

Fernando A. Villanea
Department of Anthropology
University of Colorado Boulder
Boulder, CO 80309
Phone: (734) 358-8530
E-mail: fernando.villanea@colorado.edu

CURRENT POSITION

2021-present Assistant Professor – Anthropology at CU Boulder

EDUCATION

2019- 2020 Post-Doctoral Researcher - CCMB, Brown University
2017-2018 Post-Doctoral Researcher - IGEM, Temple University
2016 Ph.D. in Biology, Washington State University
2010 M.A. in Anthropology, Washington State University
2005 B.S. in Biology, Universidad de Costa Rica

PEER-REVIEWED PUBLICATIONS

2023 Wroblewski, T., et al. & **Fernando A Villanea**. "Pharmacogenetic variation in Neanderthals and Denisovans and implications for human health and response to medications." *Genome biology and evolution* 15(12): evad222.

2023 Villa-Islas, V., ..., **Fernando A. Villanea**, ..., et al. Demographic history and genetic structure in pre-Hispanic Central Mexico. *Science*. 380(6645), eadd6142.

2023 **Fernando A. Villanea**. Defense against dark anthropology. *American Anthropologist*. 125(1), 184-185.

2023 Kowal, E., ..., **Fernando A. Villanea**, ..., et al. Community partnerships are fundamental to ethical ancient DNA research. *Human Genetics and Genomics Advances*. 4(2).

2023 Jones, Beryl M., ..., **Fernando A. Villanea**, ..., et al. Convergent and complementary selection shaped gains and losses of eusociality in sweat bees. *Nature Ecology and Evolution*. 7(4), 557-569.

2022 Witt, Kelsey E., **Fernando Villanea**, Elle Loughran, Xinjun Zhang, and Emilia Huerta-Sanchez. Apportioning archaic variants among modern populations. *Philosophical Transactions of the Royal Society B*. 377 (1852): 20200411

2022 **Fernando A Villanea** and Kelsey E Witt. Underrepresented Populations at the Archaic Introgression Frontier. *Frontiers in Genetics*. 13: 821170-821170

2021 Ahlquist, K., Banuelos, M., Funk, A., Lai, J., Rong, S., Witt, K., & **Fernando A Villanea**. Our tangled family tree: new genomic methods offer insight into the legacy of archaic admixture. *Genome Biology and Evolution*. 13 (7).

2021 **Fernando A. Villanea**, P. Keolu Fox, Emilia-Huerta-Sánchez. ABO blood type variation in archaic humans: haplotype structure in Neanderthals and Denisovans. *Molecular Biology and Evolution*. 38 (8): 3373-3382.

- 2020 **Fernando A. Villanea**, Kitchen, A., & Kemp, B. M. Applications of Bayesian Skyline Plots and Approximate Bayesian Computation for Human Demography. *Human Biology*. 91(4)
- 2019 **Fernando A. Villanea** and Joshua G. Schraiber. Multiple episodes of interbreeding between Neanderthals and modern humans. 2018. *Nature Ecology and Evolution*. 3(1): 39-44
- 2017 Aram Yardumian, ..., **Fernando A. Villanea**, ..., *et al.* 2017. Genetic diversity in Svaneti and its implications for the human settlement of the Highland Caucasus. *American Journal of Physical Anthropology*. 164 (4): 837-852
- 2016 **Fernando A. Villanea**, Christine E. Parent, and Brian M. Kemp. 2015. Reviving Galápagos snails: ancient DNA extraction and amplification from shells of probably extinct endemic land snails. *Journal of Molluscan Studies*. 82 (3): 449-456
- 2015 **Fernando A. Villanea**, Kristin N. Safi and Jeremiah W. Busch. 2015. A General Model of Negative Frequency Dependent Selection Explains Global Patterns of Human ABO Polymorphism. *PLoS One*. 10(5): e0125003
- 2013 **Fernando A Villanea**, Deborah Bolnick, Cara Monroe and Brian M. Kemp. 2013. Evolution of a specific O allele (O1vG542A) supports unique ancestry of Native Americans. *American Journal of Physical Anthropology*. 151(4): 649–657
- 2012 **Fernando A. Villanea**, George H. Perry, Gustavo Gutierrez-Espeleta and Nathaniel J. Dominy. 2012. ASPM and the evolution of cerebral cortical size in a community of Costa Rican monkeys. *Plos One*. 7(9): e44928
- 2007 George H. Perry, Nathaniel J. Dominy, ..., **Fernando A. Villanea**, ..., *et al.* 2007. Diet and the evolution of human amylase gene copy number variation. *Nature Genetics* 39: 1256 - 1260

PUBLICATIONS IN PREPARATION

- In review* **Fernando A. Villanea**, David Peede, Kelsey E. Witt Alyssa Funk, Viridiana Villa-Islas, Maria C Avila-Arcos, Emilia Huerta-Sánchez. The MUC19 gene in Denisovans, Neanderthals, and Modern Humans: an evolutionary history of recurrent introgression and natural selection. *Science*.

OTHER PUBLICATIONS

- 2018 **Villanea, Fernando**. Antigen (antibody) in The International Encyclopedia of Biological Anthropology, Wenda Trevathan (ed). John Wiley and Sons, Inc. ISBN: 978-1-118-58442-2

AWARDS

- 2023 CU Boulder SEED Grant. (\$50000)
- 2019 Leakey Foundation Research Grant on Human Origins. (\$9600)
- 2014 Carl H. Elling Endowment. School of Biological Sciences. (\$3000)
- 2013 Robert King Award. School of Biological Sciences. (\$2700)
- 2012 Carl H. Elling Endowment. School of Biological Sciences. (\$1700)

- 2011 Carl H. Elling Endowment. School of Biological Sciences. (\$5700)
- 2011 AAPA Pollitzer Student Travel Award. (\$500)
- 2006 CenTREAD Visiting Graduate Fellowships in Tropical Studies.

PUBLIC LECTURES

- 2024 Archaic introgression in modern humans: What it can tell us about archaic humans and about ourselves. Smithsonian's National Museum of Natural History.
- 2023 Archaic introgression in modern humans: What it can tell us about archaic humans and about ourselves. University of Richmond.
- 2023 Neanderthals, Denisovans, and Your Genes. Leakey Foundation Lunch Break Science.
- 2022 Archaic introgression in modern humans: What it can tell us about archaic humans and about ourselves. SURF Keynote. Carroll College.
- 2022 Archaic introgression in modern humans: What it can tell us about archaic humans and about ourselves. Biology Colloquium. Walla Walla University.
- 2018 Pattern of Neanderthal ancestry in modern-day humans indicates multiple pulses of Neanderthal introgression. Population Genetics Seminar. Princeton University.

CONFERENCE PARTICIPATION

National Conferences

- 2023 The MUC19 gene in Denisovans, Neanderthals, and Modern Humans: an evolutionary history of recurrent introgression and natural selection. **92nd Annual Meeting of the AABA**. April 19-22, 2023. Podium presentation
- 2022 Shared super-archaic ancestry between Homo sapiens and Neanderthals **91th Annual Meeting of the AABA**. March 23-26, 2022. Podium presentation
- 2021 Finding Your Voice: How to navigate challenges in the workforce while not compromising your pursuit for equity and advocating for diverse communities. **ASHG 2021**. October 12th, 2021. Invited Panelist.
- 2021 Adaptive Introgression of the Denisovan variant of the gene MUC19 in American populations. **90th Annual Meeting of the AAPA**. April 7-28, 2021. Podium presentation
- 2020 ABO blood type variation in archaic humans: haplotype structure in Neanderthals and Denisovans. **89th Annual Meeting of the AAPA (cancelled)**. April 15-18, 2020. Podium presentation
- 2019 Multiple episodes of interbreeding between Neanderthals and modern humans. **88th Annual Meeting of the AAPA**. March 27-30th, 2019. Podium presentation.
- 2018 Neanderthal ancestry in modern-day humans provide clues for the pattern of Neanderthal-human admixture in the past. **SMBE Satellite Meeting on Modern Methods for the Study of Ancient DNA**. April 6-8th, 2018. Podium presentation.
- 2017 Evaluating the robustness of coalescent dating methods from short ancient DNA sequences. Meeting for the **Society for Molecular Biology & Evolution**. July 2-6th, 2017. Poster presentation.

- 2017 Interpreting the Penutian migration through Genetics: Ancient human DNA analysis from Central California. **86th Annual Meeting of the AAPA**. April 19-22nd, 2017. Poster presentation.
- 2014 Testing the limitations of ancient DNA sampling in Bayesian coalescent analysis. **Evo-WIBO**. April 25-27th, 2014. Poster presentation
- 2013 Global patterns of ABO polymorphism suggest strong balancing selection and very low effective population size after the human colonization of America. **82nd Annual Meeting of the AAPA**. April 9-13th, 2013. Podium presentation
- 2011 Sequence variation of O haplotypes in pre-columbian Native Americans and its relevance for Native American evolution. **80th annual meeting of the AAPA**. April 13-16th, 2011. Podium presentation
- 2010 Evolution of the ABO blood group locus in Pre-Columbian Native Americans. **79th annual meeting of the AAPA**. April 14-17th, 2010. Poster presentation
- 2009 *ASPM* and the evolution of neocortex size and intelligence in new world monkeys. **108th Annual Meeting of the AAA**. December 2-6th, 2009. Podium presentation

International Conferences

- 2023 Implementing a better random seed generator for genomic simulation. **SMBE**. July 23-27th, 2023. Poster presentation.
- 2018 Spectrum of Neandertal introgression across modern day humans indicates multiple episodes of human-Neandertal interbreeding. **SMBE**. July 8-12th, 2018. Poster presentation.
- 2018 Sociality drives diversification rates in sweat bees. **Second Joint Congress on Evolutionary Biology**. August 19-22, 2018. Poster presentation.
- 2014 Testing the limitations of ancient DNA sampling in Bayesian coalescent analysis. **83nd Annual Meeting of the AAPA**. April 9-12th, 2013. Poster presentation
- 2012 Global patterns of ABO polymorphism suggest strong balancing selection and a recent demographic bottleneck in human populations. **First Joint Congress on Evolutionary Biology**. July 6-10, 2012. Podium presentation

PROFESSIONAL MEMBERSHIPS

- 2008-2023 American Association of Biological Anthropologists
- 2013-2023 American Association of Anthropological Genetics
- 2017-2023 Society for Molecular Biology & Evolution
- 2017-2023 Society for the Study of Evolution

SERVICE

Peer Reviewer for

NSF, Science, The Leakey Foundation, American Journal of Biological Anthropology, Genome Biology and Evolution, G3, Frontiers in Genetics, Science Advances, PLoS ONE, Molecular

Fernando A. Villanea - C.V.

Biology and Evolution, eLife, Communications Biology, Human Biology, Evolution, Medicine and Human Health.