

Complete list of all scientific publications

Until now I have published 34 papers in peer-reviewed journals and 2 book chapters, which were cited >4300 times (Google scholar). I have manuscripts in **Nature Microbiology**, **Nucleic Acid Research paper** and **Nature Communications**. A complete list of my publications can be found <https://orcid.org/0000-0002-9017-7461>

PhD thesis:

Eichorst SA. Isolation and characterization of members of the phylum *Acidobacteria* from soils. 2007. Michigan State University, East Lansing, MI, USA.

Peer-reviewed publications:

1. Samrat R, Salas E, Fuchslueger L, Schmidt H, Gorfer M, Schagerl M, **Eichorst SA**, Wanek W. 2025. High-resolution lipidomics for decoding the soil biome: Improved lipid annotation, quantitation, and response to climate stress. *Soil Biol. Biochem.* 209:109892. doi: 10.016/j.soilbio.2025.109892.
2. Trojan D, García-Robledo E, Hausmann B, Revsbech NP, Woebken D, **Eichorst SA***. 2024. A respiro-fermentative strategy to survive nanoxia in *Acidobacterium capsulatum*. *FEMS Microbiol Ecol.* 100(12): doi: 10.1093/femsec/fiae152. *denotes corresponding author.
3. Dietrich M, Panhölzl C, Angel R, Giguere AT, Randi D, Hausmann B, Herbold CW, Pötsch EM, Schaumberger A, **Eichorst SA**, Woebken D. 2024. Plant roots affect free-living diazotroph communities in temperate grassland soils despite decades of fertilization. *Commun Biol.* 7(1):846. doi: 10.1038/s42003-024-06522-w.
4. Imminger S, Meier DV, Schintlmeister A, Legin A, Schnecker J, Richter A, Gillor O, **Eichorst SA**, Woebken D. 2024. Survival and rapid resuscitation permit limited productivity in desert microbial communities. *Nat Commun.* 15, 3056. doi.org/10.1038/s41467-024-46920-6.
5. Salas E, Gorfer M, Bandian D, **Eichorst SA**, Schmidt H, Horak J, Rittmann SKR, Schleper C, Reischl B, Pribasniq T, Jansa J, Kaiser C, Wanek W. 2024. Reevaluation and novel insights into amino sugar and neutral sugar necromass biomarkers in archaea, bacteria, fungi, and plants. *Sci Total Environ.* 906:167463. doi: 10.1016/j.scitotenv.2023.167463.
6. Huber KJ, Pester M, **Eichorst SA**, Navarrete AA, Foesel BU. 2022. Editorial: *Acidobacteria - Towards Unraveling the Secrets of a Widespread, Though Enigmatic, Phylum.* *Front Microbiol.* 13:960602. doi: 10.3389/fmicb.2022.960602.
7. Falkenberg R, Fochler M, Sigl L, Bürstmayr H, **Eichorst S**, Michel S, Oburger E, Staudinger C, Steiner B, Woebken D. 2022. The breakthrough paradox: How focusing on one form of innovation jeopardizes the advancement of science: How focusing on one form of innovation jeopardizes the advancement of science. *EMBO Rep.* 23(7):e54772. doi: 10.15252/embr.202254772.
8. Trojan D, Garcia-Robledo E, Meier DV, Hausmann B, Revsbech NP, **Eichorst SA***, Woebken D. 2021. Microaerobic lifestyles at nanomolar O₂ concentrations mediated by low-affinity terminal oxidases in abundant soil bacteria. *mSystems.* 6(4): e0025021. doi: 10.1128/mSystems.00250-21. *denotes corresponding author.
9. Giguere AT*, **Eichorst SA***, Meier DV, Herbold CW, Richter A, Greening C, Woebken D. 2021. Acidobacteria are active and abundant members of diverse atmospheric H₂-oxidizing communities detected in temperate soils. *ISME J.* 15(2): 363-376. doi: 10.1038/s41396-020-00750-8. *denotes co-first authors.
10. Alteio LV, Schulz F, Seshadri R, Varghese N, Rodriguez-Reillo W, Ryan E, Goudeau D, **Eichorst SA**, Malmstrom RR, Katz LA, Blanchard JL, Woyke T. 2020. Complementary metagenomic approaches improve reconstruction of microbial diversity in a forest soil. *mSystems.* 5:e00768-19. doi:10.1128/mSystems.00768-19.

11. **Eichorst SA**, Trojan D, Huntemann M, Clum A, Pillay M, Palaniappan K, Varghese N, Mikhailova N, Stamatis D, Reddy TBK, Daum C, Goodwin LA, Shapiro N, Ivanova N, Kyrpides N, Woyke T, Woebken D. 2020. One complete and seven draft genome sequences of subdivision 1 and 3 *Acidobacteria* isolated from soil. *Microbiol Resour Announc.* 9(5):e01087-19. doi: 10.1128/MRA.01087-19.
12. Zheng Q, Hu Y, Zhang S, Noll L, Böckle T, Dietrich M, Herbold CW, **Eichorst SA**, Woebken D, Richter A, Wanek W. 2019. Soil multifunctionality is affected by the soil environment and by microbial community composition and diversity. *Soil Biol Biochem.* 136:107521. doi: 10.1016/j.soilbio.2019.107521.
13. Gorka S, Dietrich M, Mayerhofer W, Gabriel R, Wiesenbauer J, Martin V, Zheng Q, Imai B, Prommer J, Weidinger M, Schweiger P, **Eichorst SA**, Wagner M, Richter A, Schintlmeister A, Woebken D, Kaiser C. 2019. Rapid transfer of plant photosynthates to soil bacteria via ectomycorrhizal hyphae and its interaction with nitrogen availability. *Front Microbiol.* 10:168. doi: 10.3389/fmicb.2019.00168.
14. Angel R, Nepel M, Panhölzl C, Schmidt H, Herbold CW, **Eichorst SA**, Woebken D. Evaluation of primers targeting the diazotroph functional gene and development of NifMAP - a bioinformatics pipeline for analyzing *nifH* amplicon data. *Front Microbiol.* 9:703. doi: 10.3389/fmicb.2018.00703.
15. Hausmann B, Pelikan C, Herbold CW, Köstlbacher S, Albertsen M, **Eichorst SA**, Glavina Del Rio T, Huemer M, Nielsen PH, Rattei T, Stingl U, Tringe SG, Trojan D, Wentrup C, Woebken D, Pester M, Loy A. 2018. Peatland Acidobacteria with a dissimilatory sulfur metabolism. *ISME J.* 12(7):1729-1742. doi: 10.1038/s41396-018-0077-1.
16. **Eichorst SA**, Trojan D, Roux S, Herbold C, Rattei T, Woebken D. 2018. Genomic insights into the Acidobacteria reveal strategies for their success in terrestrial environments. *Environ Microbiol.* 20:1041-1063. doi:10.1111/1462-2920.14043.
17. Kolinko S, Wu YW, Tachae F, Denzel E, Hiras J, Gabriel R, Bäcker N, Chan LJG, **Eichorst SA**, Frey D, Chen Q, Azadi P, Adams PD, Pray TR, Tanjore D, Petzold CJ, Gladden JM, Simmons BA, Singer SW. 2018. A bacterial pioneer produces cellulase complexes that persist through community succession. *Nature Microbiol.* 3(1): 99-104. doi: 10.1038/s41564-017-0052-z.
18. Angel R, Panhölzl C, Gabriel R, Herbold C, Wanek W, Richter A, **Eichorst SA**, Woebken D. 2018. Application of stable-isotope labelling techniques for the detection of active diazotrophs. *Environ Microbiol.* (1):44-61. doi: 10.1111/1462-2920.13954. Erratum in: *Environ Microbiol.* 2022 (10):4962-4963. doi: 10.1111/1462-2920.16213.
19. Hiras J, Wu YW, **Eichorst SA**, Simmons BA, Singer SW. 2016. Refining the phylum Chlorobi by resolving the phylogeny and metabolic potential of the representative of a deeply branching, uncultivated lineage. *ISME J.* 10(4):833-45. doi: 10.1038/ismej.2015.158.
20. Spohn M, Pötsch EM, **Eichorst SA**, Woebken D, Wanek W, Richter A. 2016. Soil microbial carbon use efficiency and biomass turnover in a long-term fertilization experiment in a temperate grassland. *Soil Biol Biochem.* 97: 168-175. doi.org/10.1016/j.soilbio.2016.03.008.
21. **Eichorst SA**, Strasser F, Woyke T, Schintlmeister A, Wagner M, Woebken D. 2015. Advancements in the application of NanoSIMS and Raman microspectroscopy to investigate the activity of microbial cells in soils. *FEMS Microbiol Ecol.* 91(10); pii: fiv106. doi: 10.1093/femsec/fiv106.
22. **Eichorst SA**, Joshua C, Sathitsuksanoh N, Singh S, Simmons BA, Singer SW. 2014. Substrate-specific development of thermophilic bacterial consortia by using chemically pretreated switchgrass. *Appl Environ Microbiol.* 80(23):7423-32. doi: 10.1128/AEM.02795-14.
23. Wu YW, Joshua C, **Eichorst SA**, Gladden JM, Simmon BA, Singer SW. 2015. Genomic analysis of xylose metabolism in members of the *Deinococcus-Thermus* phylum from thermophilic biomass-deconstructing bacterial consortia. *Bioenerg. Res.* 8, 1031–1038. doi.org/10.1007/s12155-015-9600-7

24. Berthrong ST, Yeager CM, Gallegos-Graves L, Steven B, **Eichorst SA**, Jackson RB, Kuske CR. 2014. Nitrogen fertilization has a stronger effect on soil nitrogen-fixing bacterial communities than elevated atmospheric CO₂. *Appl Environ Microbiol.* 80(10):3103-12. doi: 10.1128/AEM.04034-13.
25. **Eichorst SA**, Varanasi P, Stavila V, Zemla M, Auer M, Singh S, Simmons BA, Singer SW. 2013. Community dynamics of cellulose-adapted thermophilic bacterial consortia. *Environ Microbiol.* 15:2573-87. doi: 10.1111/1462-2920.12159.
26. Gans JD, Dunbar J, **Eichorst SA**, Gallegos-Graves LV, Wolinsky M, Kuske CR. 2012. A robust PCR primer design platform applied to the detection of Acidobacteria Group 1 in soil. *Nucleic Acids Res.* 40(12):e96. doi: 10.1093/nar/gks238.
27. **Eichorst SA**, Kuske CR. 2012. Identification of cellulose-responsive bacterial and fungal communities in geographically and edaphically different soils by using stable isotope probing. *Appl Environ Microbiol.* 78(7):2316-27. doi:10.1128/AEM.07313-11.
28. Dunbar J, **Eichorst SA**, Gallegos-Graves LV, Silva S, Xie G, Hengartner NW, Evans RD, Hungate BA, Jackson RB, Megonigal JP, Schadt CW, Vilgalys R, Zak DR, Kuske CR. 2012. Common bacterial responses in six ecosystems exposed to 10 years of elevated atmospheric carbon dioxide. *Environ Microbiol.* 14(5):1145-58. doi: 10.1111/j.1462-2920.2011.02695.x.
29. Liu KL, Porrás-Alfaro A, Kuske CR, **Eichorst SA**, Xie G. 2012. Accurate, rapid taxonomic classification of fungal large-subunit rRNA genes. *Appl Environ Microbiol.* 78(5):1523-33. doi: 10.1128/AEM.06826-11.
30. Gladden JM, **Eichorst SA**, Hazen TC, Simmons BA, Singer SW. Substrate perturbation alters the glycoside hydrolase activities and community composition of switchgrass-adapted bacterial consortia. *Biotechnol Bioeng.* 2012 May;109(5):1140-5. doi: 10.1002/bit.24388.
31. Challacombe JF, **Eichorst SA**, Hauser L, Land M, Xie G, Kuske CR. 2011. Biological consequences of ancient gene acquisition and duplication in the large genome of *Candidatus Solibacter usitatus* Ellin6076. *PLoS One.* 6(9):e24882. doi: 10.1371/journal.pone.0024882.
32. **Eichorst SA**, Kuske CR, Schmidt TM. 2011. Influence of plant polymers on the distribution and cultivation of bacteria in the phylum *Acidobacteria*. *Appl Environ Microbiol.* 77:586-596. doi: 10.1128/AEM.01080-10.
33. **Eichorst SA**, Breznak JA, Schmidt TM. 2007. Isolation and characterization of bacteria from soil that define *Terriglobus* gen. nov., in the phylum *Acidobacteria*. *Appl Environ Microbiol.* 73:2708-2717. doi: 10.1128/AEM.02140-06.
34. Stevenson BS, **Eichorst SA**, Wertz JT, Schmidt TM, Breznak JA. 2004. New strategies for cultivation and detection of previously uncultured microbes. *Appl Environ Microbiol.* 70(8):4748-55. doi: 10.1128/AEM.70.8.4748-4755.2004.

Book chapters

Eichorst SA, Trojan D, and **Woeckel D**. 2018. *Terriglobus*. In Bergey's Manual of Systematics of Archaea and Bacteria. (eds. Whitman WB, Rainey F, Kämpfer P, Trujillo M, Chun J, DeVos P, Hedlund B and Dedysh S). doi:10.1002/9781118960608.gbm00003.pub2

Eichorst SA and **Woeckel D**. 2014. *Investigation of microorganisms at the single-cell level using Raman Microspectroscopy and Nanometer-scale Secondary Ion Mass Spectrometry*. In Applications of Molecular Microbiological Method. (eds. Skovhus TL, Caffrey S, and Hubert CRJ). Caister Academic Press, Norfolk, UK.