

# KIERAN SAMUK, PH.D.

*Evolutionary Biologist, Geneticist, & Bioinformatician*

*email*                [ksamuk@gmail.com](mailto:ksamuk@gmail.com)  
*website*            [samuklab.com](http://samuklab.com)  
*twitter*             [@ksamuk](https://twitter.com/ksamuk)

## CURRENT POSITION

*Assistant Professor*    University of California, Riverside    2021–Present  
Department: Evolution, Ecology, and Organismal Biology  
Research Focus: Evolutionary genetics & genomics

## EDUCATION

*Postdoc*                Duke University    2016–2021  
Mentor: Dr. Mohamed Noor  
Project: *Adaptive evolution of recombination rate in Drosophila pseudoobscura*

*PhD*                     University of British Columbia    2011–2016  
Advisor: Dr. Dolph Schluter  
Thesis: *The genomics of adaptation and speciation in threespine stickleback*

*MSc*                     University of British Columbia    2008–2011  
Advisor: Dr. Leticia Avilés  
Thesis: *Sociality in cobweb spiders: evolutionary consequences and the role of pre-existing traits*

*HBSc*                    University of Toronto    2004–2008  
Honors Advisor: Dr. James Thomson  
Thesis: *The ontogeny of social networks and division of labour in bumble bee colonies.*

## PUBLICATIONS

14.                    Korunes, K.L.\*, **Samuk, K.\*** pixy: Unbiased estimation of nucleotide diversity and divergence in the presence of missing data. *Molecular Ecology Resources*, <https://doi.org/10.1111/1755-0998.13326>. Equal co-authorship with K. Korunes. 2021.
13.                    Korunes, K.L., **Samuk, K.**, Noor M.A.F. Disentangling Types of Linked Selection Using Patterns of Nucleotide Variation in *Drosophila pseudoobscura*. In: *Population Genomics*. Springer, Cham. [https://doi.org/10.1007/13836\\_2021\\_87](https://doi.org/10.1007/13836_2021_87). 2021.
12.                    **Samuk, K.**, Manzano-Winkler, B., Ritz, K.R. and Noor, M.A.F. Adaptive evolution of recombination rate in *Drosophila pseudoobscura*. *Current Biology*, 30 (8), 1517–1528. 2020.

## PUBLICATIONS (CONT.)

11. Ostevik, K.L., **Samuk, K.**, and Rieseberg, L.H. 2019. Ancestral reconstruction of sunflower karyotypes reveals dramatic chromosomal evolution. *Genetics*, 214 (4), 1031–1045 2020.
10. Miller, S.E., Legan, A.W., Henshaw, M., Ostevik, K.L., **Samuk, K.**, Uy, F.M., Reeve, H.K. and Sheehan, M.J. Evolutionary dynamics of recent selection for enhanced social cognition. *PNAS*, 117 (6), 3045–3052. 2020.
9. Owens, G.L., **Samuk, K.** Adaptive introgression during environmental change can weaken reproductive isolation. *Nature Climate Change*, 10(1): 58–62. 2019.
8. Rennison, D.J., Delmore, K.E., **Samuk, K.**, Owens, G.L. and Miller, S.E.. Shared patterns of genome-wide differentiation are more strongly predicted by geography than by ecology. *The American Naturalist*, 195(2), 192–200. 2019.
7. **Samuk, K.\*** , Xue, J.\* and Rennison, D. J. Exposure to predators does not lead to the evolution of larger brains in experimental populations of threespine stickleback. *Evolution*, 72: 916–929. Equal co-authorship with J. Xue. 2018.
6. **Samuk, K.** , Owens, G. L., Delmore, K. E., Miller, S., Rennison, D. J. and Schluter, D. Gene flow and selection interact to promote adaptive divergence in regions of low recombination. *Molecular Ecology*, 26: 4378–4390. 2017.
5. **Samuk, K.** Perspective: Inversions and the origin of behavioral differences in cod. *Molecular Ecology*, 25(10):2111–2113. 2016.
4. Miller, S.E., **Samuk, K.**, and Rennison, D.J. An experimental test of the effect of predation upon behaviour and trait correlations in the threespine stickleback. *Biological Journal of the Linnean Society*, 119(1): 117–125. 2016.
3. **Samuk, K.**, Iritani, D. and Schluter, D. Reversed brain size sexual dimorphism accompanies loss of parental care in white sticklebacks. *Ecology and Evolution*, 4(16): 3236–3243. 2014.
2. **Samuk, K.** and Avilés, L. Indiscriminate care of offspring predates the evolution of sociality in alloparenting social spiders. *Behavioral Ecology and Sociobiology*, 67(8): 1275–1284. 2013.
1. **Samuk, K.**, LeDue, E.E., and Avilés, L. Sister clade comparisons reveal reduced maternal care behavior in social cobweb spiders (*Anelosimus* spp.). *Behavioral Ecology*, 23(1): 35–43. 2011.

*In Preparation*

**Samuk, K.**, and Noor, M.A.F. Gene flow biases LD-based estimates of recombination rate. 2021.

**Samuk, K.**, Visty, H. and Schluter, D. The white stickleback: speciation with gene flow in the absence of strong ecological differentiation. 2021.

## SOFTWARE

- 2020 **pixy**: Unbiased estimation of nucleotide diversity in the face of missing data.  
<https://github.com/ksamuk/pixy>
- 2019 **syntR**: Reproducible identification of chromosomal rearrangements.  
<https://ksamuk.github.io/syntR/>

## SCHOLARSHIPS &amp; AWARDS

- 2018 NSERC Postdoctoral Fellowship – \$90 000
- 2018 Duke Core Facility Research Award – \$7000
- 2018 NSF BIO Research Grant: "An experimental test of the role of chromosomal inversions in adaptive evolution" Formal PI: M Noor. Conceived of and authored by K Samuk– \$200 000
- 2017 Duke Core Facility Research Award – \$6500
- 2016 SSE Hamilton Symposium Travel Award – \$500
- 2015 Society for Integrative and Comparative Biology Research Award – \$1000
- 2014 University of British Columbia Four Year Fellowship – \$20 000
- 2011 NSERC Canada Graduate Scholarship (3 years) – \$105 000
- 2010 Royal Society Publishing prize for Best Poster at IUSSI – \$500
- 2009 NSERC Alexander Graham Bell Canada Graduate Scholarship – \$84 000
- 2008 NSERC Undergraduate Research Award – \$9 000
- 2008 Dr. James A. and Connie P. Dixon Award – \$500

## PRESENTATIONS &amp; CONTRIBUTIONS

- 2020 The evolution and consequences of recombination rate variation  
Invited Seminar · *University of California, Riverside*
- 2019 The evolution and consequences of recombination rate variation  
Invited Seminar · *University of Virginia EEBIO Seminar*
- 2019 Adaptive evolution of recombination rate in *Drosophila pseudoobscura*  
Talk · *Evolution 2019*
- 2018 Adaptive evolution of recombination rate in *Drosophila pseudoobscura*  
Talk · *South Eastern Population Ecology and Evolutionary Genetics 2018*
- 2018 The role of gene flow in shaping evolutionary processes  
Invited Seminar · *East Carolina University RIP Seminar Series*
- 2017 The evolution and consequences of recombination rate variation  
Invited Seminar · *University of North Carolina BioPop Seminar Series*
- 2017 Incipient speciation without trophic specialization in the white stickleback  
Talk · *Evolution 2017*
- 2017 Natural selection and diversification in the threespine stickleback  
Invited Seminar · *Duke University PopBio Seminar Series*
- 2016 Clustering of adaptive alleles is favored by gene flow in a globally distributed species  
Talk · *Evolution 2016*

## PRESENTATIONS &amp; CONTRIBUTIONS (CONT.)

- 2015 Selection with gene flow favours reduced recombination in adaptive genomic regions in global stickleback populations  
Talk · *SSE Hamilton Symposium, Evolution*
- 2013 Genomic signatures of reproductive isolation in the white stickleback.  
Poster · *European Society for Evolution Biology*
- 2010 The origin and consequences of cooperative breeding in social cobweb spiders.  
Talk · *EcoEvo Retreat*
- 2010 The origin of alloparental care in social cobweb spiders.  
Poster · *International Union for the Study of Social Insects*
- 2009 The Evolution of Alloparental Care in Social Comb-Footed Spiders.  
Talk · *EcoEvo Retreat*
- 2008 Bumble Bee Social Networks Correlate with Division of Labour.  
Poster · *Canadian Society for Evolution and Ecology*

## TEACHING

- 2019 Certified Software Carpentry Instructor
- 2014 Head TA – Data Wrangling, Exploration, and Analysis with R
- 2014 TA – Evolutionary Ecology
- 2011 TA – Fundamentals of Evolutionary Biology
- 2010 TA – Introduction to Entomology
- 2010 TA – Animal Behaviour
- 2009 TA – Animal Behaviour
- 2008 TA – Introduction to Saltwater Ecosystems

## MENTORSHIP

- 2017 Freddie Xu – Supervised undergrad activities in Noor Lab
- 2016 Jan Xue – Supervised undergrad research project (see co-authored publication)
- 2015 Hannah Visty – Supervised undergrad research project (see co-authored publication)
- 2014 Davis Iritani – Supervised undergrad research project (see co-authored publication)
- 2013 Jacob Best – Supervised undergrad activities in Schluter Lab
- 2012 Michelle Ning – Supervised undergrad activities in Schluter Lab
- 2010 Emily LeDue – Supervised undergrad research project (see co-authored publication)
- 2009 Gyan Harwood – Supervised undergrad summer research in Avilés Lab

#### DIVERSITY & INCLUSION TRAINING

- 2019 Reducing bias in Evaluation Methods Workshop  
Duke University - Dr. Cisco Ramos
- 2019 Creating Cultural Competency Workshop  
Duke University - Duke International House
- 2019 Pursuing Respect, Inclusion, Diversity & Equity (PRIDE) Training  
Duke University - Duke CSGD
- 2018 Mitigating implicit bias in biology and beyond  
Duke University - Dr. Patricia Devine

#### PROFESSIONAL SERVICE & OUTREACH

- Reviewing* Biological Journal of the Linnean Society, Ecology and Evolution, Evolution, Genetics, Molecular Ecology, Molecular Biology and Evolution, PLoS Genetics, Proceedings of the Royal Society B., PNAS
- 2016 Invited speaker at Elder U (senior-citizen science outreach) at Capilano University
- 2016 Volunteer Instructor & Guru for UBC's "R Club"
- 2015 Facilitator & organizer for the UBC Biodiversity Seminar series
- 2013 Student Mentor for UBC Zoology Graduate Mentorship Program
- 2011 Volunteer for the UBC/SFU/UVic EcoEvo Retreat
- 2011 Student organizer for UBC Biodiversity Internal Seminar Series

*Last updated 07-07-2021*