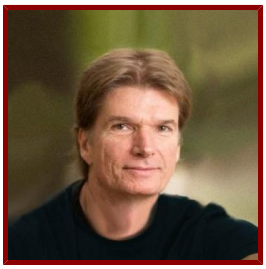
Stanford



Alfred M. Spormann

Professor of Civil and Environmental Engineering and of Chemical Engineering, Emeritus

CONTACT INFORMATION

- **Administrator**

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Bio

BIO

In our research we investigate molecular microbial metabolism and its linkage to ecological and evolutionary processes. We explore the distinguishing features of novel microbial metabolism and how molecular and biochemical differences in metabolism shape microbial fitness. We study novel microbial metabolism with relevance to bioremediation, bioenergy, and intestinal microbiology.

1) Microbial Electrosynthesis and Electron Transport between Microbes and Surfaces

Some microbes have the the capacity to either derive metabolic electrons from redox-active mineral surfaces or transfer such electrons to these surfaces. These processes are of great relevance to geochemical, environmental, but also bioenergy processes. We are investigating the molecular bases of such novel electron transfer to uncover the enzymes and pathways for electron uptake. More recently, we began to explore microbial electrosynthesis as a novel means to produce CO2-neutral biofuels and commodity chemicals.

2) Microbial Reductive Dehalogenation

Chloroethenes, such as PCE and TCE, are the most prevalent groundwater contaminants in the U.S. and the developed countries. Large scale remediation of contaminated aquifers relies largely on the activity of a group of unusual microbes (Dehalococcoides) that derive energy from reductive dehalogenation. We study reductive dehalogenases and the strictly anaerobic bacteria, such as Dehalococcoides mccartyj and Shewanella, on a biochemical, physiological, genomic, and population level to better understand the unprecedented biochemistry of the coenzyme B 12-containing reductive dehalogenases. We also use this information to improve chlorethene bioremediation. Population-level studies in our lab have been revealing speciation and niche adaptation in Dehalococcoides mccartyj. in response to subtle changes in physical-chemical environments.

3) Biofilms and the emergence of antibiotic tolerance and antibiotic resistance

For the last decade, we have been investigating the mechanism of biofilm formation in medically important microorganisms, including Vibrio chloreae, Pseudomonas aeruginosa, Francisella tularensis, and Shewanella oneidensis. We discovered that the stability of biofilms requires cellular energy, and that extracellular matrix material may have a supportive role. In more recent studies, we developed the first system to examine the pharmacokinetics and pharmacodynamics of Pseudomonas aeruginosa biofilms. We investigate the effect of human simulated concentrations of meropenem and tobramycin, administered singly, and in combination, on biofilms of P. aeruginosa PAO1 and clinical isolates from patients with CF, as well as the effect of human simulated concentrations of meropenem and tobramycin, administered singly, and in combination, on biofilms of P. aeruginosa PAO1 and clinical CF isolates.

4) Microbial Metabolic Processes in the Large Intestine

Irritable Bowel Syndrome (IBS) is a chronic, episodic gastrointestinal disorder that is characterized by abdominal pain and altered bowel habits. IBS prevalence is estimated to be 10-15% in Western countries comprising 25 to 50 percent of all referrals to gastroenterologists. The gastrointestinal tract harbors a complex and diverse microbial community, which plays important roles in host nutrition, immune function, health and disease, and it is hypothesized the IBS disease phenotype is associated with a change in colonic microbiota and/or host factors such as mucosal function and immunity. With our physician collaborator, we study the metabolic processes in the intestinal microbial community, and how cellular metabolism is controlled by the host mucosa.

ACADEMIC APPOINTMENTS

- Emeritus Faculty, Acad Council, Civil and Environmental Engineering
- Member, Bio-X
- Member, Maternal & Child Health Research Institute (MCHRI)
- Affiliate, Precourt Institute for Energy

HONORS AND AWARDS

- Elected Fellow, American Academy of Microbiology (2013)
- Otto Moensted Visiting Professor, Danish Technical University, Lyngby, DK (2003)
- Research Award, Charles Lee Powell Foundation (2000)
- CAREER Award, National Science Foundation (1998)
- Visiting Professor, Department of Biochemistry and Biological Process Institute, University of Minnesota (1997)
- Terman Fellowship Award, Stanford University (1995)
- Postdoctoral Fellowship, Deutsche Forschungsgemeinschaft (1990)
- Planetary Biology Internship Fellowship, NASA Life Sciences (Marine Biological Laboratory) (1986)

PROFESSIONAL EDUCATION

- Dr. rer. nat., Philipps-University, Marburg (1989)

LINKS

- Alfred M. Spormann Lab: https://web.stanford.edu/group/spormanngroup/cgi-bin/wordpress/

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

Metabolism of anaerobic microbes in diseases, bioenergy, and bioremediation

Teaching

COURSES

2024-25

- Environmental Microbiology I: BIO 273A, CEE 274A, CHEMENG 174, CHEMENG 274 (Win)

2023-24

- Microbial Bioenergy Systems: CEE 274B, CHEMENG 456 (Spr)

2022-23

- Advanced Seminar in Microbial Molecular Biology: BIO 346, CSB 346, GENE 346 (Spr)
- Environmental Microbiology I: CEE 274A, CHEMENG 174, CHEMENG 274 (Aut)
- Special Topics in Microbial Physiology and Metabolism: CHEMENG 517 (Aut)

STANFORD ADVISEES

Doctoral Dissertation Reader (AC)

Jenna Ahn, Irene Martinez, Sean Waterton, Vivian Zhong

GRADUATE AND FELLOWSHIP PROGRAM AFFILIATIONS

- Biology (School of Humanities and Sciences) (Phd Program)

Publications

PUBLICATIONS

- **Non-canonical resource allocation in heterotrophically growing Thermoanaerobacter kivui.** *Nature communications*
  Mueller, F. M., Müller, A. L., Gu, W., Abdollah-Nia, F., Sun, J., Ahn, J. K., Huang, K. C., Williamson, J. R., Spormann, A. M.
  2025; 16 (1): 8489
- **Effects of CO2and H2limitations onMethanococcus maripaludis.** *Microbiology spectrum*
  Xue, J., Deutzmann, J. S., Matis, N., Kracke, F., Spormann, A., Gu, W.
  2025: e0035925
- **Dos and don'ts for scaling up gas fermentations.** *Current opinion in biotechnology*
  Puiman, L., Bokelmann, C., Simpson, S. D., Spormann, A. M., Takors, R.
  2025; 93: 103294
- **Improved reactor design enables productivity of microbial electrosynthesis on par with classical biotechnology.** *Bioresource technology*
  Deutzmann, J. S., Callander, G., Spormann, A. M.
  2024: 131733
- **Alkaline hydrogenotrophic methanogenesis in Methanococcus vannielii at low carbon dioxide concentrations** *JOURNAL OF CO2 UTILIZATION*
  Callander, G., Deutzmann, J. S., Spormann, A. M.
  2024; 83
- **High acetate titer obtained from CO₂ by thermophilic microbial electrosynthesis with Thermoanaerobacter kivui** *BIORESOURCE TECHNOLOGY REPORTS*
  Deutzmann, J., Spormann, A.
  2024; 25
- **Metabolic diversity in commensal protists regulates intestinal immunity and trans-kingdom competition.** *Cell*
  Gerrick, E. R., Zlitni, S., West, P. T., Carter, M. M., Mechler, C. M., Olm, M. R., Caffrey, E. B., Li, J. A., Higginbottom, S. K., Severyn, C. J., Kracke, F., Spormann, A. M., Sonnenburg, et al

2023

- **Microbial electromethanogenesis powered by curtailed renewable electricity** *CELL REPORTS PHYSICAL SCIENCE*
  Deutzmann, J., Kracke, F., Spormann, A.
  2023; 4 (8)
- **Double emulsions as a high-throughput enrichment and isolation platform for slower-growing microbes.** *ISME communications*
  McCully, A. L., Loop Yao, M., Brower, K. K., Fordyce, P. M., Spormann, A. M.
  2023; 3 (1): 47
- **Electrochemistry-Based CO2 Removal Technologies.** *ChemSusChem*
  Biel-Nielsen, T. L., Hatton, T. A., Villadsen, S. N., Jakobsen, J. S., Bonde, J. L., Spormann, A. M., Fosbol, P. L.
  2023: e202202345
- **Microbial Electrosynthesis of Acetate Powered by Intermittent Electricity.** *Environmental science & technology*
  Deutzmann, J. S., Kracke, F., Gu, W., Spormann, A. M.
  2022
- **Bacterial exometabolites influence Chlamydomonas cell cycle and double algal productivity.** *FEMS microbiology ecology*
  Windler, M., Stuart, R., Deutzmann, J. S., Mayali, X., Navid, A., D'haeseleer, P., Marcu, O. E., Lipton, M., Nicora, C., Spormann, A. M.
  2022
- **Growth rate-dependent coordination of catabolism and anabolism in the archaeon Methanococcus maripaludis under phosphate limitation.** *The ISME journal*
  Gu, W., Muller, A. L., Deutzmann, J. S., Williamson, J. R., Spormann, A. M.
  2022
- **Developing reactors for electrifying bio-methanation: a perspective from bio-electrochemistry** *SUSTAINABLE ENERGY & FUELS*
  Jayathilake, B. S., Chandrasekaran, S., Freyman, M. C., Deutzmann, J. S., Kracke, F., Spormann, A. M., Huang, Z., Tao, L., Pang, S. H., Baker, S. E.
  2022
- **Designing a Zn-Ag Catalyst Matrix and Electrolyzer System for CO2 Conversion to CO and Beyond.** *Advanced materials (Deerfield Beach, Fla.)*
  Lamaison, S., Wakerley, D., Kracke, F., Moore, T., Zhou, L., Lee, D. U., Wang, L., Hubert, M. A., Aviles Acosta, J. E., Gregoire, J. M., Duoss, E. B., Baker, S., Beck, et al
  2021: e2103963
- **Enzymatic Hydrogen Electrosynthesis at Enhanced Current Density Using a Redox Polymer** *CATALYSTS*
  Ruth, J. C., Schwarz, F. M., Mueller, V., Spormann, A. M.
  2021; 11 (10)
- **In situ electrochemical H-2 production for efficient and stable power-to-gas electromethanogenesis (vol 22, pg 6194, 2020)** *GREEN CHEMISTRY*
  Kracke, F., Deutzmann, J. S., Gu, W., Spormann, A. M.
  2021
- **Enzyme Electrochemistry for Industrial Energy Applications-A Perspective on Future Areas of Focus** *ACS CATALYSIS*
  Ruth, J. C., Spormann, A. M.
  2021; 11 (10): 5951-5967
- **An alternative resource allocation strategy in the chemolithoautotrophic archaeon Methanococcus maripaludis.** *Proceedings of the National Academy of Sciences of the United States of America*
  Muller, A. L., Gu, W., Patsalo, V., Deutzmann, J. S., Williamson, J. R., Spormann, A. M.
  2021; 118 (16)
- **Efficient Hydrogen Delivery for Microbial Electrosynthesis via 3D-Printed Cathodes.** *Frontiers in microbiology*
  Kracke, F., Deutzmann, J. S., Jayathilake, B. S., Pang, S. H., Chandrasekaran, S., Baker, S. E., Spormann, A. M.
  2021; 12: 696473
- **High-throughput low-cost nl-qPCR for enteropathogen detection: A proof-of-concept among hospitalized patients in Bangladesh.** *PloS one*

Flaherty, K. E., Grembi, J. A., Ramachandran, V. V., Haque, F., Khatun, S., Rahman, M., Maples, S., Becker, T. K., Spormann, A. M., Schoolnik, G. K., Hryckowian, A. J., Nelson, E. J.
2021; 16 (10): e0257708

- **Low-Cost Clamp-On Photometers (ClampOD) and Tube Photometers (TubeOD) for Online Cell Density Determination.** *Frontiers in microbiology*
  Deutzmann, J. S., Callander, G., Gu, W., Muller, A. L., McCully, A. L., Ahn, J. K., Kracke, F., Spormann, A. M.
  1800; 12: 790576
- **In situelectrochemical H(2)production for efficient and stable power-to-gas electromethanogenesis** *GREEN CHEMISTRY*
  Kracke, F., Deutzmann, J. S., Gu, W., Spormann, A. M.
  2020; 22 (18): 6194–6203
- **Direct cathodic electron uptake coupled to sulfate reduction by Desulfovibrio ferrophilus IS5 biofilms.** *Environmental microbiology*
  McCully, A. L., Spormann, A. M.
  2020
- **Metabolic strategies of marine subseafloor Chloroflexi inferred from genome reconstructions.** *Environmental microbiology*
  Fincker, M., Huber, J. A., Orphan, V. J., Rappe, M. S., Teske, A., Spormann, A. M.
  2020
- **Cultivating electroactive microbes - from field to bench.** *Nanotechnology*
  Yee, M. O., Deutzmann, J. S., Spormann, A., Rotaru, A.
  2020
- **Enhanced Electrosynthetic Hydrogen Evolution by Hydrogenases Embedded in a Redox-Active Hydrogel.** *Chemistry (Weinheim an der Bergstrasse, Germany)*
  Ruth, J. C., Milton, R. D., Gu, W. n., Spormann, A. M.
  2020
- **High-Throughput Multiparallel Enteropathogen Detection via Nano-Liter qPCR.** *Frontiers in cellular and infection microbiology*
  Grembi, J. A., Mayer-Blackwell, K. n., Luby, S. P., Spormann, A. M.
  2020; 10: 351
- **Microbial Battery Powered Enzymatic Electrosynthesis for Carbon Capture and Generation of Hydrogen and Formate from Dilute Organics** *ACS ENERGY LETTERS*
  Dubrawski, K. L., Shao, X., Milton, R. D., Deutzmann, J. S., Spormann, A. M., Criddle, C. S.
  2019; 4 (12): 2929–36
- **Cultivation and functional characterization of 79 planctomycetes uncovers their unique biology.** *Nature microbiology*
  Wiegand, S., Jogler, M., Boedeker, C., Pinto, D., Vollmers, J., Rivas-Marin, E., Kohn, T., Peeters, S. H., Heuer, A., Rast, P., Oberbeckmann, S., Bunk, B., Jeske, et al
  2019
- **Robust and biocompatible catalysts for efficient hydrogen-driven microbial electrosynthesis** *COMMUNICATIONS CHEMISTRY*
  Kracke, F., Wong, A., Maegaard, K., Deutzmann, J. S., Hubert, M. A., Hahn, C., Jaramillo, T. F., Spormann, A. M.
  2019; 2
- **Identification of widespread antibiotic exposure in cholera patients correlates with clinically relevant microbiota changes.** *The Journal of infectious diseases*
  Alexandrova, L. n., Haque, F. n., Rodriguez, P. n., Marrazzo, A. C., Grembi, J. A., Ramachandran, V. n., Hryckowian, A. J., Adams, C. M., Siddique, M. S., Khan, A. I., Qadri, F. n., Andrews, J. R., Rahman, et al
  2019
- **Quasi-2D Pd/Pt nanoclams for CO2 reduction in tandem with microbial communities**
  Wong, A., Kracke, F., Antoniuk-Pablant, A., Hahn, C., Spormann, A., Jaramillo, T.
  AMER CHEMICAL SOC.2018
- **Methanococcus maripaludis Employs Three Functional Heterodisulfide Reductase Complexes for Flavin-Based Electron Bifurcation Using Hydrogen and Formate** *BIOCHEMISTRY*
  Milton, R. D., Ruth, J. C., Deutzmann, J. S., Spormann, A. M.

2018; 57 (32): 4848-4857

- **Fine-Tuned Protein Production in Methanosarcina acetivorans C2A** *ACS SYNTHETIC BIOLOGY*
  Karim, A. A., Gestaut, D. R., Fincker, M., Ruth, J. C., Holmes, E. C., Sheu, W., Spormann, A. M.
  2018; 7 (8): 1874–85
- **Methanococcus maripaludis Employs Three Functional Heterodisulfide Reductase Complexes for Flavin-Based Electron Bifurcation Using Hydrogen and Formate.** *Biochemistry*
  Milton, R. D., Ruth, J. C., Deutzmann, J. S., Spormann, A. M.
  2018
- **Homoacetogenesis in Deep-Sea Chloroflexi, as Inferred by Single-Cell Genomics, Provides a Link to Reductive Dehalogenation in Terrestrial Dehalococcoidetes (vol 8, e02022-17, 2017)** *MBIO*
  Sewell, H. L., Kaster, A., Spormann, A. M.
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- **Mediator-free enzymatic electrosynthesis of formate by the Methanococcus maripaludis heterodisulfide reductase supercomplex.** *Bioresource technology*
  Lienemann, M. n., Deutzmann, J. S., Milton, R. D., Sahin, M. n., Spormann, A. M.
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- **HIGH-THROUGHPUT MULTI-PARALLEL NL-QPCR CHIP FOR THE DETECTION OF 17 ENTERIC PATHOGENS**
  Grembi, J., Mayer-Blackwell, K., Luby, S., Spormann, A.
  AMER SOC TROP MED & HYGIENE.2018: 199–200
- **Determination of Tobramycin in M-9 Medium by LC-MS/MS: Signal Enhancement by Trichloroacetic Acid** *JOURNAL OF ANALYTICAL METHODS IN CHEMISTRY*
  Huang, L., Haagensen, J., Verotta, D., Cheah, V., Spormann, A. M., Aweeka, F., Yang, K.
  2018: 7965124
- **Homoacetogenesis in Deep-Sea Chloroflexi, as Inferred by Single-Cell Genomics, Provides a Link to Reductive Dehalogenation in Terrestrial Dehalococcoidetes** *MBIO*
  Sewell, H. L., Kaster, A., Spormann, A. M.
  2017; 8 (6)
- **Trichloroacetic acid improves MS signal and separation in determination of tobramycin in M9 bacterial medium by LC-MS/MS**
  Huang, L., Haagensen, J., Verotta, D., Cheah, V., Spormann, A., Aweeka, F., Yang, K.
  AMER CHEMICAL SOC.2017
- **Integrated electrochemical-biological systems for the production of fuels and chemicals from CO2**
  Antoniuk-Pablant, A., Kracke, F., Deutzmann, J., Jaramillo, T., Spormann, A.
  AMER CHEMICAL SOC.2017
- **Enhanced microbial electrosynthesis by using defined co-cultures** *ISME JOURNAL*
  Deutzmann, J. S., Spormann, A. M.
  2017; 11 (3): 704-714
- **Survival of Vinyl Chloride Respiring Dehalococcoides mccartyi under Long-Term Electron Donor Limitation** *ENVIRONMENTAL SCIENCE & TECHNOLOGY*
  Mayer-Blackwell, K., Azizian, M. F., Green, J. K., Spormann, A. M., Semprini, L.
  2017; 51 (3): 1635-1642
- **Mathematical Modeling of Biofilm Structures Using COMSTAT Data.** *Computational and mathematical methods in medicine*
  Verotta, D. n., Haagensen, J. n., Spormann, A. M., Yang, K. n.
  2017; 2017: 7246286
- **Biochemistry of Catabolic Reductive Dehalogenation.** *Annual review of biochemistry*
  Fincker, M. n., Spormann, A. M.
  2017; 86: 357–86
- **Spatiotemporal pharmacodynamics of meropenem- and tobramycin-treated Pseudomonas aeruginosa biofilms.** *The Journal of antimicrobial chemotherapy*

Haagensen, J. n., Verotta, D. n., Huang, L. n., Engel, J. n., Spormann, A. M., Yang, K. n.
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- **Homoacetogenesis in Deep-SeaChloroflexi, as Inferred by Single-Cell Genomics, Provides a Link to Reductive Dehalogenation in TerrestrialDehalococcoidetes.** *mBio*
  Sewell, H. L., Kaster, A. K., Spormann, A. M.
  2017; 8 (6)

- **1,2-Dichloroethane Exposure Alters the Population Structure, Metabolism, and Kinetics of a Trichloroethene-Dechlorinating Dehalococcoides mccartyi Consortium.** *Environmental science & technology*
  Mayer-Blackwell, K., Fincker, M., Molenda, O., Callahan, B., Sewell, H., Holmes, S., Edwards, E. A., Spormann, A. M.
  2016: -?

- **Enhanced microbial electrosynthesis by using defined co-cultures.** *ISME journal*
  Deutzmann, J. S., Spormann, A. M.
  2016

- **Effect of biofilm coatings at metal-oxide/water interfaces II: Competitive sorption between Pb(II) and Zn(II) at Shewanella oneidensis/metal-oxide/water interfaces** *GEOCHIMICA ET COSMOCHIMICA ACTA*
  Wang, Y., Gelabert, A., Michel, F. M., Choi, Y., Eng, P. J., Spormann, A. M., Brown, G. E.
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- **Pf4 bacteriophage produced by Pseudomonas aeruginosa inhibits Aspergillus fumigatus metabolism via iron sequestration** *MICROBIOLOGY-SGM*
  Penner, J. C., Ferreira, J. A., Secor, P. R., Sweere, J. M., Birukova, M. K., Joubert, L., Haagensen, J. A., Garcia, O., Malkovskiy, A. V., Kaber, G., Nazik, H., Manasherob, R., Spormann, et al
  2016; 162 (9): 1583-1594

- **Effect of biofilm coatings at metal-oxide/water interfaces I: Pb(II) and Zn(II) partitioning and speciation at Shewanella oneidensis/metal-oxide/water interfaces** *GEOCHIMICA ET COSMOCHIMICA ACTA*
  Wang, Y., Gelabert, A., Michel, F. M., Choi, Y., Gescher, J., Ona-Nguema, G., Eng, P. J., Bargar, J. R., Farges, F., Spormann, A. M., Brown, G. E.
  2016; 188: 368-392

- **Metal ion sorption at mineral/aqueous solution interfaces: Effects of complex coatings and particle/pore sizes**
  Brown, G., Wang, Y., Cismasu, C., Eng, P., Spormann, A., Wang, Y., Dublet, G., Jew, A., Jung, J., Wilcox, J., Bargar, J.
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- **Effects of Iron Chelators on the Formation and Development of Aspergillus fumigatus Biofilm (vol 59, pg 6514, 2015)** *ANTIMICROBIAL AGENTS AND CHEMOTHERAPY*
  Nazik, H., Penner, J. C., Ferreira, J. A., Haagensen, J. A. J., Cohen, K., Spormann, A. M., Martinez, M., Chen, V., Hsu, J. L., Clemons, K. V., Stevens, D. A.
  2015; 59 (10): 7160

- **Effects of Iron Chelators on the Formation and Development of Aspergillus fumigatus Biofilm.** *Antimicrobial agents and chemotherapy*
  Nazik, H., Penner, J. C., Ferreira, J. A., Haagensen, J. A., Cohen, K., Spormann, A. M., Martinez, M., Chen, V., Hsu, J. L., Clemons, K. V., Stevens, D. A.
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- **Inhibition of Aspergillus fumigatus and Its Biofilm by Pseudomonas aeruginosa Is Dependent on the Source, Phenotype and Growth Conditions of the Bacterium** *PLOS ONE*
  Ferreira, J. A., Penner, J. C., Moss, R. B., Haagensen, J. A., Clemons, K. V., Spormann, A. M., Nazik, H., Cohen, K., Banaei, N., Carolino, E., Stevens, D. A.
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- **New In Vitro Model To Study the Effect of Human Simulated Antibiotic Concentrations on Bacterial Biofilms.** *Antimicrobial agents and chemotherapy*

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  Siegert, M., Yates, M. D., Spormann, A. M., Logan, B. E.
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- **Biochemical and EPR-Spectroscopic Investigation into Heterologously Expressed Vinyl Chloride Reductive Dehalogenase (VcrA) from Dehalococcoides mccartyi Strain VS** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
  Parthasarathy, A., Stich, T. A., Lohner, S. T., Lesnefsky, A., Britt, R. D., Spormann, A. M.
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- **Extracellular Enzymes Facilitate Electron Uptake in Biocorrosion and Bioelectrosynthesis** *MBIO*
  Deutzmann, J. S., Sahin, M., Spormann, A. M.
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- **Revisiting N2 fixation in Guerrero Negro intertidal microbial mats with a functional single-cell approach.** *ISME journal*
  Woebken, D., Burow, L. C., Behnam, F., Mayali, X., Schintlmeister, A., Fleming, E. D., Prufert-Bebout, L., Singer, S. W., Cortés, A. L., Hoehler, T. M., Pett-Ridge, J., Spormann, A. M., Wagner, et al
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- **Erratum for Nazik et al., effects of iron chelators on the formation and development of Aspergillus fumigatus biofilm.** *Antimicrobial agents and chemotherapy*
  Nazik, H. n., Penner, J. C., Ferreira, J. A., Haagensen, J. A., Cohen, K. n., Spormann, A. M., Martinez, M. n., Chen, V. n., Hsu, J. L., Clemons, K. V., Stevens, D. A.
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- **Bacteria from Diverse Habitats Colonize and Compete in the Mouse Gut** *CELL*
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  Mayer-Blackwell, K., Azizian, M. F., Machak, C., Vitale, E., Carpani, G., de Ferra, F., Semprini, L., Spormann, A. M.
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- **Hydrogenase-independent uptake and metabolism of electrons by the archaeon Methanococcus maripaludis.** *ISME journal*
  Lohner, S. T., Deutzmann, J. S., Logan, B. E., Leigh, J., Spormann, A. M.
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- **Influence of setup and carbon source on the bacterial community of biocathodes in microbial electrolysis cells** *ENZYME AND MICROBIAL TECHNOLOGY*
  Croese, E., Jeremiasse, A. W., Marshall, I. P., Spormann, A. M., Euveritik, G. W., Geelhoed, J. S., Stams, A. J., Plugge, C. M.
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