

Pamela Ferretti

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Education & Training

Postdoc	2023-present	Genetic Medicine, Department of Medicine, University of Chicago
Bridging Postdoc	2022	Computational Biology, European Molecular Biology Laboratory (EMBL), Heidelberg, Germany
Ph.D.	2022	Computational Biology, EMBL Heidelberg, Germany
Research Assistant	2017	Cellular and Molecular Biotechnology, University of Trento, Italy.
MSc	2016	Cellular and Molecular Biotechnology, University of Trento, Italy.
BSc	2014	Computer Science, University of Trento, Italy

Publications

* indicates shared authorship. H-index: 17; i-10 index: 18; citations: > 3,800 (from Google Scholar)

Preprints:

- 2024 **Ferretti P***, Allert M*, Johnson K, Rossi M, Heisel T, Gonia S, Knights D, Fields D, Albert FW, Demerath EW, Gale CA, and Blekhman R. *Assembly, stability, and dynamics of the infant gut microbiome are linked to bacterial strains and functions in mother's milk.* BioRxiv (author list different from early preprinted version)

Publications in peer-reviewed scientific journals:

- 2025 **Ferretti P**, Martignoni MM, McManus L, Sakal T, Liaghat A, Stevens B, K, Souza L, Cardon Z, Silveira C, Bordenstein S, and Roughgarden J. *Theory of host-microbe symbioses: challenges and opportunities.* Cell Host & Microbe, in press
- 2025 Chege M, **Ferretti P**, Webb S, Macharia RW, Obiero G, Kamau J, Alberts S, Tung J, Akinyi M, and Archie E. *Eukaryotic composition across seasons and social groups in the gut microbiota of wild baboons.* Animal Microbiome
- 2025 Hug AL, Hatzenichler R, Moraru C, Soares A, Meyer F, Heyder A, **The Data Reuse Consortium**, and Probst A. *A roadmap for fair reuse of public microbiome data.* Nature Microbiology, in press
- 2025 **Ferretti P**, Johnson K, Priya S, and Blekhman R. *Genomics of host-microbiome interactions in humans.* Nature Reviews Genetics
- 2025 Abdill R*, Graham* S, Rubinetti V, Ahmadian M, Hicks P, McDonald D, Chetty A, **Ferretti P**, Gibbons E, Rossi M, Knight R, Krishan A, Frank , Albert FW, Casey S, Greene CS, Sean Davis S, and Ran Blekhman R. *Integration of 168,000 samples reveals global patterns of the human gut microbiome.* Cell - Featured on the journal cover (February 2025)
- 2024 Nishijima S, Stankevic E, Aasmets O, Schmidt TSB, Nagata N, Keller MI, **Ferretti P**, Juel H, Fullam A, Schudoma C, Robbani SM, Kragh Hansen J, Aas Holm L, Israelsen M, Schierwagen R, Broens C, Fonvig CE, Holm JC, Nielsen T, Steen Pedersen J, Thiele MS, Trebicka J, Org E, Krag A, Hansen T, Kuhn M, and Bork P. *Fecal microbial load is a major determinant of gut microbiome variation and a confounder for disease associations.* Cell
- 2023 Schmidt TSB*, Fullam A*, **Ferretti P**, Orakov A, Maistrenko OM, Ruscheweyh HJ, Duan Y, Van Rossum T, Sunagawa S, Mende D, Kuhn M, Coelho LP, and Bork P. *SPIRE: a Searchable, Planetary-scale, Integrated REsource of microbial diversity and function.* Nucleic Acids Research
- 2023 **Ferretti P**, Wirbel J, Maistrenko OM, Van Rossum T, Alves R, Fullam A, Akanni W,

- Schudoma C, Schwarz A, Thielemann R, Thomas L, Kuhn M, Zeller G, Schmidt TSB, and Bork P. *C. difficile* may be overdiagnosed in adults and is a commensal in infants. eLife
- 2021 Klopp J, **Ferretti P**, Meyer C, Hilbert K, Haiß A, Marißen J, Henneke P, Hudalla H, Pirr S, Viemann D, Zemlin M, Forslund SF, Härtel C, Bork P, Van Rossum T, and the PRIMAL consortium. *Meconium microbiome of very preterm infants across Germany*. mSphere
- 2021 Coelho LP, Alves R, del Río AR, Myers PN, Cantalapiedra CP, Giner-Lamia J, Schmidt TSB, Mende D, Orakov A, Letunic A, Hildebrand F, Van Rossum T, Forslund SF, Khedkar S, Maistrenko OM, Jia L, **Ferretti P**, Sunagawa S, Zhao ZM, Bjørn Nielsen H, Cepas JH, and Bork P. *Towards the biogeography of prokaryotic genes*. Nature
- 2021 Hildebrand F, Gossmann T, Frioux C, Özkurt E, Myers PN, **Ferretti P**, Bahram M, Bjørn Nielsen H, and Bork P. *Dispersal strategies shape persistence and evolution of gut bacteria*. Cell Host & Microbe
- 2021 Bahram M, Netherway T, Frioux C, **Ferretti P**, Coelho LP, Geisen S, Bork P, and Hildebrand F. *Global distribution and diversity of bacteria and fungi across diverse habitats*. Environmental Microbiology
- 2020 Van Rossum T*, **Ferretti P***, Maistrenko OM*, and Bork P. *Diversity within species: interpreting strains in microbiomes*. Nature Reviews Microbiology - Featured on the journal cover (September 2020)
- 2018 **Ferretti P**, Pasolli E, Tett A, Asnicar F, Gorfer V, Fedi S, Armanini F, Truong DT, Manara S, Zolfo M, Beghini F, Bertorelli R, De Sanctis V, Bariletti I, Canto R, Clementi R, Cologna M, Crifò T, Cusumano G, Gottardi S, Innamorati C, Masè C, Yassour M, Vlamakis H, Xavier R, Koren O, Tateo S, Soffiati M, Pedrotti A, Ventura M, Huttenhower C, Bork P, and Segata N. *Mother-to-infant microbiome transmission from different body sites shapes the developing infant gut microbiome*. Cell Host & Microbe - Featured on the journal cover (July 2018)
- 2018 Yassour M, Jason E, Hogstrom L, Siljander H, **Ferretti P**, Asnicar F, Segata N, Vlamakis H, Lander E, Huttenhower C, Knip M, and Xavier R. *Strain-level identification of mother-to-child bacterial transmission during the first few months of life*. Cell Host & Microbe
- 2018 Dassi E*, **Ferretti P***, Covello G, Bertorelli R, Denti MA, De Sanctis V, Tett A, and Segata N. *The short-term impact of probiotic consumption on the oral cavity microbiome*. Scientific Reports
- 2017 Duranti S, Lugli GA, Mancabelli L, Armanini F, Turrone F, Kieran James K, **Ferretti P**, Gorfer V, Milani C, Zolfo M, Viappiani V, Pasolli E, Masè C, Postai D, Tateo S, Pedrotti A, Segata N, Van Sinderen D, and Ventura M. *Maternal inheritance of bifidobacterial communities and bifidophages in infants through vertical transmission*. Microbiome
- 2017 Asnicar F, Manara S, Zolfo M, Truong DT, Scholz M, Armanini F, **Ferretti P**, Gorfer V, Pedrotti A, Tett A, and Segata N. *Studying vertical microbiome transmission from mothers to infants by strain-level metagenomic profiling*. mSystems
- 2016 **Ferretti P**, Farina S, Cristofolini M, Girolomoni G, Tett A, and Segata N. *Experimental metagenomics and ribosomal profiling of the human skin microbiome*. Experimental Dermatology
- 2015 Milani C, Mancabelli L, Lugli G, Duranti S, Turrone F, Ferrario C, **Ferretti P**, Gorfer V, Tett A, Segata N, Van Sinderen D, and Ventura M. *Exploring vertical transmission of the gut microbiota from mother to child*. Applied and Environmental Microbiology
- 2015 Da Costa ARF, Fedrizzi T, Lopes ML, Monica Pecorari M, Wanda Lailan Oliveira da Costa, **Ferretti P**, Olivier Jousson, Nicola Segata, and Enrico Tortoli. *Characterization of 17 strains belonging to the Mycobacterium simiae complex and description of Mycobacterium paraense sp. nov.* International Journal of Systematic and Evolutionary Microbiology

- 2014 Tortoli E, Fedrizzi T, Pecorari M, Giacobazzi E, De Sanctis V, Bertorelli R, **Ferretti P**, Tagliazucchi S, Jousson O, and Segata N. *The new phylogenesis of the genus Mycobacterium*. International Journal of Systematic and Evolutionary Microbiology

Grants

- 2025 Kenya Institute of Primate Research (KIPRE), Kenya. \$20,000. Awarded to Mary Chege. Role: Co-wrote awarded grant proposal; contributed to study design and writing.
- 2017 Department of Cellular, Computational and Integrative Biology, University of Trento, Italy. 6,000€. Role: PI.
- 2016 Department of Information Engineering and Computer Science, University of Trento, Italy. 6,000€. Role: PI.

Scientific Presentations

Invited presentations

- 2024 Loyola University, Illinois
- 2024 Microbiome Center, University of Chicago, Illinois
- 2024 Centre for Microbiology and Environmental Systems Science, University of Vienna, Austria
- 2022 University of Chicago, Illinois
- 2022 Microbiome Virtual International Forum n.9
- 2021 University of Leiden, Netherlands
- 2020 University of Norwich, UK
- 2016 Comano Thermal Center Research, Trento, Italy
- 2015 Theodor Escherich Symposium, University of Graz, Austria

Conference poster presentations (presenting author)

- 2025 Microbiome Center, University of Chicago, Illinois
- 2024 CSHL24 - Cold Spring Harbor Laboratory - Microbiome, US
- 2023 The Human Microbiome Conference, EMBL, Germany
- 2022 IHMC22 International Human Microbiome Congress, Kobe, Japan
- 2022 ISME18 International Society for Microbial Ecology, Lausanne, Switzerland
- 2018 IHMC18 International Human Microbiome Congress, Ireland
- 2015 Symbiomes: Systems Biology of Host-Microbiome Interactions, Pultusk, Poland

Honors and Awards

- 2023 Travel Award for The Human Microbiome Conference, Germany
- 2022 Poster Award at International Society for Microbial Ecology - ISME18, Switzerland
- 2018 Poster Award at The human Microbiome Symposium, Germany
- 2017 Merit Award for the Master of Science in Cellular and Molecular Biotechnology
- 2015 EMBO Travel Grant Symbiomes: Systems Biology of Host-Microbiome, Poland

Workshops & Complementary Skills Training

- 2025 Machine Learning and AI Hackathon, University of Chicago, US
- 2025 Machine Learning and AI Workshop, University of Chicago, US
- 2024 Theory of Microbial Symbiosis Workshop (3 weeks), University of Hawai'i, US
- 2023 HIPAA Privacy and Security Awareness, University of Chicago, US
- 2022 Deep Learning and Neural Networks Workshop, EMBL Heidelberg, Germany

Teaching & Mentorship

Graduate students mentored

- Mary Chege, University of Nairobi, Kenya
- Tess Brunnen, University of Chicago
- Mattea Allert, University of Minnesota

Teaching

Guest Lecturer, Loyola University, Illinois (2024)
Microbiome in infant's health and clinical recommendations, University of Trento, Italy (2021)
Python programming, EMBL Heidelberg, Germany (2018)
The Human Microbiome, Comano Terme, Trento, Italy (2016-2017)
Next Generation Sequencing Platforms, FBK Web Valley (2014)

Academic Service

Public outreach

South Science Festival, Science Slam Finalist, University of Chicago (2024)
Scienza in Gioco, Rome, Italy (2024)

Media & Interviews

Cell - Research featured on journal cover (2025)
Spotlight Article, University of Chicago (2024)
Book Interview (2023)
Book Interview - ISBN 9788879756983 (2020)
Nature Reviews Microbiology - Research featured on journal cover (2020)
Cell Host & Microbe - Research featured on journal cover (2018)
Regional News Coverage (2018)

Conference organization and chairing

The Microbiome Center Symposium, University of Chicago (2025)
Microbiome Virtual International Forum (2023-present)

Peer review

Manuscripts: 9 journals including *Nature* (co-review), *mSystems*, *ISME*, *PLOS Computational Biology*, *FEMS Microbiology Ecology*, *Nature Communications*, *PeerJ*, *Current Opinion in Microbiology*, and *Scientific Reports*.