



Newsletter August 2017

Welcome to the 12th edition of the PopGen ALUMNI newsletter!

Follow us on Twitter [@PopGenViennaPhD](https://twitter.com/PopGenViennaPhD)

Please help spread the news for the upcoming course (application deadline August 15)

Experimental evolution: From theory to practice

organised by our students Nov 6-10, 2017 at Vetmeduni Vienna

<http://www.popgen-vienna.at/training/experimental-evolution-2017.html>

Recent events

August 2017: PopGen faculty, students and alumni in Santa Barbara

Several PopGen Vienna members and alumni are currently hosted by the **Kavli Institute for Theoretical Physics (KITP)**. KITP as part of the University of California, Santa Barbara, is one of the most renowned institutes for theoretical physics and related fields. **Christian Schlötterer** was invited to co-coordinate the KITP workshop "*Eco-Evolutionary Dynamics in Nature and the Lab*" (July 24 - September 15, 2017) which is closely linked with the Summer research course "*Eco-evolutionary dynamics of microbial communities*" at the Santa Barbara Advanced School of Quantitative Biology. **Robert Kofler** and **Andreas Futschik** are also hosted by KITP for the duration of the workshop and are joined by **Anna Maria Langmüller** (PhD student), **Neda Barghi** (Postdoc) as well as alumni **Claudia Bank** and **Carolin Kosiol** who were all invited to add their expertise.

<https://www.kitp.ucsb.edu/activities/ecoevo17>

June 2017: PopGen Vienna participates at Open University Day

For this year's Open University Day, our students participated at the Science Café and prepared a fruit fly themed microscopy table. Both adult and young visitors were equally fascinated by fruit fly populations from around the world, evolved flies, bizarre mutants and blue larva next to close-up shots of electron microscope images. Kids were also invited to extract DNA from some of fruit fly's favorite foods: strawberries.



Young and old enchanted by Manolis' fly stories at the Vetmeduni's Open Day.



Anna and Daniel showing off fly strains.

May, June 2017: PhD defenses

Congratulations to **Barbara Horvath-Ellis** who successfully defended her thesis "The genetic and phenotypic basis of adaptive developmental and reproductive traits in *Drosophila melanogaster*" on June 8th.

And congratulations also to **Dominik Schrempf**! On May 30, Dominik successfully defended his thesis "Discrete multivariate boundary mutation models and their application to tree inference".



April 2017: March for Science

PopGen Vienna speaker, students, postdocs and faculty joined the **March for Science** on April 22 in Vienna, one of 600 marches that took place around the globe. We demonstrated our support for science and the fundamental role it plays in serving and improving our society through informed policy.



Juraj, Neda, Gökce, Manolis, Christos, Ivan, Ana Marija, Nayuta and “postdogs” marching for science.

April 2017: SAB meeting

This year's Scientific Advisory Board (SAB) meeting took place from April 19-21. The students reported their progress in front of our full Advisory Board, the program's faculty and fellow students. After the busy daily presentation schedules, the students further interacted with the SAB in more relaxed settings over drinks and dinner.



Full PopGen Vienna Scientific Advisory Board. From left: Brian Charlesworth, Simon Tavaré, Andy Clark, Nick Barton, Jean-Michel Gibert, Laurent Excoffier, John Parsch.

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 **Daniel K. Fabian** tells us about his research in the UK:

"It has been quite a ride since I graduated from PopGen Vienna in October 2014. After finishing the PhD, I have gone back to the group of Frank Jiggins at the University of Cambridge, where I have already worked during my Master's. My main project was about identifying alleles responsible for resistance to Drosophila A Virus, which has some unique features compared to other Drosophila viruses. For instance, it has an extremely negative effect on host fecundity but not so on lifespan, and it does not seem to be inhibited by the presence of the bacterial symbiont Wolbachia. To identify the gene responsible for resisting this virus, I have performed several classical and modern genetic approaches, including the creation of recombinants, RNAi-knockdowns and CRISPR/Cas9. In other words: Tons of fly crosses, repetitive wet lab work, and failed experiments.

After a bit more than 2 years of functional genetic suffering, Suse's and my daughter Clara was born. And about the same time, my postdoctoral contract ended, which I could not extend following the rejection of two fellowship proposals. I definitely needed to find a job and due to the small number of Drosophila evolutionary genetics labs around Cambridge, I had no choice but to branch out to different occupations and research fields - a quite difficult endeavor as it turned out. Lucky me, I soon found a lectureship position at the Anglia Ruskin University in Cambridge, where I was teaching Genetics, Evolution, and DNA-based technologies from January to June 2017.

Although I enjoyed giving lectures and interacting with students, it has been a bit too much administrative work for my taste. In particular, marking very similar laboratory reports and exams has not been a massively exciting task. Nevertheless, in my spare time, I was allowed to escape to my previous lab to continue the backbreaking search for the resistance allele.

The good news is: we have recently found the gene responsible for resistance to Drosophila A Virus and will now continue describing its antiviral function. Moreover, I have ended my lecturer contract after being offered a postdoctoral position in the group of Derek Smith at the University of Cambridge, where I am going to study Influenza virus evolution from July onwards. It seems that after working with fruit flies for 7 years, I will finally do something different, and I am super excited about it."



Suse, Clara and Daniel having lunch at King's college, and fun digesting.



Holidays in the South Downs National Park

Out of sight, out of mind? Experiences of our students abroad

Many of our students choose to spend 3 months in foreign labs during their study time.

Juraj Bergman (advisors Claus Vogl, Joachim Hermisson and Ovidiu Paun) was hosted by the University of Sussex (UK) in the group of Adam Eyre-Walker. Juraj received both an Erasmus staff grant and an international grant by Vetmeduni Vienna next to DK funding to extend his research stay from three months to half a year (October 2016 – April 2017).

“From October 1st 2016 to March 31st 2017, I've been hosted by the School of Life Sciences at the University of Sussex (Brighton, UK) during my six month abroad stay with the research group of Prof. Adam Eyre-Walker. For this, I've been funded by the Vienna Graduate School of Population Genetics as well as by an Erasmus staff grant and an international grant by Vetmeduni Vienna. During my stay with Adam's group, I've studied adaptive evolution in *Drosophila melanogaster* in relation to physiochemical properties of amino acids.

For me, this was a great opportunity to work with new people, attend a different seminar series (mostly on bee-related topics), learn new science and live in another country for half a year. Generally, my abroad stay was a very useful and enjoyable experience. I also had the great opportunity to present the results of the research I did with Adam's group at this year's SMBE meeting in Austin, Texas. We are currently in the process of writing up a manuscript which should hopefully be submitted/published soon!

We also had an office dog who came to visit from time to time. He didn't publish anything, as he was busy taking naps.”



Juraj close to Brighton Pier



Dog Gellert ~~working~~ and Adam Eyre-Walker's group in the pub

Upcoming events

With the arrival of new PopGen Vienna students, the yearly **Introductory Course** will start on September 7th. This year we will have 12 participants, including an international student from Sweden.

This year's **retreat** will take place at the Hagan Lodge in Altaussee from October 12 to 14. We're expecting around 35 participants for a weekend of seminars, socialising and hiking.

Our students are organising the course "**Experimental Evolution: From theory to practice**" at Vetmeduni Vienna, November 6-10, 2017. Application deadline is August 15. Details about the course: <http://www.popgen-vienna.at/training/experimental-evolution-2017.html>

Upcoming seminars

The schedule for the Winter Term is under construction and will feature seminar visits by Ilik Saccheri, Justin Blumenstiel, Herve Colinet and many others.

Have a nice late Summer!

Publications of our students so far in 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](#)