CURRICULUM VITAE

MATTHIAS G. FISCHER, PH.D.

Personal Information

Born	Aug. 19, 1976
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RESEARCH INTERESTS

- Aquatic virology
- Virus ecology & evolution
- Microbial interactions
- Diversity & evolution of eukaryotic microbes
- Giant DNA viruses of protists
- Virophages (viral parasites of giant viruses)
- Cell biology of viral infection
- Virus isolation & purification
- Virus genomics & genetic diversity
- Virus classification & taxonomy
- Bioinformatics, phylogenetic analysis, next-generation DNA sequencing

CURRENT POSITION

2017 – present	**Independent Research Group Leader** Department of Biomolecular Mechanisms Max Planck Institute for Medical Research, Heidelberg, Germany

PREVIOUS POSITIONS

2014 – 2017	**Research Project Leader** Department of Biomolecular Mechanisms, Max Planck Institute for Medical Research, Heidelberg, Germany
2011 – 2014	**Postdoctoral Fellow** Department of Biomolecular Mechanisms, Max Planck Institute for Medical Research, Heidelberg, Germany
2003 – 2004	**Research Assistant** Department of Genetics, University of Bayreuth, Germany

EDUCATION

2004 – 2011	**Doctor of Philosophy** Department of Microbiology & Immunology, University of British Columbia, Vancouver, Canada; Supervisor: Prof. Dr. Curtis A. Suttle
1997 – 2003	**Diploma in Biochemistry** University of Bayreuth, Germany; Supervisor: Prof. Dr. Christian F. Lehner

INSTITUTIONAL RESPONSIBILITIES	
2016 – 2019	Elected institute representative to the Biomedical Section of the Scientific Council of the Max Planck Society. Max Planck Institute for Medical Research, Heidelberg, Germany

ORGANISATION OF SCIENTIFIC MEETINGS	
2013, 2015, 2017	Organiser of the biennial **International Ringberg Symposium on Giant Virus Biology**, Ringberg Castle, Tegernsee, Germany.

COLLABORATIONS	
2016 – present	**Lutz Becks**: "Long-term population dynamics in a tripartite microbial system", MPI for Evolutionary Biology, Plön, Germany
2015 – present	**Jochen Reinstein**: "Capsid assembly mechanism of the virophage mavirus" Max Planck Institute for Medical Research, Heidelberg, Germany
2015 – present	**Ramon Massana**: "Genetic basis for phagotrophy in *Cafeteria roenbergensis*", Institut de Ciències del Mar, Barcelona, Spain
2014 – 2016	**Joshua Weitz**: "Infection dynamics of the giant virus CroV" Georgia Institute of Technology, Atlanta, USA
2010 – 2014	**Leonard Foster**: "Virion proteome analysis of Cafeteria roenbergensis virus" University of British Columbia, Vancouver, Canada
2008 – present	**Chuan Xiao**: "Cryo-EM structure and two-photon microscopy of Cafeteria roenbergensis virus", University of Texas, El Paso, USA

PROFESSIONAL ACTIVITES	
2006 – 2018	Peer reviewed for: Annals of the NY Academy of Sciences, Aquatic Microbial Ecology, BMC Genomics, Environmental Microbiology, Frontiers in Microbiology, Genome Biology and Evolution, Intervirology, ISME Journal, Journal of Virology, Nature, Nature Communications, Nature Reviews Microbiology, PLoS One, PLoS Pathogens, Proc. Natl. Acad. Sci. USA, Scientific Reports, Trends in Plant Science, Virology, Virology Journal, Virus Evolution, Viruses. Reviewer of scientific proposals for ERC and DFG.
2017	Guest editor of the *Viruses* Special Issue "Viruses of Microbes"
Since 2016	Chair of the ICTV *Mimiviridae* study group (Virus Taxonomy)
Since 2015	Editorial Board member of *Virology*
Since 2015	Editorial Board member of *Virus Evolution*
2014	Guest editor of the *Virology* Special Issue "Giant viruses"

SUPERVISION OF STUDENTS AND POSTDOCTORAL FELLOWS	
2018 – present	**Dr. Anna Koslová, Postdoctoral Fellow** Max Planck Institute for Medical Research, Heidelberg, Germany
2017 – present	**Dr. Mónica Berjón-Otero, Postdoctoral Fellow** Max Planck Institute for Medical Research, Heidelberg, Germany
2017 – present	**Dr. Sarah Duponchel, Postdoctoral Fellow** Max Planck Institute for Medical Research, Heidelberg, Germany
2015 – 2016	**Dr. Thomas Hackl, Postdoctoral Fellow** Max Planck Institute for Medical Research, Heidelberg, Germany
2006 – 2018	Supervised several undergraduate students (project length 8 weeks to 1 semester), University of British Columbia, Canada and MPImF Heidelberg

TEACHING ACTIVITIES	
2018	Lecturer in the graduate-level course "**Viruses of Bacteria and Other Microorganisms**", Universidad Complutense Madrid, Spain
2016 – 2018	Instructor of the lecture & laboratory course "**Capsid Assembly**" for students in the Molecular and Cellular Biology programme of Heidelberg University, Germany
2006 – 2009	Teaching Assistant for the courses BIOL 112 (Biology of the Cell) and MICB 203 (Basic Microbiology Lab), Univ. of British Columbia, Canada

GRANTS	
2016 – 2018	**Gordon & Betty Moore Foundation, USA**, Grant #5734 "Persistence mechanisms in a tripartite protist-virus-virophage system" **USD 835,646.-**
2017	**Internationale wissenschaftliche Veranstaltung** "3rd Ringberg Symposium on Giant Virus Biology" Deutsche Forschungsgemeinschaft, Germany **EUR 16,500.-**
2015	**Internationale wissenschaftliche Veranstaltung** "2nd Ringberg Symposium on Giant Virus Biology" Deutsche Forschungsgemeinschaft, Germany **EUR 15,100.-**
2013	**Internationale wissenschaftliche Veranstaltung** "International Symposium on Giant Virus Biology" Deutsche Forschungsgemeinschaft, Germany **EUR 15,100.-**

AWARDS	
2016	**Chica and Heinz Schaller Research Award** (endowment: 100,000.- €) Heidelberg, Germany
2012 – 2014	**EMBO Long-Term Fellowship** Max Planck Institute for Medical Research, Germany
2007 – 2008	**Li Tze Fong Memorial Graduate Fellowship** University of British Columbia, Canada
2006 – 2007	**Graduate Fellowship** University of British Columbia, Canada
2004 – 2006	**Gottlieb Daimler- and Karl Benz International Student Fellowship** Ladenburg, Germany & University of British Columbia, Canada
2000 – 2001	**Boehringer Ingelheim Fonds Scholarship** Penzberg, Germany & University of California at Berkeley, USA
2000 – 2001	**Fulbright Travel Scholarship to UC Berkeley** **(Participant in the UC Education Abroad Program)** University of Bayreuth, Germany & Univ. of California at Berkeley, USA

PUBLICATIONS

2018 Fischer MG†. The virophage family *Lavidaviridae*. In: **Viruses of Microorganisms** (eds. Hyman, P. & Abedon, S. T.), Caister Acadamic Press. https://doi.org/10.21775/9781910190852

2017 Xiao C*†, Fischer MG*†, Bolotaulo DM, Ulloa-Rondeau N, Avila GA, Suttle CA. Cryo-EM reconstruction of the Cafeteria roenbergensis virus capsid suggests novel assembly pathway for giant viruses. ***Scientific Reports*** 7:5484. PMID: 28710447

2016 Fischer MG† & Hackl T. Host genome integration and giant virus-induced reactivation of the virophage mavirus. ***Nature*** 540:288. PMID: 27929021

2016 Fischer MG†. Giant viruses come of age. ***Current Opinion in Microbiology*** 31:50-57. PMID: 26999382

2016 Krupovic M†, Kuhn JA, Fischer MG†. A classification system for virophages and satellite viruses. ***Archives of Virology*** 161:233-247. PMID: 26446887

2015 Fischer MG†. *Commentary*: Virophages go nuclear in the marine alga Bigelowiella natans. ***Proceedings of the National Academy of Sciences USA*** 112:11750-11751. PMID: 26330604

2014 Fischer MG†, Condit RC. Editorial introduction to "Giant Viruses" special issue of Virology. ***Virology*** 466-467:1-2. PMID: 25173439

2014 Fischer MG†, Kelly I, Foster LJ, Suttle CA. The virion of Cafeteria roenbergensis virus (CroV) contains a complex suite of proteins for transcription and DNA repair. ***Virology*** 466-467:82-94. PMID: 24973308

2013 Fischer MG†. Wenn Viren Viren infizieren. ***BIOspektrum*** 06:619-621.

2011 Fischer MG†. *Commentary*: Sputnik and Mavirus: more than just satellite viruses. ***Nature Reviews Microbiology*** 10:78. PMID: 22138956

2011 Fischer MG, Suttle CA†. A virophage at the origin of large DNA transposons. ***Science*** 332:231-234. PMID: 21385722

2010 Fischer MG, Allen MJ, Wilson WH, Suttle CA†. Giant virus with a remarkable complement of genes infects marine zooplankton. ***Proceedings of the National Academy of Sciences USA*** 107:19508-19513. PMID: 20974979

2004 Fischer MG, Heeger S, Häcker U, Lehner CF†. The mitotic arrest in response to hypoxia and of polar bodies during early embryogenesis requires Drosophila Mps1. ***Current Biology*** 14:2019-2024. PMID: 15556864

* shared first authors

† corresponding author(s)

INVITED PRESENTATIONS

- "Genomic mobility of the virophage mavirus and its eco-evolutionary implications." *Evolutionary Biology 2018*, Montpellier, France, 18-22 Aug 2018.
- "Endogenous virophages in protists: indicators of a defense system against giant viruses?" EMBO workshop *Viruses of Microbes IV*, Wroclaw, Poland, 9-13 Jul 2018.
- "Heterotrophic protists as a genomic hub for virophages and other mobile genetic elements." *EVOLUTION – Genetic Novelty/Genomic Variations by RNA Networks and Viruses*, Salzburg, Austria, 4-8 Jul 2018.
- "The fascinating world of virus-host interactions in eukaryotic microbes." Keynote lecture at Synmikro Symposium: *World of Viruses in Nature, Biotechnology and Medicine*, Philipps University Marburg, Germany, 15 May 2018.
- "Endogenous virophages in marine heterotrophic flagellates: smoking gun of an adaptive defense system against giant viruses?" *48th Jírovec's Protozoological Days*, Czech Society for Parasitology, Kunčice pod Ondřejníkem, Czech Republic, 30 Apr-04 May 2018.
- "The virus of my virus is my mutualist – what environmental microbiology teaches us about host-parasite interactions." *Fassberg Seminar Series*, Max Planck Institute for Biophysical Chemistry, 12 Dec 2017.
- "Beneficial viruses and the puzzling evolution of virophages." *Novel microbes and pathogens workshop*, Lausanne University Hospital, Switzerland, 9 Nov 2017.
- "Virus-based adaptive immunity in heterotrophic nanoflagellates." Max Planck Institute for Evolutionary Biology, Plön, Germany, 13 Jun 2017.
- "Coevolutionary strategies in tripartite host-virus-virophage systems." Max Planck Institute for Terrestrial Microbiology, Marburg, Germany, 20 Jan 2017.
- "'Ménage à trois': Virus-virophage-host interactions in the marine protozoan *Cafeteria roenbergensis*." Structural and Genomic Information Laboratory, Aix-Marseille University, Marseille, France, 10 Jan 2017.
- "'Ménage à trois': Virus-virophage-host interactions in the marine protozoan *Cafeteria roenbergensis*." Institut Hospitalo-Universitaire Méditerranée Infection, Marseille, France, 9 Jan 2017.
- "Coevolutionary strategies in tripartite host-virus-virophage systems." ISMB University College London, UK, 07 Dec 2016.
- "Virus-virophage-host interactions in the marine protozoan *Cafeteria roenbergensis*." University of Cologne, Germany, 2 Nov 2016.
- "Virophages and giant viruses of protists: a microbial love-hate triangle." University of Liverpool, UK, 18 Jun 2016.
- "Giant viruses and virophages – overview and insight in their replication and coevolution." *74th Annual Meeting and Assembly of the Swiss Society for Microbiology*, Bern, Switzerland, 14-16 Jun 2016.
- "Evolutionary clues from exogenous and endogenous viruses of protists." *LUCA, its contemporaries and their viruses: 20 years after*, Les Treilles, France, 09-14 May 2016.
- "Endogenous virophages protect the protozoan *Cafeteria roenbergensis* from lysis by giant viruses." Dept. of Zoology, Univ. of Oxford, UK, 04 Feb 2016.
- "Viruses of viruses: the mutualistic relationship between virophages and their protist hosts." University of Tennessee, Knoxville, TN, USA, 12 Oct 2015.

- "Viruses of viruses: the mutualistic relationship between virophages and their protist hosts." Georgia Institute of Technology, Atlanta, GA, USA, 09 Oct 2015.
- "Viruses of viruses: the mutualistic relationship between virophages and their protist hosts." Philipps-Universität Marburg, Germany, 28 Sep 2015.
- "Virophages - highly specialized parasites with deep evolutionary roots in eukaryotes." *Spring Meeting of the German Genetics Society*, Leucorea Wittenberg, Germany, 15-17 May 2015.
- "Virus-host interactions in the heterotrophic nanoflagellate *Cafeteria roenbergensis*." Max Planck Institute for Terrestrial Microbiology, Marburg, Germany, 3 Nov 2014.
- "A first glimpse into the coevolution of the nanoflagellate Cafeteria roenbergensis with the mavirus virophage." *Integrated Microbial Biodiversity Program Meeting* of the Canadian Institute for Advanced Research, Liblice, Czech Republic, 25-29 Jun 2014.
- "The virus of my virus is my friend – preliminary insights into the complex relationship between the microeukaryote *Cafeteria roenbergensis*, its giant virus CroV, and its virophage Mavirus." Karlsruhe Institute of Technology, Germany, 18 Jun 2014.
- "The secret life of *Cafeteria roenbergensis* - giant viruses, virophages, and coordinated behaviour in a heterotrophic nanoflagellate." *Citadell Hill Seminar Series*, Marine Biological Association, Plymouth, UK, 8 Mar 2013.
- "The complex virion proteome of Cafeteria roenbergensis virus." EMBO workshop *Viruses of Microbes II*, Brussels, Belgium, 16-20 Jul 2012.
- "The puzzling evolution of giant DNA viruses." *Virology Seminar Series* at the Department of Virology, Universitätsklinikum Heidelberg, Germany, 27 Sep 2011.
- "Giant viruses – new players in microbial ecology and evolution." Max Planck Institute for Terrestrial Microbiology, Marburg, Germany, 28. Apr 2011.
- "Genetic and ultrastructural aspects of CroV and mavirus." Structural and Genomic Information Laboratory, University of Aix-Marseille, France, 12 Apr 2011.
- "Anatomy and lifestyle of a giant marine virus." Max Planck Institute for Marine Microbiology, MarMic Retreat 2011, Bremen, Germany, 31 Mar 2011.
- "The virion proteome of Cafeteria roenbergensis virus." *International Conference on Viruses of the Environment*, Heidelberg, Germany, 22-23 Mar 2011.
- "Anatomy and lifestyle of a giant virus." Max Planck Institute for Medical Research, Heidelberg, Germany, 11 Jan 2011.