

TANVI P. HONAP

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EDUCATION

2012 - 2017 Doctor of Philosophy in Evolutionary Biology, Arizona State University, Tempe, USA
2010 - 2012 Master of Science in Virology, Savitribai Phule Pune University, Pune, India
2007 - 2010 Bachelor of Science in Microbiology (with a minor in Industrial Microbiology), Savitribai Phule Pune University, Pune, India

EMPLOYMENT HISTORY

2017 - Research Assistant Professor, Department of Anthropology, University of Oklahoma (OU)
Faculty, Laboratories of Molecular Anthropology and Microbiome Research, OU
2012 - 2017 Graduate Teaching/Research Assistant, School of Life Sciences, Arizona State University (ASU)

RESEARCH INTERESTS

Infectious disease evolution; human microbiome; ancient DNA; neglected tropical diseases; zoonoses

RESEARCH GRANTS

EXTERNAL

2021 - 2024 CHOMPER: Calculus and Hominid Oral Metagenomes for Pathogen Evolution Research. National Science Foundation BCS-2045308. Role: Co-PI, with PI Cecil Lewis (OU). Total: USD 422,196.

INTERNAL

2016 - 2017 Of monkeys and mycobacteria: a nonhuman primate connection to leprosy. Graduate Jumpstart Grant, Graduate and Professional Students Association, ASU. Role: PI. Total: USD 500.
2014 - 2015 Investigating leprosy in nonhuman primates. Graduate Research Grant, Graduate and Professional Students Association, ASU. Role: PI. Total: USD 1,950.

HONORS AND AWARDS

EXTERNAL

2017 Registration Award, Society for Molecular Biology and Evolution Annual Meeting (USD 320)
2016 Outstanding Student Podium Presentation in Anthropological Genetics award, American Association of Physical Anthropologists Annual Meeting (USD 200)
2015 Registration Award, Society for Molecular Biology and Evolution Annual Meeting (USD 320)
2010 University Grants Commission's Indira Gandhi Scholarship for Single Girl Child, India (INR 40,000)
2010 First Place, Horizon Intercollegiate Poster Presentation Competition, Pune, India
2007 Janshetji Tata Trust Scholarship, Pune Intercollegiate Consortium Exploratory Program, Pune, India (INR 1,400)

INTERNAL

2017	Dissertation Completion Fellowship, School of Life Sciences, ASU (USD 11,595)
2017	Graduate and Professional Students Association (GPSA) Individual Travel Grant, ASU (USD 950)
2017	GPSA Interview Travel Grant, ASU (USD 550)
2016	Conference Travel Award, School of Life Sciences, ASU (USD 400)
2015	Conference Travel Award, School of Life Sciences, ASU (USD 400)
2015	Graduate College Travel Award, ASU (USD 500)
2015	GPSA Individual Travel Grant, ASU (USD 950)
2015	GPSA Individual Travel Grant, ASU (USD 588)
2014	Conference Travel Award, School of Life Sciences, ASU (USD 400)
2014	Graduate College Travel Award, ASU (USD 350)

PEER-REVIEWED PUBLICATIONS (total = 12)

* denotes co-first authors, * denotes corresponding author

2022	Vågene ÅJ ⁺ , Honap TP⁺ , Harkins KM, Rosenberg MS, Giffin K, Cárdenas-Arroyo F, Leguizamón LP, Arnett J, Buikstra JE, Herbig A, Krause J*, Stone AC*, and Bos KI*. Geographically dispersed zoonotic tuberculosis in pre-contact South American human populations. <u>Nature Communications</u> 13 (1): 1-12
2021	Jacobson DK, Moore KN, Gunderson CC, Rowland MR, Austin RM, Honap TP , Xu J, Warinner C, Sankaranarayanan K, and Lewis CM (2021). Shifts in gut and vaginal microbiomes are associated with cancer recurrence time in women with ovarian cancer. <u>PeerJ</u> 9:e11574.
2021	Jacobson DK, Honap TP , Ozga AT, Meda N, Kagone T, Carabin H, Spicer PG, Tito RY, Obregon-Tito A, Reyes LM, Troncoso-Corzo L, Guija-Poma E, Sankaranarayanan K, and Lewis CM (2021). Analysis of global human gut metagenomes shows that metabolic resilience potential for short-chain fatty acid production is strongly influenced by lifestyle. <u>Scientific Reports</u> 11:1724.
2020	Jacobson DK, Honap TP , Monroe C, Lund J, Houk B, Novotny A, Robin C, Marini E, and Lewis CM (2020). Functional diversity of microbial ecologies estimated from ancient human coprolites and dental calculus. <u>Philosophical Transactions of the Royal Society B</u> 375: 20190586
2020	Borry M, Cordova B, Perri A, Wibowo M, Honap TP , Ko J, Yu J, Britton K, Flink LG, Power RC, Stuijts I, Garcia SD, Hofman CA, Hagan RW, Kagone TS, Meda N, Carabin H, Jacobson D, Reinhard K, Lewis CM, Kostic A, Jeong C, Herbig A, Hubner A, and Warinner C (2020). CoproID predicts the source of coprolites and paleofeces using microbiome composition and host DNA content. <u>PeerJ</u> 8:e9001
2020	Honap TP⁺ , Sankaranarayanan K ⁺ , Schnorr S, Ozga AT, Warinner C, and Lewis CM (2020). Biogeographic study of human gut-associated crAssphage suggests impacts from industrialization and recent expansion. <u>PLoS ONE</u> 15(1): e0226930
2019	Schnorr SL, Hofman CA, Netshifhefhe SR, Duncan FD, Honap TP , Lesnik J, and Lewis CM (2019). Taxonomic features and comparisons of the gut microbiome from two edible fungus-farming termites (<i>Macrotermes falciger</i> , <i>M. natalensis</i>) harvested in the Vhembe district of Limpopo, South Africa. <u>BMC Microbiology</u> 19 (164).
2018	Honap TP⁺ , Pfister L-A, Housman G, Mills S, Tarara RP, Suzuki K, Cuzzo FP, Sauter ML, Rosenberg MS, and Stone AC* (2018). <i>Mycobacterium leprae</i> genomes from naturally infected nonhuman primates. <u>PLoS Neglected Tropical Diseases</u> 12(1): e0006190

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- 2017 Benjak A⁺, **Honap TP**⁺, Avanzi C, Becerril-Villanueva L, García I, Rojas-Espinosa O, Stone AC, and Cole ST (2017). Insights from the genome sequence of *Mycobacterium lepraemurium*: massive gene decay and reductive evolution. mBio 8:e01283-17
- 2016 Ozga AT, Nieves-Colón MA, **Honap TP**, Sankaranarayanan K, Hofman CA, Milner GR, Lewis CM, Stone AC, and Warinner C (2016). Successful enrichment and recovery of whole mitochondrial genomes from ancient human dental calculus. American Journal of Physical Anthropology 160: 220–228
- 2013 Alagarasu K, **Honap TP**, Damle IM, Mulay AP, Shah PS, and Cecilia D (2013). Polymorphisms in the Oligoadenylate Synthetase Gene Cluster and its Association with Clinical Outcomes of *Dengue Virus* Infection. Infection, Genetics, and Evolution 14:390-395
- 2012 Alagarasu K⁺, **Honap TP**⁺, Mulay AP, Bachal RV, Shah PS, and Cecilia D (2012). Association of vitamin D receptor gene polymorphisms with clinical outcomes of *Dengue virus* infection. Human Immunology 73(11):1194-1199

PODIUM PRESENTATIONS

INVITED TALKS

- 2021 **Honap TP**, Monroe C, Sandberg P, Austin R, Levine M, and Lewis CM. Reconstructing the genomes of the red complex of pathogens from ancient dental calculus samples from the North American Wichita (500-700 BP). Annual North American Meeting of the Paleopathology Association. Virtual Meeting.
- 2021 **Honap TP**. Genomic analysis of leprosy in naturally infected nonhuman primates. “Towards a One Health Approach to Study Leprosy”. Virtual Workshop hosted by the Lorentz Center.

SELECT CONTRIBUTED TALKS

- 2022 **Honap TP**, Monroe CR, Johnson SJ, Sankaranarayanan K, Levine M, and Lewis CM. Oral microbial ecologies reconstructed from pre-colonial era Wichita ancestors from North America provide insights into the global “silent epidemic” of oral disease. American Association of Biological Anthropologists Annual Meeting, Denver, USA.
- 2022 Ozga AT, **Honap TP**, Lewis CM, and Stone AC. Whole genome capture of oral pathogenic bacteria from Great Ape dental calculus. American Association of Biological Anthropologists Annual Meeting, Denver, USA.
- 2022 Austin RA, Zuckerman MK, **Honap TP**, Lee H, Ward GK, Warinner C, Sankaranarayanan K, and Hofman CA. Interdisciplinary approaches provide insight into structural violence and acute bacterial infections in an individual from the Terry Collection. American Association of Biological Anthropologists Annual Meeting, Denver, USA.
- 2019 Kennedy J, **Honap TP**, Chavez S, Chavez S, and Sankaranarayanan K. Analysis of mitochondrial haplogroup variation and cranial modification at the archaeological site of Cundisa, Bolivia. American Association of Physical Anthropologists Annual Meeting, Cleveland, USA.
- 2019 Jacobson DK, Kagone TS, Meda N, Carabin H, **Honap TP**, Sankaranarayanan K, and Lewis CM. Gut microbiome community composition is significantly influenced by shared living space in rural agriculturalists from Burkina Faso. American Association of Physical Anthropologists Annual Meeting, Cleveland, USA.
- 2018 **Honap TP**, Vågane Å, Herbig A, Rosenberg MS, Buikstra JE, Bos KI, Krause J, and Stone AC. Pre-contact and historic era *Mycobacterium tuberculosis* complex genomes from the Americas. American Association of Physical Anthropologists Annual Meeting, Austin, USA.
- 2017 Stone AC, **Honap TP**, Vågane Å, Herbig A, Rosenberg M, Buikstra JE, Bos KI, and Krause J.

- Ancient *Mycobacterium tuberculosis* complex genomes from the Americas. International Society for Evolutionary Medicine and Public Health Annual Meeting, Groningen, Netherlands.
- 2017 **Honap TP**, Pfister LA, and Stone AC. Genomic analyses of *Mycobacterium leprae* strains from naturally infected nonhuman primates. American Association of Physical Anthropologists Annual Meeting, New Orleans, USA.
- 2016 **Honap TP**, Vågane A, Herbig A, Rosenberg MS, Buikstra JE, Bos KI, Krause J, and Stone AC. Genetic analyses of pre- and post-contact North American *Mycobacterium tuberculosis* complex strains. American Association of Physical Anthropologists Annual Meeting, Atlanta, USA.
[Outstanding Podium Presentation in Anthropological Genetics award]
- 2016 **Honap TP**. Ancient DNA analyses of New World tuberculosis strains. Graduate and Professional Students Association Interdisciplinary Research Symposium, Arizona State University, Tempe, USA.
- 2015 **Honap TP**. Analysis of a nonhuman primate *Mycobacterium leprae* strain: implications for zoonotic transmission of mycobacterial pathogens. Graduate and Professional Students Association Interdisciplinary Research Symposium, Arizona State University, Tempe, USA.

POSTER PRESENTATIONS

INVITED POSTERS

- 2014 **Honap TP**, Pfister LA, and Stone AC. The origins and evolution of *Mycobacterium leprae*. American Association of Physical Anthropologists Annual Meeting, Calgary, Canada.

SELECT CONTRIBUTED POSTERS

- 2022 Johnson SJ, **Honap TP**, Lynch PA, Kennett DJ, Prufer KM, and Lewis CM. Investigating the changes in oral microbial ecologies of ancestral Maya individuals from Belize accompanying shifts in subsistence patterns. American Association of Biological Anthropologists Annual Meeting, Denver, USA.
- 2019 Sankaranarayanan K⁺, **Honap TP**⁺, Schnorr S, Ozga AT, Warinner C, and Lewis CM. Biogeographic study of human gut associated crAssphage suggests impacts from industrialization and recent expansion. American Association of Physical Anthropologists Annual Meeting, Cleveland, USA.
- 2018 Kennedy J, **Honap TP**, Chavez S, Chavez S, and Sankaranarayanan K. Analysis of mitochondrial haplogroup variation and cranial modification at the archaeological site of Cundisa, Bolivia. Latin American Association for Biological Anthropology Annual Meeting, Puerto Rico.
- 2018 Wright S, Monroe C, Furlong M, Reeves M, **Honap TP**, Austin R, and Hofman CA. Exploring the Biological Heritage of Enslaved People at James Madison's Montpelier Through Ancient DNA Analysis. Society for American Archaeology Annual Meeting, Washington D.C., USA.
- 2017 **Honap TP**, Vågane Å, Herbig A, Rosenberg MS, Buikstra JE, Bos KI, Krause J, and Stone AC. Genomic analyses of ancient *Mycobacterium tuberculosis* complex strains from the Americas. Society for Molecular Biology and Evolution Annual Meeting, Austin, USA.
- 2017 Crane A, **Honap TP**, Goebel M, Stone AC, and Varsani A. Towards identifying *Mycobacterium pinnipedii* and viruses associated with Antarctic fur seals and Weddell seals. Society for Molecular Biology and Evolution Annual Meeting, Austin, USA.
- 2017 **Honap TP**, Vågane Å, Herbig A, Buikstra JE, Bos KI, Krause J, and Stone AC. Genomic analyses of ancient tuberculosis strains from the Americas. Plant and Animal Genomes Society Annual Meeting, San Diego, USA.
- 2016 Ozga AT, Nieves-Colón MA, **Honap TP**, Sankaranarayanan K, Hofman CA, Milner GR, Lewis

- CM, Stone AC, and Warinner C. Ancient dental calculus as a reservoir of whole human mitogenomes. American Association of Physical Anthropologists Annual Meeting, Atlanta, USA.
- 2015 **Honap TP**, Pfister LA, Erkenswick G, Watsa M, and Stone AC. Analysis of a nonhuman primate *Mycobacterium leprae* strain: implications for zoonotic transmission of mycobacterial pathogens. Society for Molecular Biology and Evolution Annual Meeting, Vienna, Austria.
- 2015 **Honap TP**, Housman G, Erkenswick G, Malukiewicz J, Boere V, Machado-Pereira L, Grativol AD, Ruiz-Miranda C, Silva I, Watsa M, and Stone AC. Investigating the presence of mycobacterial pathogens in New World primates. American Association of Physical Anthropologists Annual Meeting, St. Louis, USA.
- 2015 Nieves-Colón MA, Ozga AT, **Honap TP**, Pestle WJ, Warinner C, and Stone AC. Comparison of aDNA yields from calculus and tooth roots in pre-Columbian skeletal remains. American Association of Physical Anthropologists Annual Meeting, St. Louis, USA.
- 2010 **Honap TP**, Tamhankar MA, Bhalerao A, and Deshpande NM. Hydrocarbonclastic bioluminescent bacteria: A solution to hydrocarbon pollution. Horizon Intercollegiate Poster Presentation Competition, Pune, India. **[First Place]**

TECHNICAL REPORTS

- 2020 Wright SL, Singleton R, Hughes K, Rayfield K, **Honap TP**, Dagtas N, Monroe CR, Wu S, Huang L, and Hofman CA. Sequencing dental calculus and dentin from Histria: Genetic Analysis of Dental Calculus and Teeth from Roman Burial Contexts 2nd-6th centuries CE.

RESEARCH EXPERIENCE

- 2016 Visiting researcher, Max Planck Institute for the Science of Human History, Jena, Germany. Project: Reconstructing ancient *Mycobacterium tuberculosis* complex genomes. PIs: Dr. Kirsten Bos and Dr. Johannes Krause
- 2012 - 2017 Ph.D. Student, Arizona State University, USA. Dissertation: Tracing the Evolutionary Histories of Leprosy and Tuberculosis using Ancient DNA and Phylogenomics Methods. PIs: Dr. Anne Stone and Dr. Michael Rosenberg
- 2011 - 2012 Masters Student, Dengue Department, National Institute of Virology, Pune, India. Thesis: Association of polymorphisms in the Vitamin D receptor and oligoadenylate synthetase genes with clinical outcomes of *Dengue virus* infection. PI: Dr. Kalichamy Alagarasu
- 2009 Intern, Quality Assurance and Quality Control Department, Mapro Foods Pvt. Ltd., Wai, India.
- 2007 - 2009 Undergraduate Researcher, Abasaheb Garware College, Pune, India. Project: Isolation and identification of bioluminescent bacteria and investigation of their hydrocarbon-clastic property. PI: Dr. Neelima Deshpande
- 2007 - 2008 Undergraduate Researcher, Pune Intercollegiate Consortium Exploratory Program, India. Project: Study of groundwater contamination due to municipal garbage dumping sites around Pune city, India. PI: Dr. Sanjay Kumbhar

TEACHING EXPERIENCE

- 2018 Directed Reading in Metagenomics, Department of Anthropology, OU.
- 2012 - 2017 Graduate Teaching Assistant, School of Life Sciences, ASU. Courses: General Biology for Majors (2 semesters), Organic Evolution (2 semesters), Conceptual Approaches to Biology for Majors (1 semester), and Applied Genetics (1 semester).

MENTORING EXPERIENCE

- 2017 - Laboratories of Molecular Anthropology and Microbiome Research (LMAMR), OU
- Trained visiting researchers (2) and graduate students (5) in ancient DNA laboratory methods. Mentees: Dr. Raquel Fleskes, University of Connecticut (2022); Dr. Jennifer Kennedy, Central Michigan University (2018-2019); Dr. Alexandra Emmons, Colorado State University (2019); Rita Austin, OU (2017-2019); Sarah Johnson, OU (2020-), Mario Apata, ASU (2021), Eva Granizo, Universidad del Pais Vasco, Spain (2021), Horvey Palacios, OU (2021-).
 - Trained graduate (2) and undergraduate (1) students in laboratory methods and data analysis of amplicon sequencing data for their thesis projects. Mentees: Jacob Haffner, OU (2017-2019); Abigail Gamble, OU (2018-2020); Hima Patel, OU (2021).
 - Trained a post-doctoral scholar (1) and REI Fellow (1) in BASH shell scripting and 16S rRNA microbiome data analysis. Mentees: Dr. Sharmily Khanam, OU (2018-2019); Dr. Sushila Arya, OU Health Science Center (2018-2019).
 - Mentored graduate students (4) in bioinformatics analyses of metagenomic data for their dissertation projects. Mentees: David Jacobson, OU (2017-2020); Rita Austin, OU (2017-2020); Nisha Patel, OU (2017-2018), Sarah Johnson, OU (2020-).
- 2012 - 2017 Laboratory of Dr. Anne C. Stone, ASU
- Trained graduate students (5) in ancient and modern DNA laboratory methods and genetic data analyses. Mentees: Adele Crane, ASU (2016-2017); Kelly Blevins (2016-2017); Angela Taravella, ASU (2016-2017); Stevie Winingear, ASU (2016-2017); Charlotte Till, ASU (2013-2014).
 - Trained undergraduate students (4) in ancient and modern DNA laboratory methods. Mentees: Soleil Young, Syracuse University (2017); Katherine Skerry, ASU (2014-2016); Justin Lund, ASU (2013-2014); Christina Balentine, ASU (2013-2014).

PROFESSIONAL SERVICE

REVIEWER, EXTERNAL GRANTS (total = 33)

- 2022 Member of advisory panel and *ad hoc* reviewer, National Science Foundation.
- 2021 Member of advisory panel, National Science Foundation.
- 2021 *Ad hoc* reviewer, Leakey Foundation.
- 2020 Member of advisory panel and *ad hoc* reviewer, National Science Foundation.
- 2019 Member of advisory panel, National Science Foundation.

REVIEWER, INTERNAL GRANTS (total ≈ 150)

- 2013 - 2017 Graduate Research and Travel Grants, Graduate and Professional Students Association, ASU

REVIEWER, JOURNAL ARTICLES (total = 15)

- 2021 - *PeerJ; F1000 Research; Molecular Biology and Evolution; Cell Reports*
- 2020 - *Cell; Philosophical Transactions of the Royal Society B*
- 2019 - *Science Advances; Evolution, Medicine, and Public Health*
- 2018 - *Proceedings of the National Academy of Sciences USA; PLoS ONE; PLoS Neglected Tropical Diseases; GigaScience*

OTHER

- 2019 - Website administrator, American Association of Anthropological Genetics (anthgen.org)

INTERNAL SERVICE

- 2017 - Laboratories of Molecular Anthropology and Microbiome Research (LMAMR), OU
- Served as Interim Laboratory Manager for LMAMR (Apr-Dec 2018; Jan-Apr 2020) during transition period between laboratory managers. Responsibilities included day-to-day management of a 40-personnel laboratory, ordering supplies, equipment maintenance, service contract updates, and safety training of new laboratory members.
 - Designed a suite of bioinformatics pipelines for analyses of ancient metagenomic data for use by LMAMR members.
- 2016 Graduate student representative, faculty search committee, School of Life Sciences, ASU

PUBLIC OUTREACH

- 2013 - Volunteer/content writer for Ask-A-Biologist website, ASU (askabiologist.asu.edu)
- 2016 Genetics content writer for March Mammal Madness 2016
- 2013 Invited speaker, Department of Microbiology, Abasaheb Garware College, Pune, India. "Career opportunities for Microbiology post-graduate students in India and abroad."

SKILLS

LABORATORY

- Proficient at working in Clean Room and BSL-2 conditions.
- Skilled in recovery of biomolecules from degraded, archaeological, and low biomass samples.
- Expert in DNA and RNA extraction, nucleic acid quantification, PCR and qPCR, Sanger sequencing, amplicon and shotgun library preparation, target enrichment using in-solution hybridization capture, and Illumina next-generation sequencing.
- Experienced in bacterial culturing, tissue culturing, virus propagation using cell lines and embryonated eggs, Western Blot, ELISA, and haemagglutination assays.

COMPUTATIONAL

- Proficient in Bash, Python, and R.
- Expert in genomic and metagenomic data analysis, bacterial/viral genome reconstruction, phylogenetics, and Bayesian dating analyses.
- Experienced in analysis of amplicon-based microbiome and human mitochondrial genome data.

LANGUAGES

Fluent in English, Marathi, and Hindi.

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS

American Association of Physical Anthropologists (AAPA); American Association for Anthropological Genetics (AAAG)

REFERENCES

- Dr. Cecil M. Lewis Jr.** Founding Co-Director, Laboratories of Molecular Anthropology and Microbiome
(Current Supervisor) Research (LMAMR)
Professor, Department of Anthropology, University of Oklahoma
101 David L. Boren Blvd., Norman, OK 73019
E-mail: cmlewis@ou.edu
Phone: (+1)405-325-3415
- Dr. Anne C. Stone** Regents' Professor
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Phone: (+1)480-727-6310
- Dr. Michael Rosenberg** Director, Center for Biological Data Science
(Ph.D. co-advisor) Associate Professor, Virginia Commonwealth University
1000 West Cary Street, Box 842030, Richmond, VA 23284
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