

Tom Hill

University of Kansas

4012 Haworth Hall, 1200 Sunnyside Avenue, Lawrence KS, 66045, USA

tom.hill@ku.edu

ORCID: 0000-0002-4661-6391

Employment

2016 to Present Postdoctoral research fellow for Dr. Robert Unckless – University of Kansas, USA.

Education

2016 Grade 1 Ph.D. Institut für Populationsgenetik, Vetmeduni Vienna, Austria.
2012 First Class BSc with Honours in Biological Sciences, University of Reading, United Kingdom.

Publications and Manuscripts

Hill, T. and Unckless R.L. Recurrent evolution of two competing haplotypes in an insect DNA virus. *eLife*, accepted pending minor revisions (2020); <https://doi.org/10.1101/2020.05.14.096024>

Hill, T. and Unckless R.L. Selection and demography shape genomic variation in a Sky Island species. *BioRxiv* (2020); <https://doi.org/10.1101/2020.05.14.096008>

Hill, T., Rosales-Stephens H.L. and Unckless R.L. Rapid divergence of the copulation proteins in the *Drosophila dunni* group is associated with hybrid post-mating-prezygotic incompatibilities. *BioRxiv* (2020); <https://doi.org/10.1101/2020.05.20.106724>

Hill, T. and Unckless R.L. A Simple Deep Learning Approach for Detecting Duplications and Deletions in Next-Generation Sequencing Data. *G3: Genes|Genomes|Genetics* 9:9 (2019) 1-20. <https://doi.org/10.1534/g3.119.400596>

Perlmutter JI, Bordenstein SR, Unckless RL, LePage DP, Metcalf JA **Hill, T.**, Martinez J., Jiggins J.M. and Bordenstein S.R. The phage gene *wmk* is a candidate for male killing by a bacterial endosymbiont. *PLoS Pathogens* 15:9 (2019): e1007936. <https://doi.org/10.1371/journal.ppat.1007936>

Chapman, J., **Hill, T.** and Unckless, R.L. Balancing selection in *Drosophila* antimicrobial peptides. *Genome Biology and Evolution* (2019) evz191. <https://doi.org/10.1093/gbe/evz191>

Hill, T. Transposable element dynamics as consistent across the *Drosophila* phylogeny, despite drastically differing content. *BioRxiv* (2019). <https://doi.org/10.1101/651059>

Hill, T., Koseva, B. and Unckless R.L. The genome of *Drosophila innubila* reveals lineage-specific patterns of selection in immune genes. *Molecular Biology and*

Evolution. *Molecular Biology and Evolution* (2019) msz059.
<https://doi.org/10.1093/molbev/msz059>

Hill, T. and Betancourt, A.J. Extensive exchange of transposable elements across the *Drosophila pseudoobscura* group. *Mobile DNA* 9:20 (2018) 1-14.
<https://doi.org/10.1186/s13100-018-0123-6>

Hill, T. and Unckless R.L. The dynamic evolution of *Drosophila innubila* Nudivirus. *Infection, Genetics and Evolution* 57 (2018) 151-7.
<https://doi.org/10.1016/j.meegid.2017.11.013>

Hill, T. and Unckless, R.L. The landscape of adaptation of baculoviruses via positive selection and gene turnover, *Journal of Virology* 91:22 (2017) 1-22.
<https://doi.org/10.1128/JVI.01319-17>

Hill, T., Schlötterer, C. and Betancourt, A.J., Hybrid dysgenesis in *Drosophila simulans* due to a rapid global invasion of the P-element, *PLoS Genetics* 12:3 (2016): e1005920. <https://doi.org/10.1371/journal.pgen.1005920>

Kofler, R., **Hill, T.**, Nolte, V., Betancourt, A., and Schlötterer, C., The Recent Invasion of Natural *Drosophila simulans* Populations by the P-Element. *Proceedings of the National Academy of Sciences* 112:21 (2015): 6659–63.
<https://doi.org/10.1073/pnas.1500758112>

Grants & Awards

2019 K-INBRE Postdoctoral Research Award (\$25000 USD)

2019 KU Research Postdoctoral Achievement Award (\$5000 USD)

2018 K-INBRE Postdoctoral Research Award (\$25000 USD)

2017 Kansas University Research Excellence Initiative Travel Award (\$500 USD)

2016 Austrian Academy of Sciences, Max Kade Foundation research fellowship (\$53500 USD)

2016 Austria Federal Minister of Science, Research and Economy, award for excellence (€3000 EUR)

2015 VetMedUni Vienna, Funds for research activities abroad for academic staff (declined) (€1800 EUR)

2012 University of Reading Award for academic excellence, University of Reading UK (£2000 GBP)

Presentations

Midwest Population Genetics Conference 2019, Chicago USA – An arms race between *Drosophila innubila* and its DNA virus reveals virulence associated genes (talk, prize awardee – best postdoc oral presentation).

Annual Drosophila Research Conference 2019, Dallas USA - The genome of *Drosophila innubila* reveals lineage-specific patterns of selection in immune genes (platform talk).

Population Genetics Group 2019, United Kingdom – Antiviral genes are not fast evolving in *Drosophila innubila* (talk).

Molecular Evolution of the Cell 2018, Utah USA – Antiviral genes are not fast evolving in *Drosophila innubila* (talk).

Population Genetics Group 2018, United Kingdom – Evolution of baculoviruses via recurrent evolution of key genes (talk).

SMBE 2017, Austin USA – Evolution of baculoviruses via recurrent evolution of key genes (talk)

Population Genetics Group 2017, United Kingdom – Extensive exchange of transposable elements in the *Drosophila pseudoobscura* group (talk).

University of Rochester 2016, USA – The Rapid Invasion of P-element in *Drosophila simulans* (invited talk).

SMBE 2015, Austria – Hybrid dysgenesis in *Drosophila simulans*, caused by a rapid global invasion of the P-element (poster).

Population Genetics Group 2015, United Kingdom – Hybrid dysgenesis in *Drosophila simulans*, caused by a rapid global invasion of the P-element (talk).

Laboratory of Genome Dynamics, Medical University Vienna, 2015 – Hybrid dysgenesis in *Drosophila simulans*, caused by a rapid global invasion of the P-element (invited talk).

Evolution 2014, North Carolina USA - The Rapid spread of hybrid dysgenesis in *Drosophila simulans* (poster).

Ecology & Evolutionary Biology Symposium of Turkey 2014, Turkey – The Rapid spread of hybrid dysgenesis in *Drosophila simulans* (poster prize awardee – best student poster).

Teaching

Teaching assistant for Introduction to bioinformatics – Institut für Populationsgenetik, University of Veterinary Medicine Vienna (2014 and 2015)

Teaching assistant for NGS workshop - Institut für Populationsgenetik, University of Veterinary Medicine Vienna (2014)

Teaching assistant for Software Carpentry Workshop – University of Kansas, Lawrence KS USA (2018 -)

Instructor for Software Carpentry Workshop – University of Kansas, Lawrence KS USA (2019 -)

Mentoring Undergraduate students – Judith Ikerionwu (2017 - 2018), Hazel-Lynn Rosales-Stephens (2018 - 2019), Sidney Budinas (2019 -).

Service

Organizing committee of 'Mind the Gap' conference (2013)

Organizing committee, NGS workshop (2014)

Supervised FFG summer student intern (2014)

University of Veterinary Medicine Vienna 'Open Day', public outreach program (2014 and 2015)

Have reviewed for the following publications: *Genome Biology and Evolution*, *Molecular Biology and Evolution*, *BMC Genomics*, *G3*, *Genetics*, *PeerJ*, *Scientific Reports*, *Journal of General Virology*, *Ecology and Evolution*, *Research Square*, *Biology Letters*.

Frequently review (at least 3 times in the past 12 months) for: *G3*, *PeerJ*, *Genome Biology and Evolution*, *Molecular Biology and Evolution*

Skills/Training

Proficient in both R and Python, including several bioinformatic packages such as Biopython, Pysam, NumPy, Pandas, Keras and SKLearn.

Training in DNA and RNA isolation, PCR, qPCR, and next-generation sequencing library preparation. Also trained in *Drosophila* husbandry, experimental infections and experimental design.

Trained as teaching instructor (focusing on using Bloom's phylogeny, formative assessment and effort-based praised to improve teaching) for coding, genomics and bioinformatics workshops.