

GABRIEL G. PERRON

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ACADEMIC EMPLOYMENTS

Bard College, Annandale-On-Hudson, NY.
Assistant Professor of Biology, 2015 – present.

University of Ottawa, Ottawa, ON.
Banting Postdoctoral Fellow, 2013 – 2014.

Harvard University, Cambridge, MA.
FQRNT Postdoctoral Research Fellow, 2010 – 2012.

EDUCATION

University of Oxford, Oxford, UK.
Doctor of Philosophy (DPhil), Zoology. 2006 – 2010.

McGill University, Montréal, QC.
Master of Science (M.Sc. Dean's Honor List). Biology. 2004 – 2006.
Bachelor of Science (B.Sc.), Biology. 2001 – 2004.

OTHER ACADEMIC POSITIONS

Bard College, Annandale-on-Hudson, NY.
Visiting Research Fellow, Summer 2013.

Imperial College London, Silwood Park, UK.
Visiting Research Fellow, 2009 – 2010.

HONORS AND AWARDS

Banting Postdoctoral Fellowship, Natural Sciences and Engineering Research Council of Canada, Ottawa, ON. 2013.

Canadian National Award of Linacre College, Linacre College, Oxford, UK. 2007.

FUNDING, FELLOWSHIPS, & SCHOLARSHIPS

- Postdoctoral Fellowship**, Banting program of the Natural Sciences and Engineering Research Council of Canada, Ottawa, ON. 2013 – present.
- Postdoctoral Fellowship**, Fonds de Recherche du Québec, Québec city, QC. 2010 – 2012.
- Long-term Postdoctoral Fellowship**. EMBO, Heidelberg, DE. 2010 – 2012. (*Declined*).
- Visiting Fellowship**. Natural Environment Research Council Centre for Population Biology, Silwood Park, UK. 2010.
- Postgraduate Scholarship (PGS-D)**. Natural Sciences and Engineering Research Council of Canada, Ottawa, ON. 2007 – 2010. (*Declined 2010*).
- Doctoral Scholarship**. Fonds Quebecois sur la Recherche, Québec city, QC. 2006 – 2009 (*Declined 2007-2009*).
- Clarendon Fund Scholarship**, University of Oxford, Oxford, UK. 2006 – 2009.
- Undergraduate Bursary**. Royal Tyrrell Museum, Drumheller, AB. 2002.

GRANTS

- NERC International Opportunity Funds (NE/L013177/1)**. Role: named international partner; Natural Environment Research Council, Swindon, UK. 2014-2016

PEER-REVIEWED PUBLICATIONS (CITATIONS >665, H-INDEX = 13)

- (16) **Perron GG**, Whyte L, Turnbaugh PJ, Hanage WP, Dantas G, & Desai MM. (2014). “Functional characterization of bacteria isolated from ancient Arctic soil exposes diverse resistance mechanisms to modern antibiotics”. *PLoS ONE* –in press.
- (15) Kemp MW, Lazarus BM, **Perron GG**, Hanage WP, & Chapman E. (2014). Biomedical Ph.D students enrolled in two elite universities in the United Kingdom and the United States report adopting multiple learning relationships. *PLoS ONE*. 9:e103075.
- (14) **Perron GG**, Lee AEG, Wang Y, Huang WE, & Barraclough TG (2012). “Bacterial recombination promotes the evolution of multidrug-resistance in functionally diverse populations”. *Proceedings B*. 279:1477-1484.
- (13) MacLean RC, **Perron GG**, & Gardner A. (2010). “Diminishing returns from beneficial mutations and pervasive epistasis shape the fitness landscape of rifampicin resistance in *Pseudomonas aeruginosa*”. *Genetics*. 186:1345-1354.
- (12) **Perron GG**, Hall A, & Buckling A. (2010). “Hypermutable and compensatory adaptation in antibiotic-resistant bacteria”. *The American Naturalist*. 176:303-311.
- (11) MacLean RC, Hall AR, **Perron GG**, & Buckling A. (2010). “The population genetics of antibiotic resistance: integrating molecular mechanisms and treatment contexts”. *Discovery Medicine*. 10:112-118.

- (10) MacLean RC, Hall AR, **Perron GG**, & Buckling A. (2010). “The population genetics of antibiotic resistance: integrating molecular mechanisms and treatment contexts”. *Nature Reviews Genetics*. 11:405-414.
- (9) ^aKohler T, **Perron GG**, Buckling A. & van Delden C. (2010). “Quorum-sensing inhibition selects for virulence and cooperation in *Pseudomonas aeruginosa*”. *PLoS Pathogens*. 6:e1000883.
- (8) Benmayor R, Hodgson D, **Perron GG**, & Buckling A. (2009). “Host mixing and disease emergence”. *Current Biology*. 19:1-4.
- (7) Ward H, **Perron GG**, & MacLean RC. (2009). “The cost of multidrug resistance in *Pseudomonas aeruginosa*”. *Journal of Evolutionary Biology*. 22:997-1003.
- (6) **Perron GG**, Quessy S, & Bell G. (2008). “A reservoir of drug-resistant pathogens in asymptomatic hosts”. *PLoS ONE*. 3:e3749.
- (5) **Perron GG**, Gonzalez A, & Buckling A. (2008). “The rate of environmental change drives adaptation to an antibiotic sink”. *Journal of Evolutionary Biology*. 21:1724-1731.
- (4) ^b **Perron GG**, Bell G, & Quessy S. (2008). “Parallel evolution of multidrug-resistance in *Salmonella enterica* isolated from swine”. *FEMS Microbiology Letters*. 281:17-22.
- (3) **Perron GG**, Gonzalez A, & Buckling A. (2007). “Source-sink dynamics shape the evolution of antibiotic resistance and its associated pleiotropic fitness cost”. *Proceedings B*. 274:2351-2356.
- (2) **Perron GG**, Quessy S, Letellier A, & Bell G. (2007). “Genotypic diversity and antimicrobial resistance in asymptomatic *Salmonella enterica* serotype Typhimurium DT104”. *Infection, Genetics and Evolution*. 7:223-228.
- (1) ^c **Perron GG**, Zaslhoff M, & Bell G. (2006). “Experimental evolution of resistance to an antimicrobial peptide”. *Proceedings B*. 273: 251-256.
- ^a Selected by Will Stubbings and Harald Labischinski, *Faculty of 1000 Biology*. 11 Jun 2010.
- ^b Selected by Marilyn Roberts, *Faculty of 1000 Biology*. 12 Feb 2008.
- ^c Selected as *News and Views* in Buckling and Brockhurst. *Nature*. 2005. 438:7065

INVITED SEMINARS

- (21) Bangalore University, Bangalore, India. (Nov 25th 2014”). “The evolution of antibiotic resistance: from ancient bacteria to modern pathogens”.
- (20) Exeter University, Penryn, UK. (July 28th, 2014). “The evolution of antibiotic resistance: from ancient bacteria to modern pathogens”.
- (19) Bard College, Annandale on Hudson, NY. (December 19, 2013). “The ecology and evolution of antibiotic resistance: from ancient bacteria to modern pathogens”.
- (18) University of Tromsø, Tromsø, NO. (August 28, 2013). “Functional characterization of resistance genes isolated from ancient Arctic soil reveals resistance to modern antibiotics”.

- (17) Gordon Research Conference on Microbial Population Biology, Andover, NH (July 22, 2013). "Multi-scale evolution of antibiotic resistance".
- (16) University of Sheffield, Sheffield, UK. (February 27, 2013). "The evolutionary epidemiology of antimicrobial resistance: how evolution can guide public health strategies".
- (15) Michigan State University, East Lansing, MI. (February 13, 2013). "The evolutionary epidemiology of antibiotic resistance: the origin and spread of antibiotic resistance genes in natural populations of bacteria".
- (14) University of Ottawa, Ottawa, ON. (October 29, 2012). "Functional characterization of ancient antibiotic resistance genes".
- (13) Bard College, Annandale-on-Hudson, NY. (October 4, 2012). "A blizzard in a bottle: antibiotic resistance in ancient permafrost".
- (12) Université de Sherbrooke, Sherbrooke, QC. (July 5, 2012). "A blizzard in a bottle: the ecology and evolution of antimicrobial resistance [Fr.]".
- (11) University of Uppsala, Uppsala, SE. (June 7, 2012). "The origin of antibiotic resistance: 10,000 years of resistance evolution".
- (10) University of Toronto, Toronto, ON. (January 16, 2012). "A blizzard in a bottle: the ecology and evolution of antimicrobial resistance".
- (9) University of Edinburgh, Edinburgh, UK. (August 29, 2011). "A blizzard in a bottle: characterisation of antibiotic resistance in ancient microbial communities".
- (8) McGill University, Ste-Anne-de-Bellevue, QC. (February 23, 2011). "The evolution of antibiotic resistance: an example of applied evolution".
- (7) Université de Montréal, Faculty of Veterinary Sciences, CRIP Seminar series, St-Hyacinthe, QC. (September 23, 2010). "The evolution of antibiotic resistance: an example of applied evolution [Fr.]".
- (6) Imperial College London, Silwood Park, UK (July 19, 2010). "The evolutionary and community ecology of antimicrobial resistance".
- (5) ETH Zurich. Zurich, CH. (April 29, 2010). "The evolutionary ecology of antimicrobial resistance".
- (4) 3rd ASM Conference on Salmonella. Aix-en-Provence, FR. (October 7, 2009). "Salmonella in livestock animal".
- (3) Within-host bacterial dynamics workshop: University of Cambridge, Cambridge, UK (July 13, 2009). "The evolutionary ecology of antibiotic resistance: towards a community approach".
- (2) IEPSRC Workshop: Evolution of Antibiotic Resistance. Imperial College London, UK (January 15, 2009). "The evolutionary ecology of antibiotic resistance".
- (1) Université de Montpellier, Department of Biology. Montpellier, FR. (March 31, 2008). "The genetic and evolutionary ecology of antibiotic resistance [Fr.]".

PEER-REVIEWED PRESENTATIONS

- (20) First Commonwealth Science Conference, Bangalore, India (Nov 27, 2014). "Antibiotic resistance in *Pseudomonas aeruginosa*: the influence of environmental pathogens".
- (19) Congress for ISME, Seoul, South Korea (August 27, 2014). "Antibiotic resistance in *Pseudomonas aeruginosa*: the influence of environmental pathogens".
- (18) 5th Congress for the Canadian Society of Ecology and Evolution, Montreal, QC (May 27, 2014). "Antibiotic resistance in *Pseudomonas aeruginosa*".
- (17) Pseudomonas 2013, Lausanne, CH (September 5, 2013). "Functional characterization of *Pseudomonas aeruginosa*'s resistome".
- (16) Environmental dimension of antibiotic resistance symposium, Ottawa, ON (June 17, 2013). "Functional characterization of ancient bacteria exposes resistance to modern antibiotics".
- (15) First Joint Congress on Evolutionary Biology, Ottawa, ON (July 12, 2013). "Origin of antibiotic resistance: 10,000 years of experimental evolution (poster)".
- (14) 13th Congress of the European Society for Evolutionary Biology, Tubingen, DE (Aug 22, 2011). "Recombination alleviates the inhibitory effect of diversity in microbial populations".
- (13) Gordon Research Conference: Microbial Population Biology. Andover, NH (July 20, 2011). "Horizontal gene transfer alleviates the inhibitory effect of biodiversity (poster)".
- (12) 12th Congress of the European Society for Evolutionary Biology, Turin, IT (August 24, 2009). "The evolutionary ecology of antibiotic resistance: when the rate of change matters".
- (11) Gordon Research Conference: Microbial Population Biology. Andover, NH (July 19, 2009). "The effect of hypermutability on compensatory adaptation (poster)".
- (10) Canadian Society for Ecology and Evolution Annual Meeting. Vancouver, BC (May 5, 2008). "The evolutionary ecology of antibiotic resistance".
- (9) 11th Congress of the European Society for Evolutionary Biology. Uppsala, SE (August 21, 2007). "Immigration, antibiotic resistance, cost of resistance and compensatory mutation".
- (8) Evolution Annual Meeting. Christchurch, NZ (June 17, 2007). "Immigration, antibiotic resistance, cost of resistance and compensatory mutations".
- (7) Swine Infectious Disease Network. St-Hyacinthe, QC (June 1, 2006). "Redefining the ecology of pathogenic bacteria: genetic and phenotypic diversity in *Salmonella* Typhimurium DT104 [*Fr.*] (poster)".
- (6) Canadian Society for Ecology and Evolution Inaugural meeting. Montréal, QC (April 4, 2006). "Redefining the ecology of pathogenic bacteria: genetic and phenotypic diversity of asymptomatic *Salmonella* Typhimurium DT104".
- (5) 10th Congress of the European Society for Evolutionary Biology. Krakow, PT (August 16, 2005). "The population structure of *Salmonella*: redefining a clonal model (poster)".

- (4) 90th Congress of the Ecological Society of America. Montréal, QC (August 8, 2005). "The evolution of multidrug-resistance: a replicated selection experiment".
- (3) Gordon Research Conference: Microbial Population Biology. Andover, NH (July 18, 2005). "The population structure of *Salmonella*: redefining a clonal model (poster)".
- (2) Ontario Ecology and Ethology Colloquium. Ottawa, ON (May 8, 2005). "The population structure of *Salmonella*: redefining a clonal model organism".
- (1) Ontario Ecology and Ethology Colloquium. Mississauga, ON (May 12, 2004). "Experimental evolution of resistance to an antimicrobial peptide".

TEACHING AND LEARNING

Bard College, Annandale-On-Hudson, NY.

Assistant Professor, 2015 – present.

Courses:

- Biostatistics, *B.A.* Spring 2015.

University of Ottawa, Ottawa, ON.

Undergraduate student co-supervisor, 2013 – 2014.

- Ms Elizabeth O'Reilly, *B.Sc. Honours.*

Co-investigator: Biomedical doctorates in the contemporary universities, 2011 – present.

- Goal: investigating and improving higher education in the biomedical sciences.
- Main investigator: Dr Matt Kemp, University of Western Australia, Perth, AUS.

Université de Montréal, St-Hyacinthe, QC.

Guest Lecturer, 2012-present.

"Toxicology", Fall 2012 & 2013.

- Two-hour class on risk management of antibiotic resistance in environmental reservoirs.
- Developed a one-page essay mid-term and two final exam questions.

Lecturer, 2012

"Statistics for the Life Sciences using GLM", March 30th 2012.

- I designed and taught a five hour workshop for graduate students, postdocs and principal investigators working in Veterinary Sciences and related fields
- Concepts taught: Experimental design, analysis of variance, regression analysis and generalized linear models.

Harvard University, Cambridge, MA.

Derek Bok Center for Teaching, 2011 – 2012.

- Courses taken: *Teaching Philosophy.*

Imperial College London, Silwood Park, UK.

Graduate student co-supervisor, 2010.

- Mr Alexander Lee, *M.Sc. (now a PhD candidate at King's College, UK).*

University of Oxford, Oxford, UK.*Graduate student co-supervisor*, 2008.

- Ms Helen Ward, *M.Sc. (now a PhD candidate at University of London, UK)*.

College Tutor in Biology at Keble College, 2008 – 2009.

- Tutorials in statistics, evolutionary biology, and infectious diseases.

Head demonstrator, 2009

- Quantitative methods and statistics, *B.A.* Academic year 2009.

Demonstrator, 2006 – 2008.

- Quantitative methods and statistics, *M.Sc.* Winter 2007 & 2008.
- Quantitative methods and statistics, *B.A.* 2006 – 2008.

McGill University, Montréal, QC.*Guest lecturer*, 2006

- Natural Selection (one lecture), *B.Sc.* Fall 2006

Teaching assistant, 2004 – 2005.

- Methods in Biology of Organisms, *B.Sc.* Fall 2005.
- Biometry and Statistics, *B.Sc.* Fall 2004.
- Cell and Molecular Biology, *B.Sc.* Winter 2004.

SERVICES**Committees, Grants, and Examination**

Committee member on the GT-FESP (Destination 2020): This committee was mandated by the Vice-President Academic and the Administration Committee at the University of Ottawa and had for objective to promote recruitment within the Faculty of Graduate and Postdoctoral studies. Fall 2013 – Spring 2014.

PhD thesis external examiner: Paolo Ocamapos (University of Zurich). Fall 2013.

Grant external reviewer: Austrian Science Fund (FWF). Fall 2013.

Academic Editing and Refereeing

Guest-Editor: Special Issue for *Evolutionary Applications* entitled “The Genetics and Adaptation of Resistance”. *To be published in Winter 2015.*

Assistant Editor: *Evolutionary Applications* (4).

Reviewer: *The American Naturalist* (2); *BMC Evolutionary Biology* (1); *Drug Resistance Updates* (1); *Ecology Letters* (2); *Evolution* (1); *Evolutionary Applications* (6); *Evolutionary Ecology* (1); *Evolution, Medicine, and Public Health* (2); *FEMS Microbial Ecology* (2); *FEMS Microbiology Letters* (4); *Genome Biology and Evolution* (1); *The ISME Journal* (1); *Journal of Antimicrobial Chemotherapy* (1); *Journal of Evolutionary Biology* (3); *Molecular Biology and Evolution* (1); *Microbiology* (2); *Nature Protocols* (1); *PLoS One* (10); *PLoS Pathogens* (1); *Proceedings of the National Academy of Sciences of the USA* (2); *Proceedings of the Royal Society B* (3); *Risk Analysis* (1); & *Undersea and Hyperbaric Medicine* (2).

Conference Organization

Symposium Organizer: 15th Congress of the European Society for Evolutionary Biology. Lisbon, PR (August 19-24, 2013).

Discussion Leader: Gordon Research Conference: Microbial Population Biology. Andover, NH (July 23, 2013).

Associate-Chair: Gordon Research Seminar: Microbial Population Biology. Andover, NH (July 20-21, 2013).

Professional affiliations: I am an active member of the *Canadian Society for Ecology and Evolution*, the *International Society for Microbial Ecology*, and the *New York Academy of Sciences*.

OUTREACH

Public events:

- I co-organized a Bar des Sciences "Science Pub" with Radio-Canada & Quebec Science, Gatineau, QC (April 3, 2013). "Is science necessary for policy making? [Fr.]".

Public presentations:

- "Nature walk: Seeing evolution in action". Bard College, Annandale-on-Hudson, NY (April 18, 2012).
- "Meet a scientist". Bard College, Annandale-on-Hudson, NY (April 4, 2011).
- "Physicists in biosciences: The biology of evolution". The Oxford Tradition, Oxbridge Academic Programs. Oxford, UK (July 19, 2010).

Social media implications:

- Social media relation for "Bacon and Egghead". A flagship series organized by the Partnership Group for Science and Engineering in Canada that brings Parliamentarians with experts to discuss topical scientific issues in a non-partisan forum. Ottawa, ON. Fall 2013.