Univ.-Prof. Dr.

Alexander Loy

University of Vienna
Centre for Microbiology and Environmental Systems Science
Division of Microbial Ecology

Djerassiplatz 1
A-1030 Wien
Austria

PH +43 1 4277 91205
alexander.loy@univie.ac.at

Biosketch

Alexander Loy is Professor and research group leader at the Centre for Microbiology and Environmental Systems Science at the University of Vienna, Austria. He currently serves as executive committee member of the Austrian Microbiome Initiative (AMICI), faculty member of the Austrian Polar Research Institute (APRI), and deputy operational director of the Joint Microbiome Facility (JMF, University of Vienna and Medical University of Vienna). He is a key researcher in the FWF Cluster of Excellence "Microbiomes Drive Planetary Heath".

He earned his master's degree (Diploma) (1999) and PhD (2003) in Microbiology from the Technical University of Munich in Germany. Subsequently, he was awarded a Marie Curie postdoctoral fellowship and joined the newly founded Department of Microbial Ecology at the University of Vienna in Austria, where he established his own research group (2006) based on third-party grants and received his Habilitation (*venia docendi*) (2012). After holding positions as Assistant Professor (2009-2013) and Associate Professor (2013-2017), he was appointed as Professor for Microbial Communities (2017) at the University of Vienna.

The research of his team focuses on microbial ecology, including evolution and ecology of sulfur microorganisms, the function of the complex symbiotic microbiota of animals and humans in health and disease, and the development of molecular and isotope-labeling methods for studying uncultivated microorganisms in their natural environment.

He has published 104 peer-reviewed papers (including four in *Nature Communications*, three in *PNAS*, two each in *Nature* and *Nature Microbiology*, and one each in *Science, Science Translational Medicine*, *PloS Biology*, and *Cell Host Microbe*), 4 genome announcements and resources, 11 book chapters and other publications, and has edited a book on Geomicrobiology and a Frontiers Research Topic on microbial sulfur metabolism. The papers were cited >15000 (Web of Science)/>25000 (Google Scholar). His h-index is 64 (Web of Science)/74 (Google Scholar) (*July 21, 2026*). He has been invited to 67 presentations at national and international workshops, conferences or institutions. He has obtained 14 research grants as PI (total budget approx. 5.1 million €), 15 projects as supervisor/host (approx. 1.5 million €), and 4 sequencing grants.

Personal Information

Date of birth	June 9, 1974
Place of birth	Ceske Budejovice, Czech Republic
Nationality	German
Languages	German, English, (Czech, French)
Children	Lennard (2009), Tim (2013)

Research Interests

- Evolution and ecology of sulfur-compound-metabolizing microorganisms
- Function of the symbiotic microbiota of animals and humans
- Development of molecular and isotope-labeling methods for studying uncultivated microorganisms in their natural environment.

Current and Past Positions

10/2017	Professor for Microbial Communities, Dept. Microbiology & Ecosystem Science, Centre for Microbiology & Environmental Systems Science (CeMESS), University of Vienna, Austria
2016	Co-founder, managing director (2016-2020), and executive committee member (since 2020) of the Austrian Microbiome Initiative (AMICI, http://www.microbiome.at/)
10/2018	Deputy operational director of the Joint Microbiome Facility (JMF, http://jmf.microbial-ecology.net) of the University of Vienna and the Medical University of Vienna
2013	Founding and faculty member of the Austrian Polar Research Institute http://www.polarresearch.at/
2006	Group leader at the Dept. Microbiology & Ecosystem Science, University of Vienna.
04/2019-10/2025	Deputy Head of the Division of Microbial Ecology, University of Vienna, Austria
04/2019-10/2024	Deputy Head of the Department of Microbiology and Ecosystem Science, University of Vienna, Austria

Education and Professional Career

12/2013-09/2017	Associate professor, Dept. Microbiology & Ecosystem Science, University of Vienna, Austria
April 13, 2012	Habilitation (***venia docendi***) in Microbiology obtained at the University of Vienna (thesis *Evolution and ecology of sulfur cycle microorganisms - Sulfite reductase genes as molecular markers and novel, sulfur compound-dissimilating microorganisms in the environment*)

02/2009-11/2013	Assistant professor (tenure track) at the Department of Microbial Ecology (University of Vienna, Austria)
03/2008-01/2009	Assistant professor ("Universitätsassistent") at the Department of Microbial Ecology
04/2006-02/2008	Independent group leader (self-financed by FWF grant) at the Department of Microbial Ecology
07/2003-03/2006	Postdoctoral fellow at the Department of Microbial Ecology (University of Vienna, Austria)
July 7, 2003	Dissertation (***Dr. rer. nat***)
	Thesis *DNA Microarray Technology for Biodiversity Inventories of Sulfate-Reducing Prokaryotes* (Grade magna cum laude 1.1)
02/2000-06/2003	Ph.D. student at the Department of Microbiology at the Technical University of Munich, Germany with Priv.-Doz. Dr. Michael Wagner and Prof. Karl-Heinz Schleifer.
10/1999-01/2000	Researcher at the Helmholtz Zentrum München (German Research Center for Environmental Health, Neuherberg, Germany)
October 16, 1999	Diploma in Biology (***Univ. Dipl.-Biol.***)
	Thesis *Molekulare Identifizierung von Bakterien im natürlichen Mineralwasser – Molecular Identification of Bacteria in Natural Mineral Water* (Grade 1.3).
11/1998-10/1999	Experimental diploma thesis at the Helmholtz Zentrum München (German Research Center for Environmental Health, Neuherberg, Germany) in the Group for Flow Cytometry with Dr. Michael Nüsse and Dr. Harald Meier.
1993-1999	Biology student at the Technical University of Munich, Germany with focus on microbiology and subsidiary topics on virology, immunology, and clinical chemistry.
1993	High-school diploma, Finsterwalder Gymnasium Rosenheim, Germany

Academic Honors and Awards

2022	*Ars Docendi Recognition Award* for Excellence in Teaching from the Austrian Federal Ministry of Education, Science and Research (together with Holger Daims and Matthias Horn) for our teaching module on Biodiversity, function, and molecular ecology of microorganisms in the bachelor curriculum Biology at the University of Vienna
2012	*Förderungspreis der Stadt Wien* Early-Career Science Award of the City of Vienna for scientists <40 years of age
2007	*Focus of Excellence* Young Scientist Award of the Faculty of Life Sciences, University of Vienna
2004-2006	*Marie Curie Fellow* within the Sixth European Framework Programme

Positions Offered

12/2008	Associate Professor with Tenure (Molecular Microbial Ecology) at the Biological Institute (Faculty of Science) of the University of Southern Denmark

Funding

Since 2004: **13** third-party research grants as PI (**4,781,343 €**), **1** competitive university grant (**311,233 €**), **15** projects as supervisor/host (**>1,455,308 €**), and **4** sequencing grants

1. Microbiomes drive planetary health. **FWF Austrian Science Fund – Cluster of Excellence** [2023, 5 years] (*coordinator/director* Michael Wagner, 30 *PIs* including Alexander Loy, 763,382€ of 21,000,000 €)
2. Microbial symbioses in dynamic environments: Metabolic interplay and novel interactions (MAINTAIN). **doc.funds doctoral school - FWF Austrian Science Fund** [2019, 4 years] (*coordinators* Matthias Horn, Jillian Petersen, *principal investigator* Alexander Loy; Supervisor of 1 PhD fellow, 190,264€ of 1,902,623 €).
3. The wetland sulfur microbiome: Intra- and interspecies metabolic interactions. **FWF Austrian Science Fund project** [2019, 4 years] (*principal investigator* Alexander Loy, 399.000 €).
4. Physiological interactions of *Salmonella* and the intestinal microbiota – Ecological and genetic fitness determinants in colonization resistance and inflammation. **International D-A-CH project with FWF Austrian Science Fund as lead agency** [2016, 3 years] (*principal investigator* Alexander Loy, 449,768 of 703,156€).
5. Nutrition and the intestinal microbiota-host symbiosis: A holistic stable isotope-labeling approach to decipher key microbial players and quantitatively link single cell activity to system function. **WWTF Vienna Science and Technology Fund** [2013, 3 years] (*principal investigator* Alexander Loy, *Co-PI* David Berry, 335.700 €).
6. The cold microbial majority: Ecophysiology, biogeography, and genomics of psychrophilic sulfate-reducing microorganisms in arctic marine sediments. **FWF Austrian Science Fund project** [2013, 5 years] (*principal investigator* Alexander Loy, 445.757 € excluding overheads).
7. Ecophysiology of a sulfate-reducing rare biosphere member – in situ analysis of a peatland *Desulfosporosinus* sp. on a genomic, transcriptional, and metabolic level. **FWF Austrian Science Fund project** [since 2011/4, 3 years] (*principal investigator* Michael Pester (2011/4-2012/12), Alexander Loy (2013/1-2014/3), 383.103 € excluding overheads).
8. 'Aqua incognita' in bottles: Microbial ecology of bottled waters and implications for formation of methylated sulfur and selenium compounds. **Industry funded project** [since 2011/1, 3.5 years] (*principal investigator* Alexander Loy, 491.692 €)
9. Metagenomics and metatranscriptomics of the Inflammatory Bowel Disease Microbiota. **GEN-AU III joint project - BMWF Austrian Federal Ministry of Science and Research** [2009/5, 3 years] (*subproject leaders* Alexander Loy and Michael Wagner, 367.705 € of 1.540.000 €)
10. Diversity and biogeography of thermophilic sporeforming sulfate-reducing microorganisms in cold marine sediments: Bioindicators for fluid flow from the hot subsurface? **FWF Austrian Science Fund project** [2007/11, 3 years] (*principal investigator* Alexander Loy, 224.564 €).
11. Joint project: Impact of microbial diversity and activity on sustainable land use; Subproject 2: "Nitrifying microorganisms and *Acidobacteria* as bioindicators for soil health". **BMBF German Federal Ministry of Education and Research** [2007/1, 3 years] (*subproject leaders* Alexander Loy, Wolfgang Ludwig, Michael Wagner, 133.124 € of 325.139 €)

12. Identity, community dynamics, and ecophysiology of novel and uncultured sulfate-reducing prokaryotes in an acidic fen system. **FWF Austrian Science Fund project** [2006/4, 3 years] (*principal investigator* Alexander Loy, 362.353 €).
13. Biodiversity of microbial communities involved in sulfur cycling at a shallow water hydrothermal vent. **Marie Curie Intra-European Fellowship in the EU 6th framework programme** [2004-2006] (*Marie Curie fellow* Alexander Loy, 148.262 €).

Competitive university funding

1. Secondary Metabolomes of Bacterial Communities (MetaBac). **Research Platform University of Vienna** [2020/05, 4 years] (*head* Sergey Zotchev, *deputy head* Alexander Loy, 311,232.55€ of 596,565.10 €).

Host/supervisor for the projects of team members

1. Microbial ecophysiology and diversity of yet-uncharacterized sulfur-cycling processes in wetlands. **China Scholarship Council** [2025, 4 years]**,** PhD fellowship to Guoqing Guan, *host* Alexander Loy 64,800 €.
2. Microbial sulfonolipid biosynthesis and degradation in the human gut (SLIDES). **Marie Skłodowska-Curie Postdoctoral Fellowship in the EU Horizon 2020 framework programme** [2025/04, 2 years] *fellow* Dr. Tomohisa Sebastian Tanabe, *host* Alexander Loy, 214,345 €.
3. Timing the evolution of the dissimilatory sulfur cycle: a bridge between genes and geochemistry (DatingSuCy) **Marie Skłodowska-Curie Postdoctoral Fellowship in the EU Horizon 2020 framework programme**, [2023/01, 2 years] *fellow* Dr. Song-Can Chen, *host* Alexander Loy, 183,601 €.
4. Establishing defined communities of Antarctic soil bacteria as potential sources of antimicrobials (DEFCOMANT) **Marie Skłodowska-Curie Individual Fellowship in the EU Horizon 2020 framework programme**, [2022/01, 2 years] *fellow* Dr. Stanislava Kralova, *host* Alexander Loy, 174,167 €.
5. Interspecies hydrogen transfer in the mammalian gut: How interactions between fermenters and hydrogenotrophs influence colonic homeostasis (H2Gut). **Marie Skłodowska-Curie Individual Fellowship in the EU Horizon 2020 framework programme**, [2018/09, 2 years] *fellow* Dr. Kerim Dimitri Kits, *host* Alexander Loy, 178,157 €.
6. Diversity and ecophysiology of sulfur-compounds-metabolizing microorganisms in the intestinal tract of human and animals. **China Scholarship Council,** PhD fellowship to Huimin Ye [2016, 4 years], 57,600 €.
7. Missing links in the marine sulfur cycle – identity and functions of microorganisms utilizing sulfur cycle intermediates and organic sulfur molecules in marine sediments. **FWF Austrian Science Fund project** [2016/07, 3 years] (*principal investigator* Kenneth Wasmund, 305.514,30 € excluding overheads).

8. **Back-to-research grant, University of Vienna**, Dr. Celine Lesaulnier [2014/10, 9 months], 20,000 €
9. **PhD completion grant, University of Vienna**, Albert Müller [2014], 3,000 €
10. **Fulbright fellowship,** Erin McClure [2013-2014] *Supervisors* David Berry, Alexander Loy.
11. Understanding the relationships between polycyclic aromatic hydrocarbon-degrading bacteria and marine eukaryotic phytoplankton. **James Watt PhD Fellowship, Heriot Watt University, Edinburgh**, Haydn Thompson [since 2013, 3 years]. *Supervisors* Tony Gutierrez, Alexander Loy.
12. Insights into the function of uncultured microbial phyla obtained by isotope labelling-based microarray and single cell technologies. **Marie Curie Intra-European Fellowship in the EU 7th framework programme**, *fellow* Dr. Marcell Nikolausz, *host* Alexander Loy [2010/1, 24 months] (224,874 €). *Project was approved by EU but withdrawn by the host because Dr. Nikolausz accepted an alternative job offer.*
13. **ASEA-UNINET Stipend and International Budget, University of Vienna**, Dr. Pinsurang Deevong [2010/4, 3 months]
14. **ASEA-UNINET Stipend and International Budget, University of Vienna**, Dr. Pinsurang Deevong [2009/3, 3 months]
15. The function of *Acidobacteria* in acidic fen soils. **Feodor Lynen-Forschungsstipendium**, **Alexander-von-Humboldt Stiftung,** Dr. Michael Pester [since 2007/12, 2 years], 29,250 €.

Sequencing grants

1. Unravelling the metabolic diversity of uncharacterised clades of marine subsurface *Chloroflexi*. CSP-2787. **Joint Genome Institute - Community Sequencing Program**. [2015] (*principal investigator* Kenneth Wasmund, *Co-PIs* Alexander Loy, Lorenz Adrian, Steffen Leth Jorgensen, sequencing of single amplified genomes of 48 *Chloroflexi* cells)
2. Participant in the **MinION Access programme (MAP), Oxford Nanopore** [2014-2015] (*principal investigator* Alexander Loy, recipient of two MAP packages including flow-cells).
3. Targeted metagenomics and metatranscriptomics of a sulfate-reducing rare biosphere member and potentially novel sulfate reducers that impact methane emission from peatlands. CSP-605. **Joint Genome Institute - Community Sequencing Program**. [2011] (*principal investigator* Michael Pester, *Co-PI* Alexander Loy and others, amplicon/metagenome/metatranscriptome/single cell genome sequencing)
4. Comparative genomics of *Desulfosporosinus* species – Insights into the evolution and genetic blueprints of sulfate-reducing bacteria involved in wetland carbon cycling and heavy metal bioremediation. **Joint Genome Institute - Community Sequencing Program.** [2010] (*principal investigator* Alexander Loy, sequencing of 4 *Desulfosporosinus* genomes)

Membership in Scientific Societies

Since 2015	Austrian Association of Molecular Life Sciences and Biotechnology (ÖGMBT)
Since 2013	Austrian Polar Research Institute (APRI, http://www.polarresearch.at/)
Since 2012	European Society for Neurogastroenterology & Motility (ESNM) – Gut Microbiota & Health Section
Since 2011	Society for Applied Microbiology (SfAM)
2011	Geochemical Society
Since 2004	International Society for Microbial Ecology (ISME)
Since 2003	American Society for Microbiology (ASM)
Since 2001	Association for General and Applied Microbiology (VAAM), Germany

Reviewing Activities

Reviewer stats on Publon https://publons.com/a/505334/

Senior Editor

2020-2023	The ISME Journal

Editorial Board Member

2020	The ISME Journal
2013-2021	Frontiers in Microbiology - Microbial Symbiosis
2012-2017	Applied and Environmental Microbiology
2011-2021	Frontiers in Microbiology - Extreme Microbiology
Since 2009	Environmental Microbiology/Environmental Microbiology Reports

Reviewer for diverse journals, including *Science, Nature Microbiology, Nature Microbiology Reviews, Nature Communications, PNAS, ISME Journal, mBio, Nature Protocols, mSystems, Environmental Science & Technology, Molecular Ecology, Water Research, FEMS Microbiology Ecology,* **and funding agencies**, including the European Research Council (ERC), German Scholars Organization, Agence Nationale de Recherche (France), Leverhulme Trust (UK), Natural Environment Research Council (UK), Swiss National Science Foundation, Research Foundation - Flanders (Fonds Wetenschappelijk Onderzoek - Vlaanderen, FWO) (Belgium).

Conference organization

2018	Organizing committee member, Vienna Microbial Ecology Symposium, Vienna, Austria, 12 September 2018 (150 participants)
2016-2018	Organizing committee member, 5th International Symposium on Microbial Sulfur Metabolism, Vienna, Austria, 16-18 April 2018 (110 participants)

2017	Co-organizer and convenor of the Sulfur-Cycling Symposium at the American Society of Microbiology (ASM) Microbe 2017, New Orleans, USA, 1-5 June 2017
2016-2017	Main organizer of the 1st Symposium of the Austrian Microbiome Initiative, Vienna, Austria, 23. February 2017 (150 participants)
2015	Organizer and convenor of the session "Sulfur Geomicrobiology – New Microbes, New Processes, New Insights" at the Goldschmidt 2015 conference in Prague, Czech Republic, 16-21 August 2015
2015	Scientific committee member, 4th EMBO Workshop on Microbial Sulfur Metabolism, Helsingor, Denmark
2004, 2006-2008, 2010, 2011, 2013, 2015, 2016, 2017, 2019	Main organizer (2004-2016) and supervisor (since 2004) of the "*International Course for Fluorescence in situ hybridization*", University of Vienna, Austria, http://www.microbial-ecology.net/

Other Professional Activities

2025	External member of the habilitation committee for Luiz Miguel Rodriguez Rojas (University of Innsbruck)
2023-2024	Member of the working group for the new master curriculum "Microbiome Science" (University of Vienna)
2020-2021	External member of the search committee for a Full Professor position in Soil Microbiology (University of Innsbruck)
Since 2021	Member of the scientific advisory committee of the microbiome company BiomeDx, Vienna, Austria (https://www.biome-dx.com)
Since 2020	Expert evaluator of the European Research Council (ERC), LS8 panel member ERC-SAP-2020, ERC-StG-2022, ERC-StG-2024
2018-2023	Member of the scientific advisory committee of the Centre for Arctic Gas Hydrate, Environment and Climate (CAGE, https://cage.uit.no), Norwegian Centre of Excellence, UiT The Arctic University of Norway, Tromsø
2017	Member of the search committee for a Tenure Track Assistant Professor position in Microbial Ecology (University of Vienna)
2017	Deputy member of the Steering Committee of the Environmental Sciences Research Network, University of Vienna
2015-2016	Consultant on Microbiome and Stable Isotope Techniques for the Nutrition Section at the International Atomic Energy Agency, IAEA
2013-2015	Coordinator of the Emerging Field "Human and animal microbiome function" at the Faculty of Life Sciences, University of Vienna

2012	Member of the search committee for an Assistant Professor position in Molecular Microbiology (University of Vienna)
2012-2013	Member of the working group for the new master curriculum "Molecular Microbiology, Microbial Ecology, and Immunobiology" (University of Vienna)
Since 2007	Co-founder of probeCheck (http://www.microbial-ecology.net/probecheck/) – an online resource for evaluating probe/primer specificity and coverage
2004-2007	Invited expert of the COST action 853 "Agricultural Biomarkers for Array Technology", 31.10.2001 - 06.03.2007
Since 2002	Co-founder and curator of probeBase – an online resource for rRNA-targeted oligonucleotide probes (http://www.probebase.net/); recommended in Science NetWatch (Science 2002, 298, p. 19)

Public outreach

My research and professional activities have been covered in over **120 newspapers, magazines or online articles**, among others in the national newspapers *Der Standard*, *Die Presse*, and *Kronenzeitung* (Austria) and the magazine *2012*. I have appeared in several features on Austrian radio (Ö1) and in reports/documentaries on Austrian TV (ORF2, ORF3).

I was lecturer at the annual children university in Vienna 'KinderUni' www.kinderuni.at between 2007 and 2013.

Since 2017, I am an expert for Open Science www.openscience.or.at (a non-profit association committed to life science communication) and involved in diverse outreach activities (e.g. Microbiome PubQuiz, teaching material on the human microbiome for Austrian school kids, education of biology teachers).

Supervision of graduate students and postdocs

I have served/ am serving as **main supervisor for 12 postdocs, 9 PhD students**, **50 diploma/master students,** and **8 bachelor students**.

Postdocs

2024/04	Tomohisa Sebastian Tanabe
2024/02	Claire Lamb
2022/01-2024/12	Stanislava Kralova (now Assistant Professor at Masaryk University, Brno, Czech Republic)
2021/05-2024/11	Songcan Chen (now Junior Professor at Zhejiang University, Hangzhou, China)
2019/12-2020/05	Eva Pakostova (now Adjunct Professor at Laurentian University, Canada)
2017/05-2020/08	Kerim Dimitri Kits
2013-2020	Buck Hanson (now scientist at Los Alamos National Laboratory, USA)
2013-2020	Kenneth Wasmund (now lecturer at University of Portsmouth, UK)
2012	Nathalie Elisabeth (now scientist at Lawrence Berkeley National Lab, USA)
2011-2015	Celine Lesaulnier
2009-2012	David Berry (now Professor at University of Vienna, Austria)
2007-2012	Michael Pester (now Professor at Technical University Munich, Germany)

PhD students

01/2025-	Guoqing Guan. Supervisor: Alexander Loy.
10/2021-	Nataliia Solntseva. Supervisor: Alexander Loy.
04/2020-09/2025	Julia Krasenbrink. *Ecophysiology of sulfoquinovose-metabolizing gut bacteria in humans, mice, and cows*. Supervisor: Alexander Loy. September 4th 2025.
03/2019-	Mathias Flieder. Supervisor: Alexander Loy.
11/2016-01/2025	Huimin Ye. *Taurine-metabolizing microorganisms in the intestinal tract of different mammalian hosts*. Supervisor: Alexander Loy. January 31st 2025.
2013-2019	Claus Pelikan. *Ecophysiology and genomics of sulfate-reducers and other necromass-degrading microorganisms in arctic marine sediments*. Supervisor: Alexander Loy. May 27th 2019.

2013-2017	Haydn Thompson (Heriot-Watt University, School of Life Sciences, Edinburgh, United Kingdom). *PAH-degrading bacteria and marine eukaryotic phytoplankton*. Supervisors: Tony Gutierrez (Heriot-Watt University) and Alexander Loy.
2012-2018	Bela Hausmann. *Novel uncultured peatland bacteria with a dissimilatory sulfur metabolism*. Supervisors: Alexander Loy and Michael Pester. December 3rd 2018.
2009-2015	Albert Müller. *Microbial biogeography, carbon degradation, and temperature adaptation: Insights from ecological studies of sulfate-reducing microorganisms in marine sediments*. Supervisor: Alexander Loy. May 20th 2015.
2007-2010	Doris Steger. *Community structure and distribution of functional microbial groups within two complex environments: microorganisms associated with marine sponges and potential sulfur-compounds-reducing microorganisms in peatlands*. Supervisors: Alexander Loy and Michael Wagner. June 15th 2010.

Master's/diploma theses: Mette de Kotter (ERASMUS student from Uni Groningen, The Netherlands), 2026; Marvin Vogelgesang, 2026; Nick Ahrends (ERASMUS student from Uni Aalborg, Denmark), 2026; Lea Arneth, 2026; Theresa Villunger, 2026; Aleksandra Stevanovic, 2026; Nadezhda Todorova, 2025; Nicola Battisti, 2025; Peter Spacek, 2024; Felix Arndorfer, 2024; Elsa Martineau, 2024; Natalia Stanic, 2024; Pleun Meurs (ERASMUS student from Radboud University of Nijmegen, Netherlands), 2023; Anton Starke, 2023; Yan Wang (ERASMUS student from University of Bonn, Germany), 2022); Clementine Isembart (ERASMUS student from Universite de Lorraine, France), 2022; Anna Ullrich, 2022; Isabella Böhm (FH Wien), 2021; Mathias Flieder, 2019; Isabella Hinger, 2018; Jessica Löffler (ERASMUS student from the Westfällische Hochschule Gelsenkirchen, Germany), 2017; Linda Moet (ERASMUS student from Karolinska Institute, Stockholm, Sweden), 2017; Benjamin Zwirzitz, 2016; Alexander Petritsch, 2015; Carina Pfann, 2015; Martin Huemer, 2014; Felicitas Dötzl, 2014; Lara Jochum, 2014 (External master thesis at University of Aarhus); Claus Pelikan, 2013; Sarah Zecchin (ERASMUS student from Milano-Bicocca University, Italy), 2012; Julia Ramesmayer, 2013; Jochen Reichert, 2012; Martina Putz, 2012; Bela Hausmann, 2012; Stefan Flechl, 2010; Norbert Bittner, 2010; Diana Lebherz-Eichinger, 2010; Christina Braunegger, 2009; Ingo Starke, 2009; Manuel Hofer, 2009; Ivan Barisic, 2008; Cecilia Wentrup, 2007; Stephan Duller, 2005; Doris Steger, 2005; Stephanie Füreder, 2005; Sebastian Lücker, 2004; Claudia Schulz, 2003; Andreas Schöpfer, 2001.

Bachelor thesis: Mara Theodora Bors, 2025; Johanna Letz, 2023; Patricia Ruconov, 2023 (FH Tulln); Serafina Meßmer, 2021; Felix Arndorfer, 2021; Katharina Schreck, 2015 (FH Tulln); Cathrien Egger, 2014; Karim Ben-Mahfoudh, 2010 (FH Vienna).

Teaching

Over **120 courses in bachelor and master curricula** at the University of Vienna since 2007. See here for details: https://ufind.univie.ac.at/en/person.html?id=86633

Lectures: Biodiversity and molecular ecology of microorganisms, Fundamental concepts in Microbiome Science, The human microbiome, Evolution and ecology of sulfur-cycle microorganisms

Seminars: Current topics in molecular microbial ecology and evolution, Environmental sciences, Proseminar in microbial ecology

Lab courses: Scientific practice in microbial ecology, DNA microarrays

Further teaching/mentoring activities

Member of thesis committees of 13 PhD students: Nadezhda Todorova, 2026- (Medical University of Graz, Austria), Clara Priemer, 2024- (University of Vienna, Austria); Dennis Metze, 2021-2024 (University of Vienna, Austria); Rokhsareh Mohamadzade, 2021-2025 (Medical University of Graz, Austria); Inmaculada Tocino Marquez, 2021- (University of Vienna, Austria); Hamid Rasoulimehrabani, 2021-2025 (University of Vienna, Austria); Julia Slezacek, 2019-2024 (University of Veterinary Medicine, Vienna, Austria); Benjamin Zwirzitz, 2017-2021 (University of Veterinary Medicine Vienna, Austria); Elke Korb, 2016 (Medical University of Vienna, Austria); Caroline Buckner, 2015 (Max-Planck-Institute for Marine Microbiology, Bremen, Germany); Lara Jochum, 2014 (Center for Geomicrobiology, University of Aarhus, Denmark); Luke McKay, 2012-2014 (University of North Carolina, USA); Julia Rosa de Rezende, 2008-2011 (University of Aarhus, Denmark).

External thesis reviewer/opponent of 11 PhD students: Yuan Feng, 2024 (University of Wageningen, The Netherlands); Christina Karmisholt Overgaard, 2023 (Aalborg University, Denmark); Wiebke Burkhardt, 2021 (University of Potsdam, Germany); Benjamin Zwirzitz, 2021 (University of Veterinary Medicine Vienna, Austria); Cameron M. Callbeck, 2017 (University of Bremen, Germany); Stefanie Urimare Wetzels, 2016 (University of Veterinary Medicine Vienna, Austria); Lina Russ, 2015 (Radboud University, Nijmegen, The Netherlands); Jing Zhang, 2014 (University of Wageningen, The Netherlands); Luke McKay, 2014 (University of North Carolina, USA); Evelyne Mann, 2014 (University of Veterinary Medicine Vienna, Austria); Petia Kovatcheva-Datchary, 2010 (University of Wageningen, The Netherlands).

Host for 20 national and international guest PhD students and scientists: Kerstin Bischof, Kasper U. Kjeldsen, Dr. Martin Hesselsoe, Susan Schönmann, Sara Tocchetti, Alberto Robador, Dr. Julie Leloup, Dr. Marcus Horn, Alexandra Hamberger, Tanja Kostic, Dr. Safak Yilmaz, Dr. Casey Hubert, Aura Nousiainen, Dr. Verona Vandieken, Dr. Pinsurang Deevong, Dr. Nadezhda Hristova Todorova, Erin McClure, Jesse Colangelo-Lillis, Kristyna Dufkova, Rokhsareh Mohammadzadeh

Main supervisor of 9 national and international exchange students (ERASMUS+ and other programs): Jonas Bonne, 2025 (Karel de Grote College of Applied Sciences and Arts, Belgium); Lisa

Fleischhauer, 2023-2024 (TU Dresden, Germany); Hüseyin Sarikece, 2023 (University of Istanbul, Turkey); Tal Alon, 2018-2019 (University of Applied Sciences in Krems, Austria); Julia Krasenbrink, 2019 (University of Bonn, Germany); Bianca Simone Haracska, 2018 (University of Greifswald, Germany); Polina Bukhtiyarova, 2012 (Tomsk State University, Russia); Sara Tocchetti, 2005 (University of Lausanne, Switzerland), Kerstin Bischof, 2002 (University of Bayreuth, Germany)

2014	Invited Lecturer at the Graduate course on *The Intestinal Microbiome and Diet in Human and Animal Health*. 1-3 October 2014 Wageningen, The Netherlands. Organised by The Graduate School VLAG, in co-operation with the Laboratory of Microbiology Wageningen University and the Doctoral Programme in Food Chain and Health, the University of Helsinki http://www.vlaggraduateschool.nl/courses/int-microbiome.htm
2004	Invited Lecturer at the Cost Action 853 *Workshop in Array-Technology* York, England.
2003-2007	Ad-hoc supervisor and lecturer in undergraduate courses and seminars at the Department of Microbial Ecology, University of Vienna, Austria

Invited Presentations

I have been **invited to 67 presentations** at national and international workshops, conferences or institutions, including recent keynote lectures at the 13th International Symposium on Anaerobic Microbiology, Leipzig, Germany, 2025 and the 7th International Meeting on Microbial Sulfur Metabolism, Lisbon, Portugal, 2026 and an invited talk at the 20th International Symposium on Microbial Ecology, Auckland, New Zealand, 2026

1. [2026] *A new microbial energy metabolism that couples iron(III) oxide respiration to sulfide oxidation*. Invited talk at 20th International Symposium on Microbial Ecology (ISME20), **Auckland, New Zealand**, 16-21 August 2026
2. [2026] *Hunting for hidden microbial sulfur metabolisms in the environment and the mammalian gut.* Seminar at Zhejiang University, **Hangzhou, China**, 10 August 2026
3. [2026] *Living off sulfur: New metabolisms of mammalian gut and environmental microbiome members.* Online seminar at the East Midlands Microbiome Research Network, **United Kingdom**, 20 May 2026
4. [2026] *Of sulfonolipids and links between sulfide and ferric iron - New microbial sulfur metabolisms in the environment and the mammalian gut*. Opening Keynote Lecture at the 7th International Meeting on Microbial Sulfur Metabolism, **Lisbon, Portugal**, 10-13 March 2026
5. [2025] *Hunting for hidden sulfur-cycling microbes and metabolisms*. Keynote Lecture at 13th International Symposium on Anaerobic Microbiology (ISAM2025), **Leipzig, Germany**, 22-25 September 2025
6. [2025] *Still hunting for hidden sulfur-cycling microbes and metabolisms*. Seminar at CAS Biology Institute, **Ceske Budejovice, Czechia**, 9 April 2025
7. [2023] *Of mice and Popeye: Microbial sulfur metabolism in the gut*. Seminar at Aalborg University, **Aalborg, Denmark**, 5 October 2023
8. [2023] *Biodiversität in Moorböden: Mikroorganismen und Redoxprozesse*. Rundgespräch Forum Ökologie: Moore – Ökosystemfunktionen, Biodiversität und Renaturierung. Bavarian Academy of Sciences, **Munich, Germany**, 20 April 2023
9. [2022] *Of mice and Popeye: Microbial sulfur metabolism in the gut*. Online seminar at NCCR Microbiome, **Switzerland**, 7 June 2022
10. [2022] *Of mice and Popeye: Microbial sulfur metabolism in the gut*. Online seminar at CRC Microbiome Signatures, **Germany**, 1 February 2022
11. [2019] *Decrypting cryptic sulfur cycling in wetlands and the human gut: One new microbe and metabolism at a time*. Seminar at University of Greifswald, **Greifswald, Germany**, 23 September 2019
12. [2019] *New microbes and processes in the sulfur cycle: or What we learned about the microbiomes of a Bavarian peat and Popeye's gut*. Special SCMB Seminar at University of Queensland, **Brisbane, Australia**, 19 July 2019

13. [2019] *Microbial ecology of Popeye's gut: New metabolic functions of the core human microbiota*. Microbial Ecology Workshop of the Center of Advanced Studies – Ludwig-Maximilians-University of Munich, **Munich, Germany**, 31 January – 1 February 2019 (canceled)
14. [2018] *Uncovering the secrets of Popeye's diet: New metabolic functions of the core human microbiota*. Annual Retreat of the Immunology Research Cluster of the Medical University of Vienna, **Vienna, Austria**, 5 December 2018
15. [2018] *New functions of the core human microbiota: Metabolism of a vegetarian diet compound in the gut*. 2nd AMICI and 5th Theodor-Escherich Joint Symposium on Medical Microbiome Research, **Graz, Austria**, 8-9 November 2018
16. [2018] *New human microbiome functions: How a vegetarian diet supports an exclusive physiological niche for gut commensals and contributes to hydrogen sulfide production*. 10th Annual Meeting of the Austrian Association of Molecular Life Sciences and Biotechnology (ÖGMBT), **Vienna, Austria**, 17-20 September 2018 (canceled)
17. [2018] *Gut microbiota functions: A selection of limited knowledge.* Symposium on Comparative Medicine, **Vienna, Austria**, 31 January - 1 February 2018
18. [2018] *Physiological interactions in guts and wetlands: The role of sulfur microbes.* University of Bonn, **Bonn, Germany**, 12 January 2018
19. [2017] *Revealing the eco-metabolism of intestinal microorganisms by in vivo stable isotope probing.* AustroMetabolism 2017 Workshop, **Vienna, Austria**, 28 September 2017
20. [2017] *Revealing physiological host-microbiome interactions by in vivo stable isotope probing: From complex intestinal communities to beneficial designer microbiota.* Annual Microbiome Summit: Translating into Diagnostics & BioTherapeutics, **Vienna, Austria**, 21 -22 September 2017
21. [2017] *Sulfate reducers – how great is the diversity?* Marine Geomicrobiology Workshop, **Sandbjerg, Denmark**, 28 August - 1 September 2017
22. [2017] *Functional wetland microbiomics reveals unexpected metabolic versatility and expanded phylum-diversity of sulfur microorganisms.* American Society of Microbiology (ASM) Microbe 2017, **New Orleans, USA**, 1-5 June 2017
23. [2017] *Stable isotope probing of complex microbial communities: Studying intestinal microbes after their last 'heavy' supper.* Video conference presentation for Bill & Melinda Gates Foundation, **Seattle, USA**, 20 February 2017
24. [2016] *Modern microbiome methods: Amplicon sequencing, metagenomics, metatranscriptomics, and more*. Summer School 'Nutrition and Animal Gut Health', University of Veterinary Medicine, **Vienna, Austria**, 1-6 August 2016
25. [2015] *The intestinal microbiome in action – revealing the functions of individual members in health and disease by single cell stable isotope probing.* Technical Meeting on Environmental Enteric Dysfunction, the Microbiome and Undernutrition. International Atomic Energy Agency. **Vienna, Austria**, 28-30 October 2015
26. [2015] *Sulfate-reducing microorganisms in wetlands - Undervalued players in carbon cycling and climate change*. Department of Microbiology, Radboud University. **Nijmegen, The Netherlands**, 8 July 2015

27. [2015] *Understanding colonization resistance - new tools to analyze in vivo physiology and substrate competition of individual microbial cells in the intestinal tract*. Leibniz Center Infection Symposium 'Emerging Infections 2015'. **Hamburg, Germany**, 29-30 January 2015

28. [2014] *The intestinal microbiome in action – revealing the functions of individual members in health and disease.* Microbiomes in oncology: from basic science to therapeutic visions. **Vienna, Austria**, 14 November 2014

29. [2014] *From functional gene studies to ecosystem functions: a case study of hidden sulfate-reducing microorganisms in wetlands*. Agouron Institute Research Meeting - The sulfur cycle. **Rancho Palos Verdes, USA**, October 26-30, 2014

30. [2014] *Fecal microbiota transplantation for treatment of inflammatory bowel disease – do we have to curb our enthusiasm?* Third International Advanced course on "The Intestinal Microbiome and Diet in Human and Animal Health". **Wageningen, The Netherlands**, 1-3 October 2014

31. [2014] *New single cell technologies for dietary and physiological studies in mice and men.* Third International Advanced course on "The Intestinal Microbiome and Diet in Human and Animal Health". **Wageningen, The Netherlands**, 1-3 October 2014

32. [2013] *Go with the flow: Endospores of thermophilic bacteria as tracers of microbial dispersal by ocean currents*. Institute for Chemistry and Biology of the Marine Environment, University of Oldenburg. **Oldenburg, Germany**, 11 December 2013.

33. [2013] *Metabolic individuality in the intestinal wilderness - a novel single-cell approach to study in vivo function of intestinal microbiota members*. Keynote lecture at the 6th Seeon Conference on 'Microbiota, Probiota and Host'. **Seeon, Germany**, 28-30 June 2013. (not given due to illness)

34. [2013] *Microbial individuality in the intestinal wilderness of men and mice*. Institute of Specific Prophylaxis and Tropical Medicine, Medical University Vienna. **Vienna, Austria**, 24 April 2013.

35. [2012] *Applied and basic properties of the intestinal microbiota: fecal microbiota transplantation and a new single-cell method for identification of host-compound-foraging microbes*. Keynote lecture at the 2. Symposium of the intra-university research cluster "Animal Gut Health", University of Veterinary Medicine. **Vienna, Austria**, 12 November 2012. (not given due to illness)

36. [2012] *Individuality matters – of microbes and man*. Cologne Science Center Symposium on "Intestinal Microbiota in Health and Disease - Impact on Personalized Nutrition & Medicine. **Köln, Germany**, 14 June 2012.

37. [2012] *Ecology of sulfate-reducing microorganisms in wetlands - fame-less actors in carbon cycling and climate change.* EMBO Workshop on Microbial Sulfur Metabolism. **Noordwijkerhout, The Netherlands**, 15-18 April 2012.

38. [2011] *Eating heavy: isotope-labeling approaches for studying the function of uncultivated microorganisms in the environment*. Keynote lecture at 1st International Symposium on Microbial Horticulture, SLU, **Alnarp, Sweden**, May 15-19, 2011

39. [2010] *Molecular biology of sulfate reduction in peatlands – a rare microorganism is involved in a process that mitigates global warming*. Young Group Leader presentation at the 2nd Annual Meeting of the Austrian Association of Molecular Life Sciences and Biotechnology. **Vienna, Austria**, 27-29 September 2010.

40. [2010] *Sulfate reduction in peatlands – Does a rare keystone microorganism drive a process that mitigates global warming?* Keynote lecture at the Goldschmidt 2010, Earth, Energy, and the Environment. **Knoxville, USA**, 13-18 June 2010.

41. [2010] *Tracking down sulphate-reducing microorganisms by molecular and isotope-labelling techniques.* European Geosciences Union General Assembly 2010. **Vienna, Austria**, 2–7 May 2010.

42. [2010] *Sulfate reduction in peatlands: Does a 'rare biosphere' microorganism do the job!?* Seminar at the Center of Geomicrobiology, University of Aarhus. **Aarhus, Denmark**, 16. March 2010.

43. [2009] *On the opportunities and challenges of diagnosing sulfate-reducing microorganisms*. ***Opening lecture*** at the 2nd International Symposium on Applied Microbiology and Molecular Biology in Oil Systems (ISMOS-2). **Aarhus, Denmark**, 17-19. June 2009.

44. [2008] *Evolution and ecology of sulfur microorganisms: Hidden players in a well-known biogeochemical cycle.* Seminar at the University of Southern Denmark. **Odense, Denmark**, 26. November 2008.

45. [2008] *Evolution and ecology of sulfur cycle microorganisms*. Seminar at the Masaryk University. **Brno, Czech Republic**, 30. October 2008.

46. [2008] *Molecular evolution of dissimilatory sulfite reductases revisited: News on sulfur oxidation*. Seminar at the University of Aarhus. **Aarhus, Denmark**, 13 October 2008.

47. [2008] *New methods for probing physiological capabilities of uncultivated microorganisms*. 14th International Symposium on Biodeterioration and Biodegradation (IBBS-14), **S. Alessio Siculo, Italy**, 6.-11. October 2008.

48. [2008] *New insights into the microbial ecology of sulfur cycling: Looking below the tip of the iceberg*. Seminar at the Friedrich Schiller University Jena. **Jena, Germany**, 28 May 2008.

49. [2008] *Analyzing microbes after their last meal: Raman microspectroscopy of isotope-labeled cells and nucleic acids*. rRNA Workshop. **Bremen, Germany**, 7.-9. April 2008.

50. [2008] *Die Henkersmahlzeit unkultivierter Mikroben: rRNA-basierte Mikroarrays für Struktur-Funktionsanalysen komplexer mikrobieller Lebensgemeinschaften.* Genomics & Proteomics Workshop Zinsser Analytic. **Wien, Austria**, 12 Februar 2008.

51. [2008] *Evolution and ecology of sulfur microbes: Sulfite reductase as evolutionary key to a life with sulfur?* Seminar at the MPI Bremen. **Bremen, Germany**, 10 January 2008.

52. [2007] *The "last meal" of uncultivated microbes: Microarray and single cell tools for structure-function analysis of polymicrobial communities*. Seminar at the UCL Eastman Dental Institute. **London, England**, 21 November 2007.

53. [2007] *Deciphering "Who is doing what in complex microbial communities?" with DNA microarrays* Meeting of the European Research Group for Oral Biology "Biofilms in Oral Biology". **Geneva, Switzerland**, 9 June 2007.

54. [2006] *Microbial ecology of sulfur cycling: A molecular perspective*. Seminar at the University of Aarhus. **Aarhus, Denmark**, 31 October 2006.

55. [2006] *Microbial ecology of sulfur cycling: The hidden diversity*. Seminar at the Baltic Sea Research Institute. **Warnemünde, Germany**, 12 October 2006.

56. [2006] *From PhyloChips to Isotope Arrays - structure and function of microbial communities at one fell swoop*. 11th International Symposium on Microbial Ecology, ISME-11. **Vienna, Austria**, 20.-25. August 2006.

57. [2006] *Ecology and evolutionary history of sulfate-reducing prokaryotes*. International Symposium on Microbial Sulfur Metabolism (ISMSM). **Münster, Germany**, 29 June – 2 July 2006.

58. [2006] *Functional probing of microbial communities with rRNA-targeted oligonucleotide microarrays*. Workshop "Marine Genomics meets Marine Diversity" at MPI Bremen, EU Network of Excellence Marine Genomics Europe. **Bremen, Germany**, 8-9 June 2006.

59. [2006] *New insights in the ecology of sulfur cycling via microarrays and environmental genomics.* European Geosciences Union General Assembly 2006. **Vienna, Austria**, 2–7 April 2006.

60. [2006] *Exploring the composition and ecophysiology of microbial communities using rRNA-targeted oligonucleotide microarrays*. 4th Biorhiz Workshop – MPI Jena. **Jena, Germany**, 24-27 January 2006.

61. [2006] *On PhyloChips and Isotope Arrays: Problems and Solutions*. Seminar at TU München. **Freising, Germany**, 13 January 2006.

62. [2005] *Isotopic labeling and PhyloChips: Exploring ecophysiology of microbial communities.* Cost Action 853 meeting: Agricultural biomarkers for array technology. **Lyon, France**, 29-30 November 2005.

63. [2005] *Beyond the use of phylogenetic microarrays for highly parallel microbial diversity analysis - the Isotope Array approach.* Workshop on "Detection of microbial diversity in environmental samples". **Camarino, Italy**, 19-21 September 2005.

64. [2005] *Simultaneous analysis of microbial community composition and function by rRNA-targeted oligonucleotide microarrays*. Biodiversity and integrative Genetics Seminar. University of Lausanne. **Lausanne, Switzerland**, 18 March 2005.

65. [2004] *In silico design and evaluation of oligonucleotide microarray probes*. Cost Action 853 meeting: Agricultural biomarkers for array technology. **York, England**, 28 October 2004.

66. [2004] *Ribosomal RNA-targeted oligonucleotide microarrays (PhyloChips) for rapid biodiversity screening: Microbial community structure at a glance.* Cost Action 853 meeting: Agricultural biomarkers for array technology. **Ascona, Switzerland**, 25 June 2004.

67. [2003] *Ribosomal RNA-targeted oligonucleotide microarrays (PhyloChips) for rapid biodiversity screening: new perspectives for future environmental studies*. Identification-Array Symposium. **Wageningen, Netherlands**, 15 May 2003.

Current Preprints

*Asterisk indicates corresponding authorship

1. Chen SC*, Tanabe TS, Sun C, Yan YL, Ren XY, and **Loy A*** [2026] Global evolutionary pattern and distinct metabolic strategies of sulfur-cycling microorganisms across ecosystems. ***Research Square***. https://doi.org/10.21203/rs.3.rs-10339560/v1

Publications in Peer-Reviewed Journals

*Asterisk indicates corresponding authorship; the most important publications are boxed.

Google scholar	http://scholar.google.com/citations?user=6MlG0wYAAAAJ
Scopus	http://www.scopus.com/authid/detail.uri?authorId=56243274300
Researcher ID	https://www.webofscience.com/wos/author/record/A-8182-2008
ORCID	http://orcid.org/0000-0001-8923-5882
Loop	http://loop.frontiersin.org/people/30294/bio

June 10, 2026

Total number of citations:	**15393** (Web of Science), **25400** (Google Scholar)
h-index:	**64** (Web of Science), **73** (Google Scholar)

2. Ren XY, Lin XY, Tanabe TS, Lin XY, **Loy A**, Hu LF, Zhu YG, and Chen SC [2026] Evolutionary trajectory of microbial sulfur oxidation pathways recapitulates Earth's oxygenation history. ***Nat Commun.*** Accepted

3. Kralova S, Spacek P, Gafriller J, Bezdicek M, Medvedcova V, Séneca J, Osvatic J, Grienke U, Rattei T, Sekurova ON, Zotchev SB, Zehl M, and **Loy A** [2026] Kineochelins - a new group of siderophores from an Antarctic bacterium. ***Microb Biotechnol***. 19. e70386. https://doi.org/10.1111/1751-7915.70386

4. Krasenbrink J, Chen SC, Tanabe TS, Sarikeçe H, Meurs P, Borusak S, Samrat R, Guan G, Priemer C, Osvatic J, Séneca J, Hausmann B, Speth D, Selberherr E, Wanek W, Schleheck D, Mussmann M, and **Loy A*** [2026] Sulfoquinovose degradation by cow rumen microbiota. ***ISME Journal***. 20. wrag069 https://doi.org/10.1093/ismejo/wrag069

5. Mohammadzadeh R, Mahnert A, Zurabischvili T, Wink L, Kumpitsch C, Habisch H, Sprengel J, Filek K, Mertelj P, Pernitsch D, Hingerl K, Durdevic M, Gorkiewicz G, Diener C, **Loy A**, Kolb D, Trautwein C, Madl T, and Moissl-Eichinger C [2026] Cross-domain metabolic interactions link *Methanobrevibacter smithii* to colorectal cancer microbial ecosystems. ***Nat Commun.*** 17. 2979 https://doi.org/10.1038/s41467-026-69711-7

6. Ye Y, Slipogor V, Hanson BT, Seneca J, Hausmann B, Herbold CW, Pjevac P, Bugnyar T, and **Loy A** [2026] Associations between gut microbiota and personality traits: Insights from a captive common marmoset (*Callithrix jacchus*) cohort. ***Microbiol Spectr***. 0. e00443-25. https://doi.org/10.1128/spectrum.00443-25

7. Tocino-Márquez I, Zehl M, Séneca J, Pjevac P, Felkl M, Becker C, **Loy A**, Rattei T, Ostrovsky AN, and Zotchev SB [2025] Bacterial microbiome of the freshwater bryozoan *Cristatella mucedo* and its

potential to produce secondary metabolites. ***Scientific Reports***. 15. 31456. https://doi.org/10.1038/s41598-025-17084-0

8. Chen SC*, Li XM, Battisti N, Guan G, Montoya MA, Osvatic J, Pjevac P, Pollak S, Richter A, Schintlmeister A, Wanek W, Mussmann M*, and **Loy A*** [2025] Microbial iron oxide respiration coupled to sulfide oxidation. ***Nature***. https://doi.org/10.1038/s41586-025-09467-0
9. Krasenbrink J, Hanson BT, Weiss AS, Borusak S, Tanabe TS, Lang M, Aichinger G, Hausmann B, Berry D, Richter A, Marko D, Mussmann M, Schleheck D, Stecher B, and **Loy A*** [2025] Sulfoquinovose is exclusively metabolized by the gut microbiota and degraded differently in mice and humans. ***Microbiome***. 13. 184. https://doi.org/10.1186/s40168-025-02175-x
10. Diao M, Dyksma S, Koeksoy E, Kamanda Ngugi D, Anantharaman K, **Loy A**, and Pester M [2023] Global diversity and inferred ecophysiology of microorganisms with the potential for dissimilatory sulfate/sulfite reduction. ***FEMS Microbiol. Rev***. 47. fuad058. https://doi.org/10.1093/femsre/fuad058
11. Ye H, Borusak S, Eberl C, Krasenbrink J, Weiss AS, Chen SC, Hanson BT, Hausmann B, Herbold CW, Pristner M, Zwirzitz B, Warth B, Pjevac P, Schleheck D, Stecher B, and **Loy A*** [2023] Ecophysiology and interactions of a taurine-respiring bacterium in the mouse gut. ***Nat Commun.*** 14. 5533. https://doi.org/10.1038/s41467-023-41008-z
12. Graffius S, Guerrero-Garzóna JF, Zehl M, Pjevac P, Kirkegaard R, Flieder M, **Loy A**, Rattei T, Ostrovsky A, and Zotchev SB [2023] Secondary metabolite production potential in a microbiome of the freshwater sponge *Spongilla lacustris*. ***Microbiol Spectr***. e0435322. www.doi.org/10.1128/spectrum.04353-22
13. Gwak JH, Awala SI, Nguyen NL, Yu WJ, Yang HY, von Bergen M, Jehmlich N, Kits KD, **Loy A**, Dunfield PF, Dahl C, Hyun JH, and Rhee SK [2022] Sulfur and methane oxidation by a single bacterium. ***Proc Natl Acad Sci USA***. 119: e2114799119 www.doi.org/10.1073/pnas.2114799119
14. Wasmund K, Pelikan C, Schintlmeister A, Wagner M, Watzka M, Richter A, Bhatnagar A, Noel A, Hubert CRJ, Rattei T, Hofmann T, Hausmann B, Herbold CW, and **Loy A** [2021] Genomic insights into diverse bacterial taxa that degrade extracellular DNA in marine sediments. ***Nat Microbiol***. 6: 885-898 www.doi.org/10.1038/s41564-021-00917-9
15. Pjevac P, Hausmann B, Schwarz J, Kohl G, Herbold CW, **Loy A**, and Berry D [2021] An economical and flexible dual barcoding, two-step PCR approach for highly multiplexed amplicon sequencing. ***Front Microbiol***. 12: 669776. www.doi.org/10.3389/fmicb.2021.669776
16. Flieder M, Buongiorno J, Herbold CW, Hausmann B, Rattei T, Lloyd KG, **Loy A***, and Wasmund K* [2021] Novel taxa of *Acidobacteriota* implicated in seafloor sulfur cycling. ***ISME Journal***. 15: 3159–3180 www.doi.org/10.1038/s41396-021-00992-0
17. Hanson BT, Kits KD, Löffler J, Burrichter A, Frommeyer B, Fiedler A, Denger K, Herbold CW, Rattei T, Karcher N, Segata N, Schleheck D*, and **Loy A*** [2021] Sulfoquinovose is a select nutrient of prominent bacteria and source of hydrogen sulfide in the human gut. ***ISME Journal***. 15: 2779–2791 www.doi.org/10.1038/s41396-021-00968-0

18. Pelikan C, Wasmund K*, Glombitza C, Hausmann B, Herbold CW, Flieder M, and **Loy A*** [2021] Anaerobic bacterial degradation of protein and lipid macromolecules in subarctic marine sediment. ***ISME Journal***. 15: 833-847 www.doi.org/10.1038/s41396-020-00817-6

19. Frommeyer B, Fiedler AW, Oehler SR, Hanson BT, **Loy A**, Franchini P, Spiteller D, and Schleheck D [2020] Environmental and intestinal phylum *Firmicutes* bacteria metabolize the plant sugar sulfoquinovose via a 6-deoxy-6-sulfofructose transaldolase pathway. ***iScience***. 23: 101510. www.doi.org/10.1016/j.isci.2020.101510

20. Buongiorno J, Sipes K, Wasmund K, **Loy A**, and Lloyd K [2020] *Woeseiales* transcriptional response to shallow burial in Arctic fjord surface sediment. ***PLoS One***. 15: e0234839. www.doi.org/10.1371/journal.pone.0234839

21. Berg G, Rybakova D, Fischer D, Cernava T, Champomier-Vergès MC, Charles T, Chen X, Cocolin L, Eversole K, Herrero-Corral G, Kazou M, Kinkel L, Lange L, Lima N, **Loy A**, Macklin JA, Maguin E, Mauchline T, McClure R, Mitter B, Ryan M, Sarand I, Smidt H, Schelkle B, Roume H, Kiran SG, Selvin J, de Souza RSC, van Overbeek L, Singh B, Wagner M, Walsh A, Sessitsch A, Schloter M [2020] Microbiome definition re-visited: old concepts and new challenges. ***Microbiome***. 8: 103. www.doi.org/10.1186/s40168-020-00875-0

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