



Newsletter December 2017

Welcome to the 14th edition of the PopGen ALUMNI newsletter!

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If you know of suitable candidates for PopGen Vienna:

Call for PhD students is open – please help us spread the word!

Application deadline: January 14, 2018

([Flyer for download](#) on the website)

Recent events and news

December 2017: Scientific Advisory Board

We're very grateful to Jean-Michel Gibert and Simon Tavaré for their many years of being part of the PhD program's Scientific Advisory Board and all the constructive advice to our students and the program. We hope that we'll keep ties for further collaboration.

The Vienna Graduate School of Population Genetics is proud that **Virginie Courtier-Orgogozo** from the Institut Jacques Monod has agreed to be part of our Scientific Advisory Board. We're looking forward to welcome Dr. Courtier-Orgogozo to the next SAB meeting in May 2018.

November 2017: Award for graduate alumnus

Congratulations to our alumnus **Christian Huber**, currently at UCLA. Christian received one of the prestigious **Discovery Early Career Researcher Awards 2018** by the Australian Research Council. He'll relocate down under to join alumnus Ray Tobler at the University of Adelaide and apply state-of-the-art population and quantitative genetic techniques to a new database of ancient human genomes - spanning from hunter gatherers and early farmers through to the Middle Ages. This will be used to build the first detailed portrait of human genetic adaptation through time.

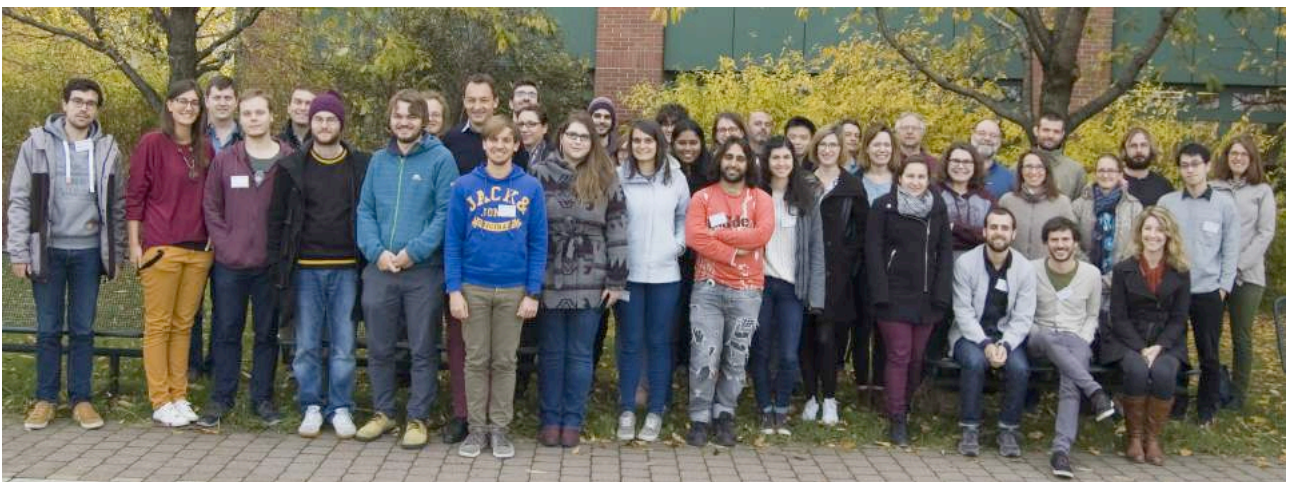
November 2017: Experimental Evolution course

The Vienna Graduate School of Population Genetics organised the practical course "**Experimental evolution: From theory to practice**" from November 6 to 10, 2017 at the Vetmeduni Vienna with 24 international participants and lectures by Jeff Barrick, Tony Dean,

Tad Kawecki, Christian Schlötterer, Marina Telonis-Scott, Olivier Tenailon and Henrique Teotonio. Our students prepared, taught and tutored the intense afternoon practical sessions.



Thomas and Ana Marija teaching the afternoon practicals.



Participants and organisers of the Experimental Evolution course.

October 2017: PhD defense

Congratulations to **Andrea Fulgione**, he successfully defended his PhD thesis "Uncovering the early history of a model organism: *Arabidopsis thaliana* in Africa and in the island of Madeira" on October 16th.

October 2017: PhD retreat

We spent a couple of inspiring days with seminar talks, hiking and socialising at a mountain lodge in Altaussee, at the foot of the Styrian Loser plateau. A friendly crowd of 36 PhD students, postdocs, faculty and associated guests - enjoyed brainstorming and discussing recent research results - and we were blessed with colourful and mild autumn weather.



#PopGenPower at the yearly retreat.

Summer 2017: Internship for high school student

As part of our outreach incentive, high school intern Petra joined the PopGen institute for 4 weeks to learn about hands-on fly evolution projects with postdocs and Phd students.

Alumni lab portraits

We feature a brief report about one of PopGen's graduate and faculty alumni in every Newsletter. This time, PopGen Vienna alumnus **Nicola de Maio** tells us about his research in the UK – in his very special way ☺ (Nicola is currently a James Martin Fellow at the Institute of Emerging Infections, Univ. of Oxford. His research focuses on the development and application of models of sequence evolution):

“Hi everybody!

I have lived and worked in Oxford the last 4 years, since I left Vienna. Despite my office being located in a hospital (Figure 1), my medical skills still consist solely of band-aid application.

My group spearheads the application of genome sequencing within medical microbiology, and our work plan (Figure 2) can be summarized as:

Phase 1: whole-genome sequence all the bugs.

Phase 2:

Phase 3: cure and prevent disease.

I have mostly developed statistical methods, for example to understand "who infected whom?" from pathogen genomic data.

From March 2018 I will work at EMBL-EBI Cambridge, so I will finally tell you which town is snobber!

Life can be pretty awesome in the UK once you get used to the absence of sunlight and empathy. I learned to play korfball (Figure 3) and dodgeball (totally recommended to everyone). So far I also survived British food (Figure 4), mostly by avoiding it.”



Figure 1: saving lives through... phylogenetics?



Together we are **Modernising Medical Microbiology Oxford**



YOU CAN FIND OUT MORE ABOUT THE SCIENCE THAT INSPIRED THIS AT [HTTP://TWITTER.COM/MOOMEDMICRO](http://twitter.com/moomedmicro) AND WWW.MEDMEDMICRO.NSMS.OX.AC.UK

Figure 2: Sobriety at MMM.



Figure 3: Korfball, the best sport you have never heard of.



Figure 4 Wiener Schnitzel vs. fish and chips: convergent evolution?

Upcoming events

The **PopGen Xmas event** will happen on December 18 at the Vetmeduni Vienna. We'll have a go at coordinating our limbs during a Ceili workshop, followed by dinner.

The **SAB meeting 2018** will take place May 7-9.

Upcoming seminars

The Winter Term talks are under way and we're looking forward to visits and talks by Richard Durbin, Örjan Carlborg, Justin Blumenstiel, Jean-Michel Marin, Joshua Akey, Herve Colinet and Hugo Stocker.

Have a cosy Xmas time, and a successful 2018!

Publications of our students so far in 2017

D. Gómez-Sánchez and C. Schlötterer: ReadTools: a universal toolkit for handling sequence data from different sequencing platforms. *Mol Ecol Resour* doi: 10.1111/1755-0998.12741 (2017)

J. Bertl, G. Ewing, C. Kosiol and A. Futschik: Approximate maximum likelihood estimation for population genetic inference. *Stat Appl Genet Mol Biol* <https://doi.org/10.1515/sagmb-2017-0016> (2017)

R. Tobler, V. Nolte and C. Schlötterer: High rate of translocation-based gene birth on the *Drosophila* Y chromosome. *PNAS* 114(44):11721–11726 (2017)

J. Bergman, A. Betancourt and C. Vogl: Transcription-associated compositional skews in *Drosophila* genes. *Genome Biol Evol* doi:10.1093/gbe/evx200 (2017)

T. Taus, A. Futschik and C. Schlötterer: Quantifying selection with Pool-Seq time series data. *Mol Biol Evol* doi:10.1093/molbev/msx225 (2017)

A.M. Jakšić, R. Kofler and C. Schlötterer: Regulation of transposable elements: interplay between TE-encoded regulatory sequences and host-specific trans-acting factors in *Drosophila melanogaster*. *Mol Ecol* doi: 10.1111/mec.14259. (2017)

M. Pontz, J. Hofbauer and R. Bürger: Evolutionary dynamics in the two-locus two-allele model with weak selection. *J Math Biol* doi:10.1007/s00285-017-1140-7 (2017)

N. Barghi, **R. Tobler**, V. Nolte and C. Schlötterer: *Drosophila simulans*: A species with improved resolution in Evolve and Resequencing studies. *G3* 7(7):2337-2343 (2017)

A. Durvasula, **A. Fulgione**, R.M. Gutaker, S.I. Alacakaptan, P.d.J. Flood, C.I. Neto, T. Tsuchimatsu, H.n.A. Burbano, F.X. Pico, C. Alonso-Blanco and A.M. Hancock: African genomes illuminate the early history and transition to selfing in *Arabidopsis thaliana*. *PNAS* 114(20):5213-5218 (2017)

F. Balao, E. Trucchi, **T. Wolfe**, B.H. Hao, M.T. Lorenzo, J. Baar, L. Sedman, C. Kosiol, F. Amman, M.W. Chase, M. Hedren and O. Paun: Adaptive sequence evolution is driven by biotic stress in a pair of orchid species (*Dactylorhiza*) with distinct ecological optima. *Mol Ecol* 26(14):3649-3662 (2017)

I. Höllinger and J. Hermisson: Bounds to parapatric speciation: A Dobzhansky-Muller incompatibility model involving autosomes, X chromosomes and mitochondria. *Evolution* 71(5):1366-1380 (2017)

P.Y. Novikova, T. Tsuchimatsu, S. Simon, V. Nizhynska, V. Voronin, R. Burns, O.M. Fedorenko, S. Holm, T. Säll, E. Prat, W. Marande, V. Castric and M. Nordborg: Genome sequencing reveals the origin of the allotetraploid *Arabidopsis suecica*. *Mol Biol Evol* 34(4):957-968 (2017)

D. Schrempf and A. Hobolth: An alternative derivation of the stationary distribution of the multivariate neutral Wright-Fisher model for low mutation rates with a view to mutation rate estimation from site frequency data. *Theor Popul Biol* 114:88-94 (2017)

See all publications [here](#)