

RUSSELL S. FRASER, BSC, MSC, DVM

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EDUCATION

- 2012 – Present **Doctor of Philosophy**
Ontario Veterinary College, University of Guelph
Thesis: The role of collagenous lectins in common infectious diseases of horses and cattle
Supervisor: Dr. Brandon Lillie
Note: transferred from DVSc (Anatomic Pathology) 2014/04
- 2012 **Master of Science**, One Health (with First Class Honours)
Royal (Dick) School of Veterinary Studies, University of Edinburgh
Dissertation: The Influence of Charge in the 672 Domain of PB2 on Polymerase Function in Influenza A
Supervisor: Dr. Paul Digard
- 2008 **Doctor of Veterinary Medicine** (with distinction)
Ontario Veterinary College, University of Guelph
- 2004 **Bachelor of Science, Honours** (with distinction)
University of Guelph

SELECTED AWARDS, SCHOLARSHIPS, AND FELLOWSHIPS

- 2017/04/20 Korean-Canadian Dr. F. Schofield Memorial Scholarship (\$2000)
- 2016/12/06 2016 ACVP Young Investigator Award (3rd place) (\$200 USD)
- 2016/09/01 Queen Elizabeth II Scholarship in Science & Technology (\$15,000)
- 2016/05/05 Winner, Oral Presentations (PhD), Swine Research Day (\$200)
- 2015/09/01 Ontario Graduate Scholarship (1 year) (\$15,000)
- 2014 - 2017 Ontario Veterinary College PhD Fellowship (3 years) (\$30,000 / annum)
- 2012 Pfizer Prize for Best Student 2011 – 2012 MSc One Health
- 2012/12 ACVP Resident/Graduate Student Travel Award (\$500 USD)
- 2012/09 6th Orthomyxovirus Research Conference Travel Grant (\$500 USD)
- 2011 Easter Bush Research Consortium and Pfizer Bursary (£4,000 GBP)

RESEARCH EXPERIENCE

2012 – Present

Graduate Student (PhD, DVSc)

Dept. of Pathobiology, University of Guelph

- Applied next-generation sequencing technologies in the investigation of innate immune disease resistance in cattle, horses, and swine (*in progress*).
- Utilized molecular biological techniques, such as PCR, qPCR, DNA and RNA isolation, RFLP, and NGS library preparation.
- Developed strong bioinformatic and data science skills, including the usage of Unix, Perl, Python, R, and various standard bioinformatic software tools (e.g. GATK, Picard, and Samtools) for the manipulation of “big data.”
- Developed a system within our lab for sample organization with MySQL.

2012

Graduate Student (MSc)

Roslin Institute, University of Edinburgh

- Investigated the pathogenesis of influenza A by examining the molecular mechanisms of host adaptation.
- Utilized advanced molecular virology laboratory techniques such as site-directed viral mutagenesis, Western blot, polymerase chain reactions, microscopy, cell culture, virus culture and fitness assays, and DNA sequencing.

2004

Undergraduate Research

Dept. of Biomedical Sciences, University of Guelph

- Ran several long-duration experiments with live rodents on the cardiovascular effects of the hormone relaxin.
- Proficiently handled and medicated small rodents.
- Gained experience harvesting tissue and preparing and examining histological slides for immunofluorescence, and in techniques such as ELISA.

2002

Summer Student

Meakins-Christie Lab, McGill University

- Performed numerous *in vivo* procedures on rats, including bronchoalveolar lavage, anesthesia, and the collection of physiological data.
- Performed immunomagnetic cell sorting and maintained routine cell cultures.

SELECTED CLINICAL EXPERIENCE

- 2012 – Present **Resident in Anatomic Pathology**
Ontario Veterinary College, University of Guelph, Ontario
- Developed strong knowledge of a broad range of animal diseases, relating to their pathophysiology and diagnosis.
 - Performed gross and histopathological postmortem examinations on common domestic species (including enhanced BSL2).
 - Performed histopathological preparation and interpretation of biopsy specimens from the OVC-VTH.
 - Ordered ancillary testing (as appropriate, e.g. bacterial culture, PCR, IHC) to accurately diagnosis animal diseases. Responsible for the interpretation and reporting of the results.
 - Obtained proficiency using a LIMS.
- 2009 – 2011 **Associate Veterinarian**
Animal Health Clinic, Montreal, Québec
- Confidently practiced small animal medicine, including surgery, internal medicine, radiology, critical care and emergency medicine, and cytology.
 - Emphasis placed on clear communication skills with clients and staff.
 - Directed animal health technicians and kennel staff.
- 2008 – 2009 **Associate Veterinarian**
Sechelt Animal Hospital, Sechelt, B.C.
- Examined, diagnosed and treated a variety of medical and surgical conditions of dogs and cats, with emphasis on compassionate and high quality care.
 - Improved on both routine and emergency soft-tissue surgical skills.
 - Provided 24 hour emergency service for the lower Sunshine Coast Regional District.
 - Continued developing strong communication skills, both with clients and staff, in order to better provide and direct medical care.

TEACHING EXPERIENCE

- 2018/02/06 Guest Lecturer, BIOM*6800, University of Guelph
- 2017/10/04 Guest Lecturer, ANSC*3080, University of Guelph
- 2017/03 Lecturer, PABI*6104, University of Guelph
- 2017/01 – 2017/04 Graduate Teaching Assistant, PATH*3610, University of Guelph
- 2016 Supervisor, E. MacMillen (2nd year DVM summer student)
- 2012 – Present Resident in Anatomic Pathology (supervised DVM students in PM)
- 2014 Supervisor, K. Dienst (undergraduate summer student)
- 2014 – 2016 Graduate Teaching Assistant, PATH*3610, University of Guelph
- 2013 Supervisor, K. Reynolds (undergraduate summer student)

PUBLICATIONS

Journal Publications

Fraser, RS, Arroyo, LG, Meyer, A, Lillie, BN. Identification of genetic variation in equine collagenous lectins using targeted resequencing. *Vet Immunol and Immunopathol (under review)*.

Snyman, HN, **Fraser, RS**, Meyer, A, Hammermueller, JD, Squires, EJ, Caswell, JL, Hayes, MA, Lillie, BN. Constitutive variation in the hepatic innate immunome of healthy pigs. *Immunobiology (under review)*.

Wills, S, Beaufreres, H, Brisson, B, **Fraser, RS**, Smith, DA. Pancreatitis and systemic coronavirus infection in a ferret (*Mustela putorius furo*). *Comparative Medicine (in press)*.

Isogai S, Athiviraham A, **Fraser R**, Taha R, Hamid Q, Martin J (2007). Interferon- γ -dependent inhibition of late allergic airway responses and eosinophilia by CD8⁺ $\gamma\delta$ T-cells. *Immunology* 122:230-8.

Silvertown JD, **Fraser R**, Poterski RS, Geddes B, Summerlee AJS (2005). Central Effects of Long-Term Relaxin Expression in the Rat. *Ann. N.Y. Acad. Sci.* 1041:1-7.

Journal Publications (*in preparation*)

Fraser, RS, Meyer, A, Snyman, HN, Hayes, MA, Lillie, BN. Identification and frequency of local expression quantitative trait loci in the innate immunome of diseased and healthy pigs. *In preparation for submission to Animal Genetics*.

Fraser, RS, Lumsden, JS, Lillie, BN. Identification of polymorphisms in the bovine collagenous lectins and their association with infectious diseases in cattle. *In preparation*.

Textbook Chapters

Prescott, JF, Menzies, PI, **Fraser, RS**, Clostridial abomasitis. In: Uzal, F, Songer, JG, Popoff, M, Prescott, JF. Clostridial infections of animals. Wiley-Blackwell (2016).

Conference Presentations & Abstracts

Available on request.

NON-PEER REVIEWED PUBLICATIONS

Pors, J, **Fraser, RS**, Fraser, RS (2017). Duncan McEachern and the One Health movement. The Pharos 80:12-19. Online access: <http://alphaomegaalpha.org/pharos/2017/Summer/2017-3-CompleteIssue.pdf>

Fraser, RS. (2012). The strange future of antibiotics. Wellcome Trust Science Writing Prize. <https://blog.wellcome.ac.uk/2012/11/29/the-strange-future-of-antibiotics/>. Last accessed: 2017-09-26.

ACADEMIC COMMUNITY INVOLVEMENT

2017/03/01	Supervised a joint effort by the OVC Pathology Club and OTS Fraternity to provide additional pathology training to Phase I DVM students.
2016	Aided in a pathology wet lab for students at the 2016 SCVMA
2013 – 2016	Participated as a judge for the SLRP/CORE program at OVC
2013 – 2017	Interviewer in the multiple mini interviews for incoming DVM students
2013 – 2016	Demonstrated postmortem examinations for 1 st year DVM students
2014	Judge, Faculty 3-Minute Thesis Competition
2013	Provided expertise for a published case report by E. Denstedt (PMID: 24489399)
2013, 2014, 2016, 2017	Judge, oral presentations, Graduate Student Research Symposium, OVC

ADMINISTRATIVE EXPERIENCE

2015 – 2016	Graduate Student Representative, Dept. of Pathobiology Faculty Meetings
2007 – 2008	CVSA Representative, Information Technology Student Advisory Committee, University of Guelph
2005 – 2008	Technical Director, Central Veterinary Students Association

PROFESSIONAL QUALIFICATIONS

2017/03/16	ACVP, Phase I
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LANGUAGE COMPETENCIES

English: Fluent written and oral
French: Average written and oral

SELECTED MEMBERSHIPS

2016 – Present	International Society for Animal Genetics
2012 – Present	College of Veterinarians of Ontario
2009 – 2011	Ordre des Médecins Vétérinaire du Québec
2008 – 2009	College of Veterinarians of British Columbia

COMMUNITY INVOLVEMENT

2016 – 2017	Member of a support group for a Syrian refugee family.
2015 – 2017	Scout Leader with the 2 nd Guelph Cubs