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Yannick Wurm

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Organismal Biology
Queen Mary University of London
London E1 4NS, UK

I aim to understand the genetic mechanisms involved in the evolution of animal societies. I use genomics and bioinformatics to characterize genes involved in behavioral decisions and caste-specific developmental fates in ants and create novel bioinformatics tools for genomics work with emerging model organisms.

HISTORY

2014- SENIOR LECTURER IN BIOINFORMATICS, Queen Mary University of London (QMUL)
2012-2014 LECTURER IN BIOINFORMATICS, Queen Mary University of London (QMUL)
2010-2011 POSTDOCTOR with L. Keller, Dept. Ecology & Evolution, U Lausanne &
EMBEDDED BIOINFORMATICIAN with I. Xenarios, Vital-IT, Swiss Institute of Bioinformatics (SIB)
2006-2009 MEMBER OF SIB PHD TRAINING NETWORK
2005-2009 PHD: SOCIOGENETICS OF FIRE ANTS with L. Keller, Dept. Ecology & Evolution, U Lausanne
2004 RESEARCH TRAINEE (6 MONTHS) with R. Roy, Biology Dept., McGill, Montreal
2003 JUNIOR SOFTWARE DEVELOPER (6 MONTHS) with N. Zinovieff, Krugazor Software, Paris
1999-2004 BIOINFORMATICS & MODELING (MASTERS); Natl. Institute of Applied Sciences, INSA Lyon
1999 SCIENTIFIC BACCALAUREATE (BIOLOGY & MATH) Cité Scolaire Internationale de Lyon
France (10y; citizen); Germany (4y; citizen), USA (9y), Switzerland (7y), Indonesia (1 y), UK (since 2012).

DISTINCTIONS & GRANTS

2014 VP-research fund (Wurm et al (with 12 others) 45,000£)
2015-2017 FP7 Marie Curie Fellowship Host (221,606.40€)
2014-2017 Science without Borders Phd Scholarship host (\$78,046)
2014-2017 NERC grant (520,313£ Full economic cost to QMUL)
2014-15 NERC Big Data Capital Call (local co-I with R. Nichols; 85,000£ to QMUL)
2014 Queen Mary Faculty of Science & Engineering Research Performance Award.
2013 Google Summer of Code (GSoC) with A. Priyam and MA. Dragan (\$5,500)
2013-14 NEScent Working Group. Building non-model species genome curation communities (with A. Papanicolaou & M. Muñoz-Torres) (approx. \$50,000 total).
2012-14 BBSRC sTDRF. Genome Annotation for the Masses. (148,136£ Full economic cost)
2011 NERC BioMolecular Analysis Facility proposal NBAF627 with RL. Hammond (5,656£)
2011 Society for Molecular Biology & Evolution Postdoc travel award (\$2,500)
2010 PhD award: Prix de la faculté de l'Université de Lausanne (1,000 CHF)
2009 Infectigen: Ultra-high throughput sequencing for discovery & characterization of viral genomes in fire ants. With E. Zdobnov, L. Keller, D. Shoemaker, S. Valles (100,000 CHF)
2008 Swiss Zoological Society & Fondation du 450^{ième} grants to attend International Congress of Entomology (3,500 CHF)
2008 Ecogenics innovation award for oral communication at Biology08 (400 CHF)
2004 Région Rhône-Alpes and Office Franco-Québécois de la Jeunesse to visit Prof. Richard Roy's laboratory at McGill (2,800€)
2002 Apple WorldWide Developer Conference Scholarship (San Jose; \$1,600)
1999 Scientific baccalaureate honors: "Mention Bien"

MEDIA COVERAGE Has been extensive - not least because social insects are particularly media-friendly.
See <http://yannick.poulet.org/pressCoverage/>

REVIEWER for BBSRC, Research Foundation Flanders, Nature Communications, Proc B, Genome Biol, Mol Ecol, Mol Biol Evol, Bioinformatics, BMC Evol Biol, BMC Genomics, Insect Mol Biol, Nucl Acids Res, Bull Insectol, Insectes Sociaux, PLoS One, Curr Zool. iConcept Press.

ADDITIONAL RESPONSIBILITIES

Current: **Supervision/line management:** postdoc (E Stolle); full PhD students (R Pracana, B Vieira, L Santiago), shared PhD student (N Arajo); Sysadmin (S Moss), software developer (A Priyam), Five 3rd year project students; **PhD panel** of: S Dodsworth, S Bailey, L Sollars, J Zohren, D Radcliffe, S Saha. **Advisor** to ~30 undergraduate students. Chair of QMUL School of Biology web committee; **Member**, QMUL High Performance Computing steering group; **Teaching** (Year 1 Evolution, Year 3 Ecological & Evolutionary Genomics, Year 3 Research Methods, MSc Bioinformatics for genomics). **Leading** <http://antgenomes.org> and <http://sequenceserver.com>.

Previously: 3 Bioinformaticians: (O Riba-Grognuz, F Ricci, M Bota, B Vieira), 3 Lab technicians (C LaMendola, C Stoffel, N Tzaud), 3 Masters students (S Buechel, P Siguier, H Darras).

INVITED ORAL PRESENTATIONS

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|------------|--|------------|--|
| 2014/12/11 | U Helsinki, Finland | 2012/01/20 | European Course on Comparative Genomics, ENS Lyon |
| 2014/12/8 | Oulu, Finland | 2011/07/31 | Laboratory of Insect Ecology, Okayama |
| 2014/05/28 | Balti & Bioinformatics @ Birmingham U | 2011/06/29 | International Social Insect Genomics Research Conference, Shenzhen |
| 2013/11/25 | Sheffield University | 2011/05/06 | Communication in Social Insects, National Taiwan University, Taipei |
| 2013/09/05 | Cream Teas & Bioinformatics, @ Exeter | 2011/04/11 | Laboratoire de Biométrie et Biologie Évolutive, Lyon |
| 2013/04/11 | Sussex University | 2011/03/31 | Les Doctoriales, Lausanne |
| 2013/03/19 | Bristol University | 2011/03/29 | UCL Department of Genetics Ecology & Environment, London |
| 2013/03/15 | Institut Jacques Monod, Paris | 2010/10/31 | Jakarta Ruby Brigade meeting, Indonesia |
| 2013/03/13 | UCL Department of Genetics, Evolution and Environment | 2010/08/31 | UK RAD Sequencing meeting, Edinburgh |
| 2013/01/17 | Zoologisches Kolloquium, U Regensburg | 2009/01/15 | The Past, Present and Future of Ant Genomics, Arizona State University |
| 2012/11/05 | UCL MRes (Biodiversity, Evolution and Conservation) | 2008/12/01 | Interaction Seminar, Zurich |
| 2012/09/06 | European Conference of Apidologie (EurBee 5), Halle an der Saale | 2008/10/23 | Symposium of Ecology and Evolution Doctoral Students, Lausanne |
| 2012/06/18 | SIB workshop on Evolutionary & Ecological Genomics, Adelboden | | |

PUBLICATIONS (°corresponding authorship; *equal contributions)

- 2014 Nipitwattanaphon, Wang, Ross, Riba-Grognuz, Wurm, Khurewathanakul, Keller. **Effects of ploidy and sex-locus genotype on gene expression patterns in the fire ant *Solenopsis invicta***. Proc B 281: 20141776
- 2014 Purcell, Brelsford, Wurm, Perrin, Chapuisat. **Convergent genetic architecture underlies social organization in ants** Current Biology.
- 2014 Buechel*, Wurm*, Keller L. **Social chromosome variants differentially affect queen determination and the survival of workers in the fire ant *Solenopsis invicta***. Molecular Ecology 23:5117-27
- 2013 Valles°, Shoemaker, Wurm, Strong, Varone, Becnel, Shirk. **Discovery & molecular characterization of an ambisense densovirus from South American populations of *Solenopsis invicta***. Biological Control 67:431-39.
- 2013 Corona, Libbrecht, Wurm, Riba-Grognuz, Studer, Keller°. **Vitellogenin underwent subfunctionalization to acquire caste and behavioral specific expression in the harvester ant *Pogonomyrmex barbatus***. PLoS Genetics 9(8):e1003730.
- 2013 Manfredini, Riba-Grognuz, Wurm, Keller, Shoemaker, Grozinger°. **Sociogenomics of cooperation and conflict during colony foundation in the fire ant *Solenopsis invicta***. PLoS Genetics 9:e1003633.
- 2013 38 authors (incl. Wurm Y). **Social insect genomes exhibit dramatic evolution in gene composition and regulation while preserving regulatory features linked to sociality**. Genome Research gr.155408.113.
- 2013 Wang*, Wurm°, Nipitwattanaphon, Riba-Grognuz, Huang, Shoemaker, and Keller°. **A Y-like social chromosome causes alternative social organization in fire ants**. Nature 493: 664-68.
- 2013 Privman, Wurm°, Keller° **Duplication and concerted evolution in a master sex determiner under balancing selection**. Proceedings of the Royal Society B.
- 2013 Kulmuni°, Wurm, Pamilo. **Comparative genomics of chemosensory protein genes reveals rapid evolution and positive selection in ant-specific duplicates**. Heredity.
- 2012 Ingram°, Kutowski, Wurm, Shoemaker, Meier, Bloch. **The molecular clockwork of the fire ant *Solenopsis invicta***. PLoS One 7(11):e45715.
- 2012 Chittka, Wurm, Chittka. **Epigenetics: The Making of Ant Castes**. Current Biology 22(19):R835-8.
- 2012 Gadau°, Helmkamp, Nygaard, Roux, Simola, Smith, Suen, Wurm, Smith. **The genomic impact of 100 million years of social evolution in seven ant species**. Trends in Genetics 28:14-21 [cover photo].
- 2011 Riba-Grognuz°, Keller, Falquet, Xenarios, Wurm°. **Visualization and quality assessment of *de novo* genome assemblies**. Bioinformatics, 27(24): 3425-26.
- 2011 Hunt, Ometto, Wurm, Shoemaker, Yi, Keller, Goodisman°. **Relaxed selection is a precursor to the evolution of phenotypic plasticity**. PNAS 108(38):15936-41
- 2011 Nygaard°, Zhang, Schiøtt, Li, Wurm, and 11 additional authors including Boomsma). **The genome of the leaf-cutting ant *Acromyrmex echinatior* suggests key adaptations to advanced social life and fungus farming**. Genome Research 21:1339-48.
- 2011 Wurm Y°. **Behind the scenes of an ant genome project**. Formosan Entomologist, 31(2):149-56.
- 2011 Wurm Y° et al (38 authors). **The Genome of the fire ant *Solenopsis invicta***. PNAS, 108(14):5679-84.
- 2011 Gotzek, Robertson, Wurm, Shoemaker. **Odorant binding proteins of the Red Imported Fire Ant, *Solenopsis invicta*: An example of the problems facing the analysis of widely divergent proteins**. PLoS ONE 6: e16289.
- 2010 Wurm°, Keller. **Parasitoid Wasps: From natural history to genomic studies**. Current Biology 20:R242-4.
- 2010 Wurm°, Wang, Keller. **Changes in reproductive roles are associated with changes in gene expression in fire ant queens**. Molecular Ecology 19(6).
- 2009 Wurm°, Uva, Ricci, Wang, Jemielity, Iseli, Falquet, Keller. **Fourmidable: a database for ant genomics**. BMC Genomics 10(5):5.
- 2007 Wang, Jemielity, Uva, Wurm, Gräff, Keller. **An annotated cDNA library and microarray for large-scale gene-expression studies in the ant *Solenopsis invicta***. Genome Biology 8:R9.
- 2007 Wurm, Wang, Keller. **Behavioral genomics: A, bee, C, G, T**. Current Biology 17:R51-3.
- 2005 Zerlin M, Greiffenberg, Wurm Y, Winkler I, Kreusel D, Toemoe S, Ballabas L, Martin J. **Cryostock, Software for Cell Culture Management**. ESACT Proceedings: Animal Cell Technology Meets Genomics. 397-400.