
BIOGRAPHICAL SKETCH

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NAME Brenna M. Henn	POSITION TITLE Assistant Professor
eRA COMMONS USER NAME (credential, e.g., agency login) BRENNA.HENN	Dept. of Ecology and Evolution SUNY Stony Brook

EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE (if applicable)	MM/YY	FIELD OF STUDY
Stanford University	B.A.	6/2003	Philosophy of Science
Stanford University	M.S.	6/2005	Anthropological Science
Stanford University	Ph.D.	4/2009	Human Evolutionary Genetics
Stanford University	Postdoc	12/2012	Human Genomics

A. Personal Statement

I began my PhD research by studying the deep population structure and complex migration patterns of African hunter-gatherer groups. I continue to be interested in diverse, indigenous populations from around the world who harbor genetic (and linguistic and phenotypic) variation that is often absent or overlooked in regularly studied populations. I am committed to understanding genetic diversity in under-represented populations and, based on the last decade of genetic research, hypothesize that the determinants of phenotypic traits and disease in these populations may be influenced by alleles that are population-specific or generally rare. Motivated by my prior PhD (2009) training in anthropology and evolutionary genetics, I aim to approach questions of genetic and phenotypic diversity from an interdisciplinary standpoint. Many features of human form and behavior have a genetic and evolutionary basis. However, common traits like skin pigmentation, menopause and fertility have seldom been the focus of paired genomic and field work in diverse populations. My long-term objective as an independent investigator is to extend trait mapping and evolutionary genetic techniques to identify loci associated with biomedical traits in diverse populations where collection of large cohort sizes remains challenging.

In January 2013, I joined the Dept. of Ecology and Evolution (Stony Brook, SUNY) as an assistant professor. My lab currently employs a full-time bioinformatics research assistant, a postdoctoral fellow and, as of Fall 2013, two graduate students. We have a strong network of national and international collaborators. In particular, I manage three field sites in South Africa (with Eileen Hoal, Stellenbosch University) and Namibia (with Brooke Scelza, UCLA) where we collect DNA and phenotypic information from indigenous populations. We have partnered with the Wellcome Trust Sanger Center to sequence full human genomes from over 100 South African samples and recently completed an exome sequencing project of 80 KhoeSan samples in collaboration with BGI (in prep.). We are thus experienced with many aspects of next-generation sequencing and the complex data analysis that follows.

B. Positions and Honors

Positions and Employment

State University of New York (SUNY) Stony Brook, NY
Assistant Professor, Dept. of Ecology and Evolution (1/2013-current)
Stanford University School of Medicine, Stanford CA
Postdoctoral Scholar (1/2010-12/2012), Bustamante Lab
Ancestry.com, San Francisco CA
Population Genetics Consultant (12/2011-2/2012)
23andMe Inc., Mountain View CA

Scientist, Population Genetics (4/2009-11/2009)
Population Genetics Consultant (4/2007-4/2009)

Other Experience and Professional Memberships:

Editorial Board, Quarterly Review of Biology

Honors and Awarded Grants

- Seed Grant from NIH, NIA P30 AG017253-12 PI: Alan Garber 07/2011-06/2012
Title: Combining Measures of Senescence with Genomic Data for Isolated African Populations
Goal: Assess measures of age using traditional ethnographic techniques for KhoeSan populations in the Kalahari. Use exome data to identify genetic variation in genes relevant to senescence among the eldest of the cohort (between 70-100 years old).
Role: Principal investigator for Seed Grant
- NIH, NHGRI 1R43 HG005807-01 PI: Joanna Mountain 9/2010-8/2011
Title: Web-based phenotyping for genome wide association studies of drug response
Role: Wrote grant in collaboration with the PI
- Morrison Institute for Population Studies, Stanford University PI: Henn 6/2008-9/2010
Title: South African Genetic Diversity Project
Goal: Generate genome-wide single nucleotide polymorphism data for diverse South African individuals and test a hypothesis of human origin in southern Africa.
Role: Principal investigator
- NSF Research Education for Undergraduates Grant 9905574 6/2002-9/2002

Recent Panels, Symposia, Workshops

- 2013 H3Africa Workshop on Population Genetics and Genomics, *Invited Organizer*, ICIPE, Nairobi, Kenya.
- 2012 Population Genetic Analyses in Admixed Populations Workshop, *Invited Speaker*, Center for Human Genetics Research, Vanderbilt University TN.
- 2012 Workshop on Population Genetics and Genomics, *Invited Organizer*, University of Cape Town, South Africa.
- 2012 Stanford Symposium on the Biology of Hunter-Gatherers, *Symposium Organizer*, Stanford University, USA.
- 2011 Society for Molecular Biology and Evolution, *Symposium Organizer*, Kyoto, Japan: "Natural Selection in Human Populations: Beyond Classic Sweeps"

Recent Invited Speaker (past 18 months)

- 2013 Center for GeoGenetics, University of Copenhagen, Copenhagen, Denmark.
- 2013 Living World Lecture, Stony Brook University, Stony Brook, NY.
- 2013 Division of Molecular Biology and Human Genetics, Stellenbosch University, Tygerberg, South Africa: "What do we know about African population history?"
- 2013 Wellcome Trust / Sanger Institute, Genetic Epidemiology Group, Hinxton, UK: "Influence of Ancient Demography on Patterns of Present Day African Population Structure"
- 2013 Reich Lab Seminar, Harvard University Medical School, Cambridge, MA: "A Meditation on Human Demography History and Natural Selection"
- 2012 American Society for Human Genetics, San Francisco: "Insights into Human Demography and Selection from Full Genome Sequencing", Invited Session
- 2012 Annual Vanderbilt Genetics Symposium, Vanderbilt University, Center for Human Genetics Research, Nashville TN: "The Effect of Out of Africa Migrations on the Distribution of Functional Alleles"
- 2012 Illumina Bay Area Users Meeting, Berkeley CA: "Exome Sequencing of the Khomani Bushmen of South Africa"

C. Selected Peer-reviewed Publications

1. ER Chimusa, M Daya, M Möller, Raj Ramesar, **BM Henn**, PD van Helden, NJ Mulder, EG Hoal. (2013) Determining Ancestry Proportions in Complex Admixture Scenarios in South Africa Using a Novel Proxy Ancestry Selection Method. *PLoS One* 8(9):e73971
2. GD Poznik, **BM Henn**, MC Yee, E Sliwerska, GM Euskirchen, AA Lin, M Snyder, L Quintana-Murci, JM Kidd, PA Underhill, CD Bustamante (2013) Sequencing Y Chromosomes Resolves Discrepancy in Time to Common Ancestor of Males versus Females. *Science* 341(6145):562-565
3. LR Botigué*, **BM Henn***, S Gravel, BK Maples, CR Gignoux, E Corona, G Atzmon, E Burns, H Ostrer, C Flores, J Bertranpetit, D Comas, CD Bustamante. Gene flow from North Africa contributes to differential human genetic diversity in Southern Europe (2013) *Proc Natl Acad Sci* 110(29): 11791-6
4. **BM Henn**, MW Feldman, LL Cavalli-Sforza (2012) The Great Human Expansion. *Proc Natl Acad Sci.* 109(44): 17758-17764. PMID: 23077256
5. J Granka, **BM Henn**, CR Gignoux, JM Kidd, CD Bustamante, MW Feldman. (2012) Limited Evidence for Classic Selective Sweeps in African Populations. *Genetics* 192:1049-1064.
6. **BM Henn***, L Hon*, JM Macpherson, N Eriksson, S Saxonov, I Pe'er, JL Mountain (2012) Cryptic Distant Relatives are Common in both Isolated and Cosmopolitan Genetic Samples. *PLoS One* 7 (4): e34267
7. A Keller, A Graefen, M Ball, M Matzas, V Boisguerin, F Maixner, P Leidinger, R Khairat, A Franke, J Mayer, J Spangler, S McLaughlin, M Shah, C Lee, TT Harkins, A Sartori, A Moreno-Estrada, **BM Henn**, PA Underhill, J Chiaroni, M Sikora, CD Bustamante, EE Vigl, M Samadelli, G Cipollini, J Haas, H Katus, B Meder, N Blin, E Meese, CM Pusch, A Zink. (2012) New Insights into the Tyrolean Iceman's Origin and Phenotype as Inferred by Whole-Genome Sequencing. *Nature Communications* 3:698
8. **BM Henn***, L Rodríguez-Botigué*, S Gravel, W Wang, A Brisbin, JK Byrnes, K Fadhlou-Zid, PA Zalloua, A Moreno, J Bertranpetit, CD Bustamante, D Comas (2012) Genomic Ancestry of North Africans Supports Back-to-Africa Migrations. *PLoS Genetics* 8(1): e1002397
9. **BM Henn**, CR Gignoux, M Jobin, JM Granka, JM Macpherson, JM Kidd, L Rodríguez-Botigué, S Ramachandran, L Hon, A Brisbin, AA Lin, PA Underhill, D Comas, KK Kidd, P Parham, PJ Norman, CD Bustamante, JL Mountain, MW Feldman. (2011) Feature Article: Hunter-gatherer genomic diversity suggests a southern African origin for modern humans. *Proc Natl Acad Sci.* 108(13): 5154-5162. PMID: 3069156
10. S Gravel, **BM Henn**, R Gutenkunst, AR Indap, GT Marth, AG Clark, 1000 Genomes Consortium, CD Bustamante (2011) Demographic history and rare allele sharing among human populations. *Proc Natl Acad Sci.* 108(29): 11983-11988
11. CR Gignoux*, **BM Henn***, JL Mountain (2011) Rapid, global demographic expansions after the origins of agriculture. *Proc Natl Acad Sci.* 108(15): 6044-6049. PMID: 3076817
12. CD Bustamante and **BM Henn** (2010) Human Origins: Shadows of early migrations. *Nature* 468(7327): 1044-1045. PMID: 21179156
13. **BM Henn**, S Gravel, A Moreno-Estrada, S Acevedo, CD Bustamante. (2010) Fine-scale population structure and the era of next-generation sequencing. *Hum Mol Genet.* 19(2): R221-R226. PMID: 2953744
14. **BM Henn**, CR Gignoux, MW Feldman and JL Mountain. (2009) Characterizing the time-dependency of human mitochondrial DNA mutation rate estimates. *Mol Biol Evol.* 26(1): 217-230. PMID: 18984905
15. **BM Henn**, C Gignoux, AA Lin, PJ Oefner, P Shen, R Scozzari, F Cruciani, SA Tishkoff, JL Mountain and PA Underhill. (2008) Y-chromosomal evidence of a pastoralist migration through Tanzania to southern Africa. *Proc Natl Acad Sci.* 105(31): 10692-10297. PMID: 2504844
16. SA Tishkoff, MK Gonder, **BM Henn**, H Mortensen, A Knight, C Gignoux, N Fernandopulle, G Lema, TB Nyambo, U Ramakrishnan, FA Reed, and JL Mountain (2007) History of click-speaking populations of Africa inferred from mtDNA and Y chromosome genetic variation. *Mol Biol Evol.* 24(10): 2180-2192. PMID: 17656633

D. Research Support

Ongoing Research Support

Faculty Startup Package, Stony Brook University, SUNY

01/10/2013-current

Center for Evolution and Human Genetics, Stanford University

09/01/2013-09/01/2013

Title: Genotype and Phenotype Collection in Southern Africa

Role: Supervisor to Alicia Martin (PhD candidate)