Sébastien Renaut

Research Professional, Université de Montréal
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Employment

Research Professional, Université de Montréal, Montreal 2014-current
- Provide bioinformatics support to graduate students & faculty
- Conduct multi-disciplinary research in genomics, evolution & biodiversity
- Lead, teach and organize training workshops
- Write reports, scientific publications and grant applications

Subject Editor, Molecular Ecology & Molecular Ecology Resources 2013-current
- High throughput sequencing, transcriptomics and speciation genomics
- ~150 submissions handled

Education

Postdoctoral Fellow, Biodiversity Research Centre, UBC, Vancouver 2010-2014
(supervisor: Dr Loren Rieseberg)

Doctor of Philosophy, Biology, Université Laval, Quebec City 2006-2010
(supervisor: Dr Louis Bernatchez)

Master of Science, Biology, McGill University, Montreal 2002-2004
(supervisor: Dr Graham Bell)

Bachelor of Science (Agriculture), Environmental Biology, McGill University 1998-2001

Bioinformatics Experience

- High throughput sequencing (RNAseq, RAD-seq, amplicon, WGS, metagenomics)
- Command-line assemblers, aligners and variant callers (e.g. ABySS 2.0, Trinity, BWA, Samtools)
- Microbial genomics (e.g. dada2, Mothur, Qiime)
- Numerous command line bioinformatics software (e.g. BLAST+, Structure, EMBOSS)
- R programming language (data/text mining, statistical analyses, graphics, markdown)
- Unix environment (shell scripting, high performance parallel computing, job scheduler)
- Vector (Inkscape) and raster (Gimp) graphics editors
- Python, SQL, html, WordPress (basic skills)

Teaching Experience

Workshops Teacher and Organizer, Université de Montréal 2014-2019
- Gene expression, genome assembly, science communication, markdown, metabarcoding
- Certified Software Carpentry instructor

Invited Guest Speaker and Lecturer, UQAM (Montreal) & Université Laval 2007-2016
- Ecology & Evolution Seminar, Molecular Ecology, Biogeography

Teaching Assistant, Université Laval & McGill University 2002-2008
- Plant Structure and Function, Vertebrate Evolution (U. Laval)
- Genetics, Molecular & Cellular Biology, Methods in Biology of Organisms (McGill U.)

Ten Representative Publications

- 42 peer-reviewed publications (19 first-authored publications, 2200+ citations, H-index: 22 Google Scholar)

Renaut S, *et al.* The effect of *Ascophyllum nodosum* extracts on tomato and pepper plant productivity and their associated fungal and bacterial communities. *in revision* [pdf]

Renaut S, *et al.* 2018. Genome survey of the freshwater mussel *Venustaconcha ellipsiformis* (Bivalvia: Unionida) using a hybrid *de novo* assembly approach. *Genome Biology and Evolution* 10: 1637–1646 [pdf]

Renaut S, *et al.* 2018. Management, Archiving, and Sharing for Biologists and the Role of Research Institutions in the Technology-Oriented Age. *Bioscience* 68: 400–411 [pdf]

Renaut S. 2017. Genome sequencing: Illuminating the Sunflower Genome. News and Views for *Nature Plants* 3:17099 [pdf]

Renaut S, Rieseberg LH. 2015. The accumulation of deleterious mutations as a consequence of domestication and improvement in sunflowers and other Compositae crops. *Molecular Biology and Evolution* 32: 2273-2283 [pdf]

Renaut S, Rieseberg LH, Rowe HC, Ungerer MC. 2014. Genomics of Homoploid Hybrid Speciation: Diversity and Transcriptional Activity of LTR Retrotransposons in Hybrid Sunflowers. *Philosophical Transactions of the Royal Society B* 369: 20130345 [pdf]

Renaut S, Owens G, Rieseberg LH. 2014. Shared selective pressure and local genomic landscape lead to repeatable patterns of genomic divergence in sunflowers. *Molecular Ecology* 23: 311-324 [pdf]

Vines TH, *et al.* (9 co-authors, including **Renaut S**). 2014. The availability of research data declines rapidly with article age. *Current Biology* 24: 94-97 [pdf]

Renaut S, *et al.* 2013. Genomic islands of divergence are not affected by geography of speciation in sunflowers. *Nature Communications* 4: 1827 [pdf]

Renaut S, Nolte AW, Bernatchez L. 2010. Mining transcriptome sequences towards identifying adaptive single nucleotide polymorphisms in lake whitefish species pairs (*Coregonus* spp. Salmonidae). *Molecular Ecology* 19: 115-131 [pdf]

Ten Representative Presentations

• 52 scientific presentations since 2006 (including 27 invited conferences and seminars)

• Genomes, Data & Biodiversity Science. 2017. *Biology Departmental Seminar*, Université de Montréal

• Data archiving and reproducibility in ecology and evolution. 2016. *Quebec Centre for Biodiversity Science annual symposium*, Montreal, Canada

• Transcriptome evolution in young species of sunflowers. 2015. *Biology Departmental Seminar*, Université Laval

• The accumulation of deleterious mutations as a consequence of domestication and improvement in sunflowers. 2015. *Plant and Animal Genome XXIII*, San Diego, USA

• Parallel genomic evolution but not parallel speciation in annual sunflowers. 2013. *Evolution*, Snowbird, USA

• Genomics of adaptive divergence and speciation in sunflowers. 2013. *Advances in Ecological Speciation*, Porto, Portugal

• The extent of genomic divergence among sunflower species with respect to their degree of geographic separation. 2012. *Joint meeting of Evolution societies*, Ottawa, Canada

• Genomics of adaptive divergence and speciation: from fish to plants. Biology Departmental Seminar. 2012. *Katholieke Universiteit Leuven*, Leuven, Belgium

• The genomics of speciation in lake whitefish species pairs. 2010. *Society of Molecular Biology and Evolution*, Lyon, France

• Transcriptome Sequencing in Lake Whitefish: Single Nucleotide Polymorphisms, Adaptive divergence and hybridization. 2009. *Canadian Society for Ecology and Evolution*, Halifax, Canada

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Outreach

Reviewer 2008-current
• Journals (60+ reviews in 35+ journals, including *Nature Plants*, *PNAS*, *Molecular Biology and Evolution*, *Genetics*, *Genome Research*, see Publons profile)
• Grant proposals (20+ reviews for granting agencies in Canada, Europe and USA)

Scientific panel organizer QCBS Annual Meeting, Montreal 2014-2016
• Data Sharing, Biodiversity and health related issues, Environmental DNA, Next generation uses of biodiversity data

Member of QCBS, Canadian Society for Ecology and Evolution, Society for the Study of Evolution, European Society for Evolutionary Biology 2004-2019

Science judge (Greater Vancouver Regional Science Fair) 2013 & 2014

Website developer and *manager* (http://rieseberglab.botany.ubc.ca/) 2012-2015

Student representative, Institut de Biologie Intégrative et des Systèmes, Université Laval 2010
