 — Institute Advisory Board Member, Canadian Institutes for Health Research
CIHR, Institute of Genetics. Participated in all activities of the Advisory Board

2009/1 - 2010/11 — Scientific Reviewer, Bill and Melinda Gates Foundation
Scientific Reviewer; Grand Challenges Discovery Program

2008/1 - 2010/8 — Advisory Committee Member, Burroughs Wellcome Fund
Acted as advisor and reviewer for Investigator in Microbial Pathogenesis program

Knowledge and Technology Translation

2008/4

Organizer, Community Engagement
Group/Organization/Business Serviced: Canadian Genetic Community
Target Stakeholder: Academic Personnel
Outcome / Deliverable: Organize the 1st, 2nd, 3rd, 4th and 5th Annual Canadian Human Genetics Conference (CHGC). Provide a learning environment and facilitating dissemination of research results in all aspects of genetic research in Canada. Create an interactive networking environment for students, investigators, funding partners, and charitable organization.
Evidence of Uptake/Impact: Continued participation of >200 trainees, researchers and other stakeholders in all aspects of genetic research in Canada over a period of 5 years so far.
References / Citations / Web Sites: 1st CHGC, St-Sauveur, April 9-12, 2008; 2nd CHGC, Harrison Springs, May 24-27, 2009; 3rd CHGC, St-Sauveur, April 18-21, 2009; 4th CHGC, Banff, April 26-29, 2011; 5th CHGC, Niagara, April 29-30, 2012
Activity Description: All aspects of conference organization; Selected topics, coordinate activities of the organizing committee (with other members), invited speakers, organized sessions, selected abstracts for poster or oral presentations, evaluated abstracts and presentations for awards, raised funds for conference.

International Collaboration Activities

2012-01-11

CollaboratorBelgium
We collaborate with Dr. Michel Georges of the Universite de Liege on the study of genes that pre-dispose to chronic inflammatory conditions, in particular inflammatory bowel disease. In particular, we are testing whether genes discovered in our genome-wide screen for response to acute neuro-inflammation are affected in large European cohorts of IBD patients.

2011-03-01

Collaborator, France
Dr. Anavaj Sakuntabhai is an expert clinical epidemiologist who works on the genetic determinants that control the intensity of asymptomatic malaria infection in humans. We are collaborating with Dr. Sakuntabhai to determine if, as we have discovered in mouse, variants in the human pyruvate kinase gene are associated with differential response to blood-stage malaria.

2009-10-01

Collaborator, United Kingdom
We collaborate with Dr. Sophie Hambleton from the University of Newcastle on the study of IRF8 in primary immunodeficiencies that affect dendritic cells of the human system. More specifically, we are investigating how mutations in IRF8 affect the ability of the immune to develop normally, including the production of function dendritic cells that are required for effective protection against mycobacterial infections.

2008-07-01

Collaborator, France
Collaboration with Prof Casanova at Hopital Neckers in Paris, and now at Rockefeller University to study genetic determinants of suceptibility to mycobacterial infections in humans. Dr. Casanova has collected over 500 patients suffering from Mendelian Susceptibility to Mycobacterial Infections, and we are currently investigating the possibility that genes that we have discovered in the mouse as being important for host responses to these infections are altered in human patients suffering from MSMD

Presentations

1. (2014). Gene discovery in mouse models of neuroinflammation. Fudan University, Shanghai, Shanghai, China
   Main Audience: Decision Maker
   Invited?: Yes

2. (2014). Gene Discovery in Neuroinflammation. Genentech Inc, San Francisco, United States
Main Audience: Knowledge User
Invited?: Yes

3. (2014). Genome-Wide Discovery of Novel Targets for Anti-Inflammatory Drug Discovery. Johnson and Johnson Innovation Group, Boston, United States
Main Audience: Knowledge User
Invited?: Yes

4. (2014). Gene discovery in neuroinflammation. Annual Meeting of the Henry Kunkel Society, Rockefeller University, New York, NY, USA, United States
Main Audience: General Public
Invited?: Yes

5. (2014). IRF8: Genetic studies of pro-inflammatory functions in myeloid cells. Keystone Symposium; Molecular Cell Biology of Macrophages in Human Diseases, Santa Fe, NM,, Santa Fe, United States
Main Audience: Researcher
Invited?: Yes

6. (2013). Genetic control of susceptibility to infections: IRF8 and beyond. University of Western Ontario, Robarts Institute, London, Canada
Main Audience: Knowledge User
Invited?: Yes

7. (2013). Genetic control of susceptibility to infections: IRF8 and beyond. Hospital for Sick Children, Toronto, Canada
Main Audience: Researcher
Invited?: Yes

8. (2013). The use of mouse models to study single gene contributions in complex human diseases. Fifth Paris Workshop in Genetic Epidemiology, Paris, France
Main Audience: Researcher
Invited?: Yes

9. (2013). Analysis of host:pathogen interactions using the mouse as a model for simple and for complex traits. Departmental seminar, Anatomy and Cell Biology, McGill University, Montreal, Canada
Main Audience: Researcher
Invited?: Yes

10. (2013). USP15 as a novel target for anti-inflammatory drug discovery. Amorchem venture capital group (LLP) seminar, Montreal, Canada
Main Audience: Knowledge User
Invited?: Yes

11. (2013). Genetic control of susceptibility to infections: IRF8 and beyond. King’s College, London, UK. Dr. F. Geissman, London, United Kingdom
Main Audience: Researcher
Invited?: Yes

12. (2013). Genetic analysis of host pathogen interactions using the mouse model to study human complex traits. GIGA Institute, Liege, Belgium
Main Audience: Researcher
Invited?: Yes

13. (2013). Genetic control of susceptibility to infections: IRF8 and beyond. Centre D’Immunologie Marseilles Luminy (CIML). Dr. E. Vivier, Marseilles, France
Main Audience: Researcher
Invited?: Yes

14. (2012). Human dendritic cell immunodeficiency. Annual Symposium on Primary Immunodeficiency Diseases, Newport Beach, United States
Main Audience: Knowledge User
Invited?: Yes

15. (2012). IRF8 deficiency and susceptibility to infection with mycobacteria. • Montreal Symposium on Novel Therapeutic Avenues in Tuberculosis, Montreal, Canada
Main Audience: Researcher
Invited?: Yes

16. (2012). Genetic control of susceptibility to infections: from moouse to man. Department of Physiology, University of California in Los Angeles. Inited by Dr. HR Kaback., United States
Main Audience: Researcher
Invited?: Yes

17. (2012). Susceptibility to Mycobacterial Infections: IRF8 and Beyond. Infectious Diseases Society of America; “Advancing science, improving care”, San Diego, United States
Main Audience: Researcher
Invited?: Yes

18. (2012). Genetic analysis of carcinogen-induced colorectal cancer in mice. Cancer and Development Graduate Research Symposium, St.John, Canada
Main Audience: Researcher

19. (2012). Novel targets and Platform the anti-inflammatory drug discovery. The crossroad for Biotransfer, Montreal, Canada
Main Audience: Knowledge User

20. (2012). Role of IRF transcriptional regulators in response to infection and in acute inflammation. New perspectives on Immunity to Infections, Heidelberg, Germany
Main Audience: Researcher

21. (2012). Novel cysteamine-artemisinin combination for the treatment of blood-stage malaria.. Dafra Pharma Scientific Advisory Board Meeting, Turnhout, Belgium, Belgium
Main Audience: Knowledge User

    Funding Sources: CIHR - MOP-79343

22. (2012). Genetic control of susceptibility to malaria: from mice to humans: Are mouse models useful to understand Human conditions?. Annual Meeting, Reseau des Maladies Genetiques Appliques, Mont-Tremblant, Canada
Main Audience: Researcher

23. (2012). Genetic Effects in Infectious Diseases: from Mouse to Human. Annual Canadian Genetics and Statistical Genetics Conference, Niagara on the Lake, Canada
Main Audience: Researcher

24. (2012). Host Genetic Resistance to Mycobacterial Infections: The Case of Mycobacterium tuberculosis. ASM Biodefenses and Emerging Diseases Research Meeting, Bethesda, United States
Main Audience: Researcher

25. (2012). Genetic effects in susceptibility to intracellular pathogens: Genome-wide screen in ENU-mutagenized mice. Genome Quebec, and McGill University Innovation Center annual retreat, Montreal, Canada
Main Audience: Researcher

26. (2011). Role of IRF8 in Inflammation, Innate Immunity and Myeloid Development. Public Health Research Institute, Nutley, United States
Main Audience: Researcher

27. (2011). IRF8 Deficiency: from mice to humans. Montreal Children Hospital Research Institute, Montreal, Canada
Main Audience: Researcher

28. (2011). Forward genetic dissection of early responses to pathogens: IRF8 and beyond. Third Genetic Conference on Host Genetic Control of Infectious Diseases, Paris, France
Main Audience: Researcher

29. (2011). Genetic analysis of susceptibility to carcinogen-induced colorectal cancer in mice. International Symposium on Angiogenesis and Metastasis, Montreal, Canada
Main Audience: Researcher

30. (2011). Role of IRF8 in myeloid development and resistance to infections: from mice to humans. University of Toronto, Microbiology Research Day, Toronto, Canada
Main Audience: Researcher

31. (2011). Role of IRF8 in myeloid development and resistance to infections: from mice to humans. Rockefeller University, New York, United States
Main Audience: Researcher

32. (2011). IRF8 Deficiency. World Immunology Conference: A Global Get-Together, New York, United States
Main Audience: Researcher

33. (2011). IRF8 deficiency. Symposium on Genetics and Infectious Diseases, Montreal, Canada
Main Audience: Researcher

34. (2011). Genetic control of susceptibility to infections: From mice to humans. Retraite scientifique du Centre de recherche du CHU Sainte-Justine, St-Adele, Canada
Main Audience: Researcher

35. (2011). Forward Genetic Dissection of Early Innate Responses to Pathogens in Mice: IRF8 and Beyond. Keystone Symposium: Tuberculosis, Vancouver, Canada
Main Audience: Researcher

36. (2010). Genetic Effects in Malaria: from Mice to Humans. University of Chicago, Department of Immunology, Chicago, United States
Main Audience: Researcher

37. (2010). High Throughput Screen for Protective Mutations in the Plasmodium berghei ANKA Mouse Model of Cerebral Malaria. American Society of Tropical Medicine and Hygiene, Annual Meeting, Atlanta, United States
Main Audience: Knowledge User

38. (2010). Genetic Control of Susceptibility to Malaria: from Mice to Humans. Institut de Recherche en Immunologie et Cancer, Montreal, Canada
Main Audience: Researcher

39. (2010). Forward Genetic Dissection of Early Innate Responses to Pathogens in Mice: IRF8 and Beyond. 24th Annual Meeting of the European Macrophage and Dendritic Cell Society, Edinburgh, United Kingdom
Main Audience: Researcher

40. (2010). Forward Genetic Dissection of Early Innate Responses to Pathogens in Mice: IRF8 and Beyond. Meakins Christie Laboratories, Chest Hospital, MUHC, Montreal, Canada
Main Audience: Researcher

41. (2010). Genetic effects in Malaria and Tuberculosis: from Mice to Humans. Lady Davis Research Institute; Jewish General Hospital, Montreal, Canada
Main Audience: Researcher

42. (2010). Genetic control of susceptibility to malaria: from mice to humans: Are mouse models useful to understand Human conditions?. Reseau de Medecine Genetique du Quebec, Scientific retreat, Montreal, Canada
Main Audience: Researcher

43. (2010). Genetic analysis of host response to the Plasmodium parasite. Department of Microbiology, McGill University, Montreal, Canada
Main Audience: Researcher

44. (2010). Genetic determinants of neural tube defects: Role of the Vangl gene family in spina bifida. Department of Physiology, McGill University, Montreal, Canada
Main Audience: Researcher

Broadcast Interviews

2010-08-02 Personalite de la Semaine. This follows awarding of the Prix Wilder Penfield from the Prix Du Quebec, RDI En Direct, CBC

Text Interviews

2012-05-29 Licensing of a novel technology to improve the treatment of malaria. The technology is patented by Dr. P. Gros at McGill University and was licensed by a company (Raptor) for pre-clinical and clinical development., Was meant to the general public to inform of potential novel treatment opportunities for malaria. http://money.cnn.com/news/newsfeeds/articles/globenewswire/257383htm

Funding Sources: Canadian Institutes of Health Research (CIHR) - MOP-79343

2011-05-12 Discovery that mutations in the IRF8 gene cause a severe immunodeficiency in a young infant., Much publicity was made in the media about this discovery. The information was mostly targeted to the general public as the discovery allowed to significantly improve the chances of survival of the young infant affected, through stem cell transplant.

Publications

Journal Articles

1. Fodil-Cornu, N., Moussa, P., Langlais, D., Boivin, G., Di Pietrantonio, T., Blanchette, M., Schurr, E., Gros, P. and Vidal, SM. (2014). Specific dysregulation of IFNg production by natural killer cells confers susceptibility to viral infection. PloS Pathogen.
Co-Author
In Press,
Refereed?: Yes
Number of Contributors: 9

2. Kennedy, JM., Fodil-Cornu, N., Torre, S., Bongfen, SE., Olivier, JF., Leung, V., Meunier, C., Langlais, D., Berghout, J., Langat, P., Schwartzentruber, J., Majewski, J., Lathrop, M., Vidal, SM., and Gros, P. (2014). Ccdc88b Is A Novel Regulator Of Development And Effector Functions Of T Cells And Is Required For Pathological Inflammation. The Journal of Experimental Medicine.
Last Author
Published,
Refereed?: Yes
Number of Contributors: 15

3. Zhang, X., Bogunovic, D., Payelle-Brogard, B., Francois-Newton, V., Speer, SD., Yuan, C., Volpi, S., Li, Z., Sanal, O., Mansouri, D., Tezcan, I., Rice, GI., Chen, G., Mansouri, N., Mahdaviani, SA., Itan, Y., Boisson, B., Okada, S., Zeng, L., Wang, X., Jiang, H., Liu, W., Han, T., Liu, D., Ma, T., Wang, B., Liu, M., Liu, J., Wang, QK., Yalnizoglu, D., Radoshevich, D., UzéG., Gros, P., Rozenberg, F., Zhang, S-Y, Jouanguy, E., Bustamante, J., García-Sastre, A., Abel, L., LebonP., Notarangelo, L., Boisson-Dupuis, S., Crow, YJ., Casanova, JL., and Pellegrini, S. (2014). Intracellular human ISG15 is an IFN-a/b-inducible negative regulator of IFN-a/b amplification and prevents IFN-a/b-mediated auto-inflammation. Nature. Oct 12. doi: 10.1038
Co-Author
Published,
Refereed?: Yes
Number of Contributors: 46

4. Caignard, G., Eva, MM., Van Bruggen, R., Eveleigh, R., Bourque, G., Malo, D., Gros, P., Vidal, SM. (2014). Mouse ENU mutagenesis to understand immunity to infection: Methods, selected examples, and perspectives. Genes. 5(4): 887-925.
Co-Author
Published,
Refereed?: Yes
Number of Contributors: 8

5. Iliescu, A., Gravel, M., Horth, C and Gros, P. (2014). Independent Mutations At Arg181 And Arg274 Of Vangl Proteins That Are Associated With Neural Tube Defects In Humans Decrease Protein Stability And Impair Membrane Targeting. Biochemistry. 53(32): 5356-64.
Last Author
Published,
Refereed?: Yes
Number of Contributors: 4

6. Gros, P. and Belkaid, Y. (2014). Editorial Overview: Host pathogens. Current Opinion in Immunology.
Co-Editor
In Press,
Refereed?: Yes
Number of Contributors: 2

7. Salem, S., Langlais, D., Lefebvre, F., Hambleton, S., Collin, M., Bourque, G., Casanova, J-L and Gros, P. (2014). Human Dendritic Cell Immunodeficiency Mutation IRF8K108E Leads To Loss Of Protein Function And Depletion Of Target Gene Expression. Blood.
Last Author
Published,
Refereed?: Yes
Number of Contributors: 8

8. Rocque, B., Babayeva, S., Li, J., Leung, V., Nezvitsky, L., Cybulsky, A., Gros, P. and Torban, E. (2014). Developmental and postnatal role of the Planar Cell Polarity gene, Vangl2, in morphogenesis and functions of renal glomeruli. J. Amer. Soc. Neprhol. 26
Co-Author,
Refereed?: Yes
Number of Contributors: 8

9. Radovanovic, I., Leung, V., Iliescu, A., Bongfen, S., Mullick, A., Langlais, D. and Gros, P. (2014). Genetic Control of Susceptibility to Candida albicans in SM/J Mice. J Immunol. 193(3): 1290-1300.
Last Author
Published,
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Number of Contributors: 7

10. Salem, S., Gao, C., Li, A., Wang, H., Nguyen-Yamamoto, L., Goltzman, D., Janet E. Henderson, JE. And Gros, P. (2014). Novel Role For Interferon Regulatory Factor 1 (Irf1) In Regulation Of Bone Metabolism. J Cell Mol Med. 18: 1588-1598.
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Number of Contributors: 8

11. Dauphinee SM, Richer E, Eva MM, McIntosh F, Paquet M, Dangoor D, Burkart C, Zhang DE, Gruenheid S, Gros P, Behr M, Malo D. (2014). Contribution of increased ISG15, ISGylation and deregulated type I IFN signaling in Usp18 mutant mice during the course of bacterial infections. Genes and Immunity. May 8,

12. Iliescu A , Gros P. (2014). The intracellular carboxyl terminal domain of Vangl proteins contains plasma membrane targeting signals.. Protein science : a publication of the Protein Society. 53(32): 5356-5364.
Last Author
Published,
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Number of Contributors: 2

13. Meadows DN, Pyzik M, Wu Q, Torre S, Gros P, Vidal SM, Rozen R.. (2014). Increased resistance to malaria in mice with methylenetetrahydrofolate reductase (Mthfr) deficiency suggests a mechanism for selection of the MTHFR 677C>T (c.665C>T) variant.. Human Mutation. 35(5): 594-600. ,

14. Byun M , Ma CS , Akçay A , Pedergnana V , Palendira U , Myoung J , Avery DT , Liu Y , Abhyankar A , Lorenzo L , Schmidt M , Lim HK , Cassar O , Migaud M , Rozenberg F , Canpolat N , Aydogan G , Flecke. (2013). Inherited human OX40 deficiency underlying classic Kaposi sarcoma of childhood.. The Journal of experimental medicine. 210(9),

15. Berghout J , Langlais D , Radovanovic I , Tam M , Macmicking JD , Stevenson MM , Gros P. (2013). Irf8-Regulated Genomic Responses Drive Pathological Inflammation during Cerebral Malaria.. PLoS pathogens. e1003491(7)
Last Author,
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Number of Contributors: 7

16. Torre S , van Bruggen R , Kennedy JM , Berghout J , Bongfen SE , Langat P , Lathrop M , Vidal SM , Gros P. (2013). Susceptibility to lethal cerebral malaria is regulated by epistatic interaction between chromosome 4 (Berr6) and chromosome 1 (Berr7) loci in mice.. Genes and immunity. 14(4): 249-257.
Last Author
Published,
Refereed?: Yes, Open Access?: No
Number of Contributors: 8

17. Salem S , Gros P. (2013). Genetic Determinants of Susceptibility to Mycobacterial Infections: IRF8, A New Kid on the Block.. Advances in experimental medicine and biology. 783: 45-80.
Last Author
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Refereed?: Yes
Number of Contributors: 2

18. Meunier C , Van Der Kraak L , Turbide C , Groulx N , Labouba I , Cingolani P , Blanchette M , Yeretssian G , Mes-Masson AM , Saleh M , Beauchemin N , Gros P. (2013). Positional mapping and candidate gene analysis of the mouse Ccs3 locus that regulates differential susceptibility to carcinogen-induced colorectal cancer.. PloS one. 8(3): e58733.
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Number of Contributors: 11

19. Idaghdour Y , Quinlan J , Goulet JP , Berghout J , Gbeha E , Bruat V , de Malliard T , Grenier JC , Gomez S , Gros P , Rahimy MC , Sanni A , Awadalla P. (2012). Evidence for additive and interaction effects of host genotype and infection in malaria.. Proceedings of the National Academy of Sciences of the United States of America. 109(42): 16786-16793.
Co-Author
Published,
Refereed?: Yes, Open Access?: No
Number of Contributors: 13

20. Bogunovic D , Byun M , Durfee LA , Abhyankar A , Sanal O , Mansouri D , Salem S , Radovanovic I , Grant AV , Adimi P , Mansouri N , Okada S , Bryant VL , Kong XF , Kreins A , Velez MM , Boisson B , K. (2012). Mycobacterial disease and impaired IFN-γ immunity in humans with inherited ISG15 deficiency.. Science (New York, N.Y.). 337(6102): 1684-1688.
Co-Author
Published,
Refereed?: Yes, Open Access?: No
Number of Contributors: 18

21. Laroque A , Min-Oo G , Tam M , Radovanovic I , Stevenson MM , Gros P. (2012). Genetic control of susceptibility to infection with Plasmodium chabaudi chabaudi AS in inbred mouse strains.. Genes and immunity. 13(2): 155-163.
Last Author
Published,
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Number of Contributors: 6

Funding Sources: CIHR - MOP-79343

22. Bongfen SE , Rodrigue-Gervais IG , Berghout J , Torre S , Cingolani P , Wiltshire SA , Leiva-Torres GA , Letourneau L , Sladek R , Blanchette M , Lathrop M , Behr MA , Gruenheid S , Vidal SM , Gros P. (2012). An N-ethyl-N-nitrosourea (ENU)-induced dominant negative mutation in the JAK3 kinase protects against cerebral malaria.. PloS one. 7(2): e31012.
Last Author
Published,
Refereed?: Yes
Number of Contributors: 15

Funding Sources: CIHR - CTP-87520

23. Berghout J , Higgins S , Loucoubar C , Sakuntabhai A , Kain KC , Gros P. (2012). Genetic diversity in human erythrocyte pyruvate kinase.. Genes and immunity. 13(1): 98-102.
Last Author
Published,
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Number of Contributors: 6

Funding Sources: CIHR - MOP-79343

24. Torban E , Iliescu A , Gros P. (2012). An expanding role of Vangl proteins in embryonic development.. Current topics in developmental biology. 101: 237-256.
Last Author
Published,
Refereed?: Yes
Number of Contributors: 3

25. Fortier A , Faucher SP , Diallo K , Gros P. (2011). Global cellular changes induced by Legionella pneumophila infection of bone marrow-derived macrophages.. Immunobiology. 216(12): 1274-85.
Last Author
Published,
Refereed?: Yes
Number of Contributors: 4

Funding Sources: McGill University; James McGill Program - 100723

26. Ramirez-Aquino R , Radovanovic I , Fortin A , Sciutto-Conde E , Fragoso-González G , Gros P , Aguilar-Delfin I. (2011). Identification of loci controlling restriction of parasite growth in experimental Taenia crassiceps cysticercosis.. PLoS neglected tropical diseases. 5(12): e1435.
Last Author,
Refereed?: Yes, Open Access?: No
Number of Contributors: 8

Funding Sources: McGill University. James McGill - 100723

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Intellectual Property

Patents

1. Inflammation-enabling polypeptides and uses thereof cross-reference to related applications. Canada. USA Patent Application No. 61/652,271. 2012-05-28.
Patent Status: In Progress

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2. Method of identification of animals resistant or susceptible to disease such as ruminant Brucellosis, tuberculosis, paratuberculosis, and Salmonellosis. United States. US Patent Application 08/903,139. 1997-07-30.
Patent Status: Completed

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4. DNA sequence that encodes the multi-drug resistance gene. United States. U.S. Patent Number 5,198,344. 1987-08-11.
Patent Status: Completed

5. Combination therapy and uses thereof for treatment and prevention of parasitic infection and disease. Canada. US Patent Application serial 61/159,480. 2009-03-12.
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Licenses

1. Inflammation-enabling polypeptides and uses thereof cross-reference to related applications
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2. Combination therapy and uses thereof for treatment and prevention of parasitic infection and disease
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