



**McGill University**  
**Department of Microbiology and Immunology**

**2017 Annual Report**

**Submitted by**  
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Professor & Interim Chair

**On behalf of:**  
Primary members of the  
Department of Microbiology and Immunology

2017 has been an eventful year for the Department of Microbiology and Immunology (MIMM). A major renovation to the Duff building started in 2017 to upgrade the ventilation in laboratory, office and teaching rooms and which should be completed by the end of 2018. As of the fall semester 2017, MIMM also has shared its teaching labs with the Biology Department who use the labs in the evening and whose own labs in the Stewart Biology Building are presently undergoing renovations. The relocation of the Biology labs went very smoothly showing excellent synergy with the needs from the Faculty of Science. There continues to be an increase enrollment of students at the undergraduate level and the number of graduate students has remained the same.

We are also thankful to Dr. Benoit Cousineau for his thoughtful and excellent stewardship as interim Chair in 2017.

Sadly, the McGill community and Canadian and International Scientific community were all overwhelmed by the passing of Professors Dr. Mark Wainberg and Dr. Zafer Ali-Khan (Emeritus Professor).

## RESEARCH AND PUBLICATIONS

Departmental members continued to produce high-quality journal publications in 2017 and represent our department through participation in speaking engagements both nationally and internationally. Our [22 faculty members](#) authored 70 peer-refereed publications and 71 seminars and conference presentations as keynote, invited, or plenary speakers. The complete list of the 2017 publications can be found on each member's [webpage](#).

## GRANTS

Despite an increasingly difficult Canadian funding environment, departmental members were well-represented in CIHR and NSERC-approved funding projects. Seven new grants were secured in 2017 by core members of the department, with total research funding held by 15 primary MIMM members reaching **3.1M** in 2017. Table 1 summarizes the **major** research grants awarded to Microbiology and Immunology members in 2017.

**Table 1: Research Grants of Faculty Members awarded in 2017**

Name	Agency & Title	Role	Amount/year	Funding Period
<b>Archambault, Jacques</b>	CFI: Single Cell analysis of host factors involved in human papillomavirus genome replication	PI	\$350,000	2017-2018
<b>Fritz, Jörg</b>	FRQ : Étude des mécanismes biologiques et pathologiques de contrôle de l'immunité des muqueuses (salary award)	PI	\$75,024	2017-2021
	CIHR: Consequences of ultraviolet light-induced aryl hydrocarbon receptor signaling on intestinal immunity	PI	\$50,000	2017-2023
<b>Gruenheid, Samantha</b>	FRQNT: Exploitation du microbiome du sol arctique en vue d'identifier de nouveaux bioproduits à fort potentiel industriel	PI	\$54,000	2017-2023
<b>Krawczyk, Connie</b>	Canadian Research Society (CRS): A dual role for PD-L1 expression on dendritic cells and the consequences for anti-tumour immunity.	PI	\$120,000	2017-2019

Name	Agency & Title	Role	Amount/year	Funding Period
<b>Matlashewski, Greg</b>	CIHR: The Genetic Basis for Leishmania Attenuation.	PI	\$145,350	2017-2023
<b>Richer, Martin</b>	CIHR: The impact of host-pathogen interactions on cell-mediated immunity	PI	\$151,470	2017-2023
<b>Sagan, Selena</b>	Anesthesia Patient Safety Foundation (APSF): Can healthcare-associated hepatitis C virus outbreaks occur when intravenous medication vials are accessed with clean needles and syringes for use in multiple patients?	Co-PI	\$75,000	2017-2018
<b>Sheppard, Donald</b>	FRQ: Une meilleure compréhension des interactions entre le champignon et son hôte: une clef pour la mise au point de nouvelles thérapies antifongiques (research allocation)	PI	\$88,900	2017-2021
	CFI – Leaders Opportunity Fund	PI	\$149,000	2017-2022

## UNDERGRADUATE TEACHING AND LEARNING

2017 brought several developments in the MIMM Department with respect to our undergraduate program. Highlights include:

1. **Teaching retreat and development of a roadmap for curriculum changes:** Following the detailed curriculum mapping conducted by Dr. Claire Trottier, a Faculty Teaching Retreat was held in September 2017. With input from the many faculty members present and the student representatives, a roadmap for curriculum updates was built and agreed upon. Highlights of the changes include:
  - a. Creation of a new winter U2 1-credit scientific communication & skillset course
  - b. Creation of a new 6-credit 400 level research course given over 2 terms
  - c. Modifications to the Complementary courses allowable within our undergraduate programs
  - d. Removal of BIOC312 as a required course
  - e. Greater course choice flexibility in the U3 year
  - f. Overall reduction in required credits for the Majors program

Work upon implementing these changes was started in 2017 and completed in 2018 and the changes will be implemented in Fall 2018.

2. **Shared teaching lab space:** We welcomed the Biology Department into the Microbiology Teaching Lab Space starting in Fall 2017, while their own teaching labs were being renovated. This has brought an additional 1057 students to our facilities (502 in Fall 2017 and 555 in Winter 2018), a situation that is expected to last for the next 6-7 years. Everyone involved, from the technical staff to the faculty members and the students, has made considerable efforts to adjust to this new arrangement. While this

has put quite a strain on some of our infrastructure and resources, we have shared information about our teaching practices and processes, and have learned a lot from this close collaboration.

3. **UTLWG submission:** Our Department wrote a successful application (started in 2017, submitted in early 2018) for new equipment to the Undergraduate Teaching Lab Working Group. We struck an ad hoc subcommittee on teaching labs to guide this application, including our colleagues in the Department of Biology. Dr. Trottier and Dr. Gruenheid engaged in extensive consultations and wrote this detailed application. In early 2018, we secured approximately \$500K of funds to purchase new equipment including small centrifuges, microscopes, audio-visual equipment, and central storage tables. This new infrastructure will have a significant impact for our students and their learning.
4. **Contribution to teaching space planning:** Dr. Trottier co-chaired the Basic Science Teaching Space Working Group, which produced a report and recommendations on teaching spaces for the biomedical departments in the Faculty of Medicine. This report was submitted to Vice-Dean Education Annette Majnemer and Dean David Eidelman, and is now being used to guide the work of the Powell Building Committee. The vision presented in the report includes interactive active learning classrooms and a large shared wet teach lab facility that would include MIMM. MIMM undergraduate students participated in consultations for this report.
5. **Contribution to Education Strategic Plan:** The Faculty of Medicine underwent a strategic planning process in 2017, and MIMM contributed to the formulation of this vision. The ESP includes recommendations to implement active learning strategies and evidence-based pedagogy across the Faculty, expanding on the work that has been done in MIMM.
6. **Undergraduate Research Conference:** Three MIMM undergraduate students (the maximum allowable from each department) were selected from 8 interested students to participate in this year's McGill Undergraduate Research Conference. MIMM students Joa Hoshizaki and Lindsay Burns won the 1<sup>st</sup> Prize Medical Science and 2<sup>nd</sup> Prize Biological Sciences, respectively.
7. Clear procedures and guidelines were put in place for Midterm Examination viewing.

#### Enrolment:

Our department saw a significant increase in enrolment in 2017, especially at the U1 level which increased by 14% since 2016 and by 58% since 2013. Overall, our undergraduate population has grown by 10% since 2016, and by 31% since 2013.

Table 2 summarizes the breakdown of the total number of undergraduates by year.

**Table 2: Summary of MIMM Undergraduates by Year**

Level	Fall 2013	Fall 2014	Fall 2015	Fall 2016	Fall 2017
U1	78	103	106	108	123
U2	64	79	84	89	97
U3	103	69	90	96	101
<b>TOTAL</b>	<b>245</b>	<b>251</b>	<b>280</b>	<b>293</b>	<b>321</b>

MIMM continues to see slight increases in enrolment by program. Table 3 summarizes the enrolment by program within the department.

**Table 3: Enrolment by Program within MIMM**

Program	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018
CSC – Liberal	10	7	4	10	6
Major	222	232	257	254	293
Honours	13	12	19	29	22
<b>TOTAL</b>	<b>245</b>	<b>251</b>	<b>280</b>	<b>293</b>	<b>321</b>

**Table 4: Enrolment by Course (by academic year: Fall, Winter & Summer)**

	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017
MIMM 211	219	215	217	230	227
MIMM 212	77	92	105	124	119
MIMM 214	324	335	346	328	307
MIMM 314	170	118	108	112	111
MIMM 323	100	74	74	81	103
MIMM 324	124	102	104	102	115
MIMM 384	N/A	62	N/A	82	99
MIMM 385	N/A	N/A	73	83	94
MIMM 386D1	92	N/A	75	N/A	N/A
MIMM 386D2	92	60	N/A	N/A	N/A
MIMM 387	81	128	136	141	142
MIMM 396F&W	7	15	5	5	14
MIMM 397F&W	12	13	10	14	11
MIMM 413	79	93	74	57	81
MIMM 414	58	53	52	60	64
MIMM 465	83	105	71	66	78
MIMM 466	71	87	62	60	79
MIMM 498	N/A	3	1	N/A	N/A
MIMM 499	1	4	2	1	3
MIMM 501D1	5	6	11	11	15
MIMM 501D2	5	6	11	11	15
MIMM 502D1	10	8	8	8	11
MIMM 502D2	10	8	8	8	11
MIMM 509	13	8	12	12	7
<b>TOTAL</b>	<b>1633</b>	<b>1595</b>	<b>1565</b>	<b>1602</b>	<b>1706</b>

Enrolment numbers in the graduate program remained steady in 2017. Table 5 summarizes the graduate enrolments by program over the last 3 years.

**Table 5: Graduate program enrolment per term**

	2014	2015	2015	2015	2016	2016	2016	2017	2017
	FALL	WINTER	SUMMER	FALL	WINTER	SUMMER	FALL	WINTER	SUMMER
<b>MASTERS</b>	33	31	31	30	27	28	23	26	28
<b>PhD</b>	38	39	37	34	35	37	37	41	41
<b>POSTOCS</b>	15	13	14	14	11	11	10	11	10
<b>TOTAL</b>	<b>86</b>	<b>83</b>	<b>82</b>	<b>78</b>	<b>73</b>	<b>76</b>	<b>70</b>	<b>78</b>	<b>79</b>

Table 6 reviews the total number of graduated students in 2017. The department is proud to have graduated 6 MSc students and 6 PhD students during the AY2017.

**Table 6: Graduated students in the M.Sc. and Ph.D. Programs for 2017**

	2017	2017	2017
	WINTER	SPRING	FALL
<b>MASTERS</b>	1	2	3
<b>PhD</b>	1	0	5
<b>Total</b>	2	2	8

## ADMINISTRATIVE CHANGES

The administration of the MIMM department underwent several changes during 2017.

### Rotation of chairs

Dr. Joaquin Madrenas resigned from his Chair position in August 2016 to take the position of Chief Scientific Officer at Los Angeles Biomedical Research Institute at Harbor-UCLA Medical Center. Faculty, staff members, and technicians were asked to vote on a recommendation for the future interim chair. Dr. Benoit Cousineau received the highest number of votes and accepted to take on the position of interim chair. He started his one-year contract on October 1<sup>st</sup> 2016. During this time, the Faculty of Medicine was proceeding to the search for the permanent chair. Dr. Cousineau extended his contract until December 31<sup>st</sup> 2017. As a result of a difference in the vision of the department between Dr. Cousineau and the Faculty of Medicine, Dr. Cousineau resigned from his position as interim chair, going back to being an Associate Professor, in November 2017. Dr. Greg Matlashewski took over the interim chair position in December 2017.

### New department in the Duff building

The Department of Biology moved into the Duff building in August 2017. The cafeteria on the third floor, C14 and lab D6 were reallocated to them. The MIMM technicians team was requested to provide help with the teaching labs. A total of 1057 new students attended classes and labs in the Duff building, considerable increasing student traffic in the building.

### Administrative team hires

Two new members were hired to be part of the AEC 2:

- Valeria Kochkina: Academic Affairs Administrator (August 2017)
- Matthew Vazquez: Senior Accounts Administrator (October 2017)

### Deaths

In March 2017, the sudden passing of Jessica Yudcovitch, U3 honours students, was a shock to the department. During the month of April 2017, the MIMM community was also devastated by the loss of two Faculty members: Dr. Mark Wainberg and Dr. Zafer Ali-Khan (Emeritus Professor).

## MILESTONES

### **Sabbaticals**

Dr. Samantha Gruenheid (January 1<sup>st</sup> to June 30<sup>th</sup> 2017)

## AWARDS & PRIZES

### **Awards**

- Dr. Selena Sagan received the CRC Tier 2 award
- Dr. Corinne Maurice received:
  - CIFAR Azrieli Global Scholar
  - Canadian Institute for Advanced Research
- Dr. Martin Olivier received the Wardle Medal Canadian Society for Zoology
- Dr. Donald Vinh received:
  - Canada Young Investigator Award
  - Association of Medical Microbiology and Infectious Diseases
- Dr. Mark Wainberg received:
  - Canadian Medical Hall of Fame Member;
  - Gertrude Elion Distinguished
  - Lecturer Award International Society for Antiviral
  - Research Lifetime Achievement Award
  - Association of Medical Microbiology and Infectious Diseases (AMMI) Canada
- Dr. Samantha Gruenheid was awarded the FRQNT team grant (with Lyle Whyte, Lawrence Goodridge and Roger Levesque) for *Novel antibiotics from the arctic soil microbiome*.
- Dr. Martin Richer received a 5-year CIHR project grants for “The impact of host-pathogen interactions on cell-mediated immunity”
- Dr. Greg Matlashewski received a 5-year CIHR project grants for “The genetic basis for *Leishmania* attenuation”
- Dr. Jacques Archambault received a CFI grant for his Single-cell analysis of host factors involved in human papillomavirus genome replication project.
- Dr. Donald Sheppard received a CFI grant for his project on Microbial Glycomics.

The 6<sup>th</sup> MIMM Annual Gala was held on March 31, 2017 at the Cabaret Lion D’Or to celebrate another successful academic year and to wish all the best to the 2017 MIMM graduating class. Awards were presented to:

- Staff Award: Jackie Krebs
- Research Award: Alex Meli
- Primary Teaching Award: Dr. Greg Matlashewski
- Associate Teaching Award: Dr. Dao Nguyen
- Graduate Mentorship Award: Maxime Lemieux
- Best Professorial Anecdote: Dalius Briedis
- Undergraduate Extra-Curricular Student of the Year: Nousin Hussain
- Graduate Extra-Curricular Student of the Year: Marija Landevic
- Undergraduate Athletic Student of the Year: Ben Forestall
- Undergraduate McGill Award: Elena Lin and Liam Whalen-Browne
- Graduate McGill Award: Patrick Lypaczewski
- 3 NTC Writers of the year: Macy Matheson for U1, Shannon Hewgill for U2, Janna Shapiro for U3
- MIMM Mom Award: Connie Krawczyk and Selena Sagan
- MIMM Dad Award: Greg Matlashewski
- MIMM Handy Man: Patrick Lypaczewski

### Student Achievements

- Jamillah Abusarah received the Vanier Graduate Scholarship, \$150,000 for a period of 3 years.
- Winners of Tri-Council CGSM Fellowship:
  - Trisha Rita Barnard
  - Tyler Clarence Cannon
  - Tho-Alfakar Al-Aubodah
- Winners of the Canadian Society for Immunology Meeting:
  - Logan Smith: 1<sup>st</sup> place for Poster Presentation & Travel Award to attend the 30<sup>th</sup> Annual Spring Meeting of the Canadian Society for Immunology.
  - Ryan Pardy: Travel Award to attend the 30<sup>th</sup> Annual Spring Meeting of the Canadian Society for Immunology
- Emma Hignett, represented McGill and MIMM at the U21 Undergraduate Research Conference in Edinburgh, Scotland.
- Jordana Serero won the E.G.D. Murray Prize in Microbiology
- Jahanara Rajwani won the major Hiram Mills Medal
- Ryan Pardy received:
  - Poster award 6th Annual Symposium on Cytokines in Inflammation, Ageing, Cancer and Obesity in Eastman. QC.
  - Doctoral Training Scholarship from the Fonds de Recherche Sante Quebec (FRQS)
- Recipients of the 2017-2018 Wares Family Postdoctoral Award:
  - Marit Orav
  - Mohammadali Khan Mirzaei
  - Yue Li
- Felix LaRoche-Johnston received:
  - The CGSD scholarship awards (\$35,000 a year for a period of 3 years)
  - PhD Fellowship from Fonds de Recherche du Québec – Nature et Technologies (FRQNT)
  - PhD Fellowship from Fonds de Recherche du Québec – Sante (FRQS)



- Poster award at the 2017 RNA Society International Meeting in Prague, Czech Republic
- Graduate Students Research Day:
  - MSc Poster 1st place: Logan Smith
  - MSc Poster 2nd place: Marwan Ghanem
  - PhD Poster 1st place: Roman Istomine
  - PhD Poster 2nd place: Sahar Bagherzadeh
- Christian Dove was awarded:
  - The Friends of McGill Fellowship.
  - The Max Stern Recruitment Award
- Anshul Sinha received the Alexander McFee Fellowship
- Caitlin Schneider received the Max E. Binz Fellowship
- Kaitlin Winter received the Elizabeth Steffen Memorial Fellowship
- Undergraduate Research Day Conference Awards:
  - Joa Hoshizakiwon received the 1<sup>st</sup> prize in the Medical Sciences category
  - Lindsay Burns won 2<sup>nd</sup> prize in the Biological Sciences category
- The W. Yaphe Awards were received by:
  - Kaitlin Anstett (PhD level)
  - Adam Peres (PhD level)
  - Ryan Pardy (MSc)
  - Brendan Cordeiro (MSc)

### Postdoctoral Fellow achievements

- Dr. Robert Scarborough (Supervisor: Dr. Gatignol) was awarded an internal Faculty of Medicine for the September 2017-August 2018 academic year.

### INVOLVEMENT IN THE COMMUNITY

- The MIMM department participated in the McGill24 fundraising campaign. This McGill-wide initiative consists of soliciting potential donors primarily through email messages and social media. The total amount raised by the department was \$685 from nine donors.
- The Microbiome Disease Tolerance Centre (MDTC) held a symposium and an annual general meeting on May 10 2017, at La Plaza Garden Inn.