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Howard Ochman, Ph.D.

Professor of Integrative Biology

The University of Texas at Austin

Born in 1954 in Philadelphia, Pa., USA

Studied Biopsychology at Vassar College, New York and Biology at the University of Rochester

SCHWERPUNKT

ARBEITSVORHABEN

The Impact of Microbes on Human Evolution

The focus of my project is to determine the forces that shape the microbial communities inhabiting humans and great apes. This work will establish how these microbes have been influenced by host traits, including diet, behavior, and lifestyle, and in turn, how these microbes have had both positive and negative effects on human hosts. These issues will be examined through the lens of evolution, through comparisons of the microbial communities from a broad geographic and cultural range of humans, and by evaluating this information in the context of the microbiomes from other great apes. Additionally, there is recent evidence that several of the microbial lineages within the human gut microbiome have co-diversified with their hosts over evolutionary timescales. These bacterial lineages also offer an opportunity to directly compare species boundaries within different domains of life. Microbes are generally classified as species using sequence-similarity thresholds; we have developed an approach for delineating species of bacteria and archaea based on the defining principles of the Biological Species Concept. We will apply recent data coming from microbiome analyses to compare the process of speciation, i.e., the disruption of genes, across different prokaryotic and eukaryotic taxa.

Recommended Reading

Bobay, L.-M. and H. Ochman (2017). "Biological species are universal across Life's domains." Genome Biol. Evol. 9: 491-501.

Moeller, A. H., A. Caro-Quintero, D. Mjungu, A. V. Georgiev, E. V. Lonsdorf, M. N. Muller, M. Peeters, A. E. Pusey, B. H. Hahn and H. Ochman (2016). "Co-speciation of gut microbiota with hominids." Science 353: 380-382.

Raghavan, R., Y. Kelkar and H. Ochman (2012). "A selective force favoring increased G+C content in bacterial genes." Proc. Natl. Acad. Sci. USA 109: 14504-14507.

PUBLIKATIONEN AUS DER FELLOWBIBLIOTHEK

Ochman, Howard (2017)

Rates of gut microbiome divergence in mammals

https://kxp.k10plus.de/DB=9.663/PPNSET?PPN=1027283500

Ochman, Howard (2017)

Biological species are universal across life’s domains
https://kxp.k10plus.de/DB=9.663/PPNSET?PPN=102728289X

Ochman, Howard (2016)

Cospeciation of gut microbiota with hominids
https://kxp.k10plus.de/DB=9.663/PPNSET?PPN=1027272347