

Biosketch

Univ.-Prof. Dr. Matthias Horn

Position in CoE: Key Researcher

Personal Details

Place of birth	Karl-Marx-Stadt, Germany
Nationality	German
Children	3 (2005, 2007, 2011)
Affiliation:	University of Vienna
E-Mail	matthias.horn@univie.ac.at
Profile	ResearcherID: G-1136-2011
List of publications	ORCID: 0000-0002-8309-5855
Academic age	20 years since PhD



Academic Career and Positions Held

I received my **PhD** from the **Technische Universität Munich**, Germany, in **2001** (*summa cum laude*). After a brief PostDoc period I accepted a position as **Assistant Professor at the University of Vienna**, Austria, where I became Associate Professor (2005) and then **Full Professor for Microbial Symbioses** (2007). I served as Deputy Head of the new Department of Microbial Ecology from 2007 and of the Research Network “Chemistry meets Microbiology” (2015) before I took over responsibilities as the **chair of the Department of Microbiology and Ecosystem Science** (2019). From 2017 to 2021 I served as User Representative for the planning and building of the new University of Vienna Biology Building, the home of the department since summer 2021. I am currently coordinator of the doctoral program on Microbial Symbioses funded by the Austrian Science Fund.

Scientific Achievements and Scientific Contribution to the CoE

Scientific Achievements. My research focuses on **microbe-host interactions**, and specifically on bacteria infecting and residing inside eukaryotic cells. Through our comparative approach of studying environmental counterparts of well-studied bacterial pathogens, research from my lab led to the **discovery of novel microorganisms, molecular mechanisms, and ecological and evolutionary processes** governing these associations. More recently, we started to study **viruses of microbial eukaryotes**, and we began to investigate the impact of intracellular microbes on the role of their protist hosts as predators of microbial communities. My scientific leadership role and the promise of the research carried out in my lab is documented by successful grant applications totalling to more than € 5 Million since 2003, including a **START Award from the Austrian Science Fund** and a **Starting Grant (Consolidator Track) from the European Research Council**. Since 1999, I have authored **117 publications**; our work has received over 12,000 citations, corresponding to an h-index of 53. In my role as department head and as coordinator of a PhD program at the University of Vienna, I am dedicated to **education and training of upcoming scientists**. I have served as primary supervisor for 16 PhD students so far, and my lab hosted 7 PostDocs, many of which received their own funding through MSCA and other fellowships.

Scientific Contribution to the CoE. I will bring my expertise on **protists as hosts for intracellular microbes and viruses** to several projects of the CoE, and I will lead a work package on the role of viruses for the control of eukaryotic microbial populations and nutrient turnover, in which we will investigate the virus-host interactome and its effect on microbial communities and ecosystem functioning.

10 Most Important Publications (*relevant for the CoE)

1. *Arthofer, P.; Delafont, V.; Willemsen, A.; Panhölzl, F.; **Horn, M.** Defensive Symbiosis against Giant Viruses in Amoebae. *Proc. Natl. Acad. Sci. U.S.A.* **2022**, *119* (36), e2205856119. <https://doi.org/10.1073/pnas.2205856119>.
2. *Köstlbacher, S.; Collingro, A.; Halter, T.; Schulz, F.; Jungbluth, S. P.; **Horn, M.** Pangenomics Reveals Alternative Environmental Lifestyles among Chlamydiae. *Nat Commun* **2021**, *12* (1), 4021. <https://doi.org/10.1038/s41467-021-24294-3>.
3. *Herrera, P.; Schuster, L.; Wentrup, C.; König, L.; Kempinger, T.; Na, H.; Schwarz, J.; Köstlbacher, S.; Wascher, F.; Zojer, M.; Rattei, T.; **Horn, M.** Molecular Causes of an Evolutionary Shift along the Parasitism–Mutualism Continuum in a Bacterial Symbiont. *Proc. Natl. Acad. Sci. U.S.A.* **2020**, *117* (35), 21658–21666. <https://doi.org/10.1073/pnas.2005536117>.
4. *Tsao, H.-F.; Scheickl, U.; Herbold, C.; Indra, A.; Walochnik, J.; **Horn, M.** The Cooling Tower Water Microbiota: Seasonal Dynamics and Co-Occurrence of Bacterial and Protist Phylotypes. *Water Research* **2019**, *159*, 464–479. <https://doi.org/10.1016/j.watres.2019.04.028>.
5. *Böck, D.; Medeiros, J. M.; Tsao, H.-F.; Penz, T.; Weiss, G. L.; Aistleitner, K.; **Horn, M.**; Pilhofer, M. In Situ Architecture, Function, and Evolution of a Contractile Injection System. *Science* **2017**, *357* (6352), 713–717. <https://doi.org/10.1126/science.aan7904>.
6. Domman, D.; **Horn, M.**; Embley, T. M.; Williams, T. A. Plastid Establishment Did Not Require a Chlamydial Partner. *Nat Commun* **2015**, *6* (1), 6421. <https://doi.org/10.1038/ncomms7421>.
7. *Lagkouvardos, I.; Weinmaier, T.; Lauro, F. M.; Cavicchioli, R.; Rattei, T.; **Horn, M.** Integrating Metagenomic and Amplicon Databases to Resolve the Phylogenetic and Ecological Diversity of the Chlamydiae. *ISME J* **2014**, *8* (1), 115–125. <https://doi.org/10.1038/ismej.2013.142>.
8. *Collingro, A.; Tischler, P.; Weinmaier, T.; Penz, T.; Heinz, E.; Brunham, R. C.; Read, T. D.; Bavoil, P. M.; Sachse, K.; Kahane, S.; Friedman, M. G.; Rattei, T.; Myers, G. S. A.; **Horn, M.** Unity in Variety--The Pan-Genome of the Chlamydiae. *Molecular Biology and Evolution* **2011**, *28* (12), 3253–3270. <https://doi.org/10.1093/molbev/msr161>.
9. ***Horn, M.**; Collingro, A.; Schmitz-Esser, S.; Beier, C. L.; Purkhold, U.; Fartmann, B.; Brandt, P.; Nyakatura, G. J.; Droege, M.; Frishman, D.; Rattei, T.; Mewes, H.-W.; Wagner, M. Illuminating the Evolutionary History of Chlamydiae. *Science* **2004**, *304* (5671), 728–730. <https://doi.org/10.1126/science.1096330>.
10. *König, L.; Wentrup, C.; Schulz, F.; Wascher, F.; Escola, S.; Swanson, M. S.; Buchrieser, C.; **Horn, M.** Symbiont-Mediated Defense against Legionella Pneumophila in Amoebae. *mBio* **2019**, *10* (3), e00333-19. <https://doi.org/10.1128/mBio.00333-19>.