

## Publication list – Michael Wagner

I have published between 1992 – October 2021 in my six major research fields (nitrification, single cell microbiology, microbiome, wastewater microbiology, endosymbionts, sulfate reduction) 277 papers and more than 30 book chapters. According to Scopus (October 2021) my publications have been cited 42,291 (ISI: 39,720; Google Scholar: 62,463) and I have an H-index of 109 (ISI: 106; Google Scholar: 135). Seven of my publications appeared in *Nature* (plus a News & Views piece), three in *Science*, 13 in *PNAS* (all direct submission) and two in *PLoS Biology*. More info about my publications can be found at:

Scopus: <https://www.scopus.com/authid/detail.uri?authorId=57200814774>  
ResearcherID: <https://publons.com/researcher/2814586/michael-wagner/>  
GoogleScholar: [https://scholar.google.com/citations?user=JF6OQ\\_0AAAAJ&hl=de](https://scholar.google.com/citations?user=JF6OQ_0AAAAJ&hl=de)

277. Wu MR, Hou TT, Liu Y, Miao LL, Ai GM, Ma L, Zhu HZ, Zhu YX, Gao XY, Herbold CW, Wagner M, Li DF, Liu ZP, Liu SJ. 2021. Novel *Alcaligenes ammonioxydans* sp. nov. from wastewater treatment sludge oxidizes ammonia to N<sub>2</sub> with a previously unknown pathway. *Environ Microbiol*, doi: 10.1111/1462-2920.15751

276. Schueffl H, Theiner S, Herrmann G, Mayr J, Fronik P, Groza D, van Schonhooven S, Galvez L, Sommerfeld NS, Schintlmeister A, Reipert S, Wagner M, Mader RM, Koellensperger G, Keppler BK, Berger W, Kowol CR, Legin A, Heffeter P. 2021. Albumin-targeting of an oxaliplatin-releasing platinum(IV) prodrug results in pronounced anticancer activity due to endocytotic drug uptake *in vivo*. *Chem.Sci.* doi: 10.1039/d1sc03311e

275. Mooshammer M, Wanek W, Jones SH, Richter A, Wagner M. 2021. Cyanate is a low abundance but actively cycled nitrogen compound in soil. *Communications Earth & Environment*, 2: 161

274. Willeit P, Bernar B, Zurl C, Al-Rawi M, Berghold A, Bernhard D, Borena W, Doppler C, Kerbl R, Köhler A, Krause R, Lamprecht B, Pröll J, Schmidt H, Steinmetz I, Evelyn S, Stoiber H, von Laer D, Zuber J, Müller T, Strenger V, Wagner M. 2021. Sensitivity and specificity of the antigen-based anterior nasal self-testing programme for detecting SARS-CoV-2 infection in schools, Austria, March 2021. *Eurosurveillance*, 26: pii=2100797

273. Jung MY, Sedlacek CJ, Kits KD, Mueller AJ, Rhee SK, Hink L, Nicol GW, Bayer B, Lehtovirta-Morley L, Wright C, De La Torre JR, Herbold CW, Pjevac P, Daims H, Wagner M. 2021. Ammonia-oxidizing archaea possess a wide range of cellular ammonia affinities. *ISME J*, doi.org/10.1038/s41396-021-01064-z

272. Mayerhofer W, Schintlmeister A, Dietrich M, Gorka S, Wiesenbauer J, Martin V, Gabriel R, Reipert S, Weidinger M, Clode P, Wagner M, Wobken D, Richter A, Kaiser C. 2021. Recently photoassimilated carbon and fungal-delivered nitrogen are spatially

correlated at the cellular scale in the ectomycorrhizal tissue of *Fagus sylvatica*. *New Phytol*, doi: 10.1111/nph.17591

271. **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, Loy A.** 2021. Genomic insights into diverse bacterial taxa that degrade extracellular DNA in marine sediments. *Nat Microbiol*, **6**: 885–898

270. **Paredes GF, Viehboeck T, Lee R, Palatinszky M, Mausz MA, Reipert S, Schintlmeister A, Maier A, Volland JM, Hirschfeld C, Wagner M, Berry D, Markert S, Bulgheresi S, König L.** 2021. Anaerobic Sulfur Oxidation Underlies Adaptation of a Chemosynthetic Symbiont to Oxic-Anoxic Interfaces. *mSystems*, **3**: e0118620

269. **Neuditschko B, Legin AA, Baier D, Schintlmeister A, Reipert S, Wagner M, Keppler BK, Berger W, Meier-Menches SM, Gerner C.** 2021. Interaction with ribosomal proteins accompanies stress induction of the anticancer metallodrug BOLD-100/KP1339 in the endoplasmic reticulum. *Angew Chem Int Ed Engl*, **60**: 5063-5068

268. **Willeit P, Krause R, Lamprecht B, Berghold A, Hanson B, Stelzl E, Stoiber H, Zuber J, Heinen R, Köhler A, Bernhard D, Borena W, Doppler C, von Laer D, Schmidt H, Pröll J, Steinmetz I, Wagner M.** 2021. Prevalence of RT-qPCR-detected SARS-CoV-2 infection at schools: First results from the Austrian School-SARS-CoV-2 prospective cohort study. *The Lancet Regional Health - Europe*, **5**: 100086

267. **Lee KS, Pereira FC, Palatinszky M, Behrendt L, Alcolombri U, Berry D, Wagner M, Stocker R.** 2021. Optofluidic Raman-activated cell sorting for targeted genome retrieval or cultivation of microbial cells with specific functions. *Nat Protoc*, **16**: 634-676

266. **Mooshammer M, Kitzinger K, Schintlmeister A, Ahmerkamp S, Nielsen JL, Nielsen PH, Wagner M.** 2021. Flow-through stable isotope probing (Flow-SIP) minimizes cross-feeding in complex microbial communities. *ISME J*, **15**: 348-353

265. **Mueller AJ, Jung MY, Strachan CR, Herbold CW, Kirkegaard RH, Wagner M, Daims H.** 2021. Genomic and kinetic analysis of novel *Nitrospinae* enriched by cell sorting. *ISME J*, **15**: 732-745

264. **Legin AA, Schintlmeister A, Sommerfeld NS, Eckhard M, Theiner S, Reipert S, Strohofer D, Jakupec MA, Galanski M, Wagner M, Keppler BK.** 2021. Nano-scale imaging of dual stable isotope labeled oxaliplatin in human colon cancer cells reveals the nucleolus as a putative node for therapeutic effect. *Nanoscale Adv*, **3**: 249-262

263. **Pereira FC, Wasmund K, Cobankovic I, Jehmlich N, Herbold CW, Lee KS, Sziranyi B, Vesely C, Decker T, Stocker R, Warth B, von Bergen M, Wagner M, Berry D.** 2020. Rational design of a microbial consortium of mucosal sugar utilizers reduces *Clostridiodes difficile* colonization. *Nat Commun*, **1**: 5104

262. Waite DW, Chuvochina M, Pelikan C, Parks DH, Yilmaz P, Wagner M, Loy A, Naganuma T, Nakai R, Whitman WB, Hahn MW, Kuever J, Hugenholtz P. 2020. Proposal to reclassify the proteobacterial classes *Deltaproteobacteria* and *Oligoflexia*, and the phylum *Thermodesulfobacteria* into four phyla reflecting major functional capabilities. *Int J Syst Evol Microbiol*, **70**: 5972-6016
261. Lukumbuzya M, Kristensen JM, Kitzinger K, Pommerening-Roser A, Nielsen PH, Wagner M, Daims H, Pjevac P. 2020. A refined set of rRNA-targeted oligonucleotide probes for *in situ* detection and quantification of ammonia-oxidizing bacteria. *Water Res*, **186**: 116372
260. Séneca J, Pjevac P, Canarini A, Herbold CW, Zioutis C, Dietrich M, Simon E, Prommer J, Bahn M, Pötsch EM, Wagner M, Wanek W, Richter A. 2020. Composition and activity of nitrifier communities in soil are unresponsive to elevated temperature and CO<sub>2</sub>, but strongly affected by drought. *ISME J*, **14**: 3038–3053
259. Daebeler A, Kitzinger K, Koch H, Herbold CW, Steinberger M, Schwarz J, Zechmeister T, Karst S, Albertsen M, Nielsen PH, Wagner M, Daims H. 2020. Exploring the upper pH limits of nitrite oxidation: diversity, ecophysiology, and adaptive traits of haloalkalitolerant *Nitrospira*. *ISME J*, **14**: 2967–2979
258. Murray AE, Freudenstein J, Gribaldo S, Hatzenpichler R, Hugenholtz P, Kämpfer P, Konstantinidis KT, Lane CE, Papke RT, Parks DH, Rosselló-Móra R, Stott MB, Sutcliffe IC, Thrash JC, Venter SN, Whitman WB, Acinas SG, Amann RI, Anantharaman K, Armengaud J, Baker BJ, Barco RA, Bode HB, Boyd ES, Brady CL, Carini P, Chain PSG, Colman DR, DeAngelis KM, Asuncion de los Rios M, Estrada-de los Santos P, Dunlap CA, Eisen JA, Emerson D, Ettema TJG, Eveillard D, Girguis PR, Hentschel U, Hollibaugh JT, Hug LA, Inskeep WP, Ivanova EP, Klenk HP, Li WJ, Lloyd KG, Löffler FE, Makhalyane TP, Moser DP, Nunoura T, Palmer M, Parro V, Pedrós-Alió C, Probst AJ, Smits THM, Steen AD, Steenkamp ET, Spang A, Stewart FJ, Tiedje JM, Vandamme P, Wagner M, Wang FP, Hedlund BP, Reysenbach AL. 2020. Roadmap for naming uncultivated Archaea and Bacteria. *Nature Microbiol*, **8**: 987-994
257. Lee KS, Wagner M, Stocker R. 2020. Raman-based sorting of microbial cells to link functions to their genes. *Microb Cell*, **3**: 62-65
256. 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 revisited: old concepts and new challenges. *Microbiome*, **1**: 103
255. Kitzinger K, Marchant HK, Bristow LA, Herbold CW, Padilla CC, Kidane AT, Littmann S, Daims H, Pjevac P, Stewart FJ, Wagner M, Kuypers MMM. 2020. Single cell analyses reveal contrasting life strategies of the two main nitrifiers in the ocean. *Nat Commun*, **11**: 767

254. Sedlacek C, Giguere A, Dobie M, Mellbye B, Ferrell R, Woebken D, Sayavedra-Soto L, Bottomley P, Daims H, Wagner M, Pjevac P. 2020. Transcriptomic response of *Nitrosomonas europaea* transitioned from ammonia- to oxygen-limited steady-state growth. *mSystems*, doi: 10.1128/mSystems.00562-19
253. Gwak J-H, Jung M-Y, Honga H, Kima J-G, Quanc Z-X, Reinfelder JR, Spasove E, Neufeld JD, Wagner M, Rhee S-K. 2020. Archaeal nitrification is constrained by copper complexation with organic matter in municipal wastewater treatment plants. *ISME J*, **2**: 335-346
252. Bale NJ, Palatinszky M, Rijpstra WIC, Herbold CW, Wagner M, Damste JSS. 2019. The membrane lipid composition of the moderately thermophilic ammonia-oxidizing archaeon *Ca. Nitrosotenuis uzonensis* at different growth temperatures. *Appl Environ Microbiol*, **85**: (20) e01332-19
251. Kjeldsen KU, Schreiber L, Thorup CA, Boesen T, Bjerg JT, Yang T, Dueholm MS, Larsen S, Risgaard-Petersen N, Nierychlof M, Schmid M, Bøggild A, van de Vossenbergh J, Geelhoedi JS, Meysman FJR, Wagner M, Nielsen PH, Nielsen LP, Schramm A. 2019. On the evolution and physiology of cable bacteria. *Proc Natl Acad Sci U S A*, **116**: 19116-19125
250. Wang B, Qin W, Ren Y, Zhou X, Jung MY, Han P, Eloe-Fadrosh EA, Li M, Zheng Y, Lu L, Yan X, Ji J, Liu Y, Liu L, Heiner C, Hall R, Martens-Habbena W, Herbold CW, Rhee SK, Bartlett DH, Huang L, Ingalls AE, Wagner M, Stahl DA, Jia Z. 2019. Expansion of *Thaumarchaeota* habitat range is correlated with horizontal transfer of ATPase operons. *ISME J*, **13**: 3067–3079
249. Han P, Yu Y, Zhou L, Tian Z, Li Z, Hou L, Liu M, Wu Q, Wagner M, Men Y. 2019. Specific micropollutant biotransformation pattern by the comammox bacterium *Nitrospira inopinata*. *Environ Sci Technol*, **15**: 8695-8705
248. Moeller FU, Webster NS, Herbold CW, Behnam F, Domman D, Albertsen M, Mooshammer M, Markert S, Turaev D, Becher D, Rattei T, Schweder T, Richter A, Watzka M, Nielsen PH, Wagner M. 2019. Characterization of a thaumarchaeal symbiont that drives incomplete nitrification in the tropical sponge *Ianthella basta*. *Environ. Microbiol*, **21**: 3831-3854
247. Jung MY, Gwak JH, Rohe L, Giesemann A, Kim JG, Well R, Madsen EL, Herbold CW, Wagner M, Rhee SK. 2019. Indications for enzymatic denitrification to N<sub>2</sub>O at low pH in an ammonia-oxidizing archaeon. *ISME J*, **13**: 2633-2638
246. Zhou LJ, Han P, Yu Y, Wang B, Men Y, Wagner M, Wu QL. 2019. Cometabolic biotransformation and microbial-mediated abiotic transformation of sulfonamides by three ammonia oxidizers. *Water Res*, **159**: 444-453
245. Wu L, Ning D, Zhang B, Li Y, Zhang P, Shan X, Zhang Q, Brown M, Li Z, Van Nostrand JD, Ling F, Xiao N, Zhang Y, Vierheilig J, Wells GF, Yang Y, Deng Y, Tu Q,

**Wang A, Zhang T, He Z, Keller J, Nielsen PH, Alvarez PJJ, Criddle CS, Wagner M, Tiedje JM, He Q, Curtis TP, Stahl DA, Alvarez-Cohen L, Rittmann BE, Wen X, Zhou J.** 2019. Global diversity and biogeography of bacterial communities in wastewater treatment plants. *Nat Microbiol*, **7**: 1183-1195

**244. 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, Wobken 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

**243. Lee KS, Palatinszky M, Pereira FC, Nguyen J, Fernandez VI, Mueller AJ, Menolascina F, Daims H, Berry D, Wagner M, Stocker R.** 2019. An automated Raman-based platform for the sorting of live cells by functional properties. *Nat Microbiol*, **6**: 1035-1048

**242. Fernando EY, McIlroy SJ, Nierychlo M, Herbst FA, Petriglieri F, Schmid MC, Wagner M, Nielsen JL, Nielsen PH.** 2019. Resolving the individual contribution of key microbial populations to enhanced biological phosphorus removal with Raman-FISH. *ISME J*, **3**: 1933-1946

**241. Tveit AT, Hestnes AG, Robinson SL, Schintlmeister A, Dedysh SN, Jehmlich N, von Bergen M, Herbold CW, Wagner M, Richter A, Svenning MM.** 2019. Widespread soil bacterium that oxidizes atmospheric methane. *Proc. Natl. Acad. Sci. U.S.A.*, **116**: 8515-8524

**240. Kits KD, Jung MY, Vierheilig J, Pjevac P, Sedlacek CJ, Liu S, Herbold C, Stein LY, Richter A, Wissel H, Brüggemann N, Wagner M, Daims H.** 2019. Low yield and abiotic origin of N<sub>2</sub>O formed by the complete nitrifier *Nitrospira inopinata*. *Nat Commun*, **1**: 1836

**239. Schneider S, Schintlmeister A, Becana M, Wagner M, Wobken D, Wienkoop S.** 2019. Sulfate is transported at significant rates through the symbiosome membrane and is crucial for nitrogenase biosynthesis. *Plant Cell Environ*, **4**: 1180-1189

**238. Weiss R, Palatinszky M, Wagner M, Niessner R, Elsner M, Seidel M, Ivleva NP.** 2019. Surface-enhanced Raman spectroscopy of microorganisms: Limitations and applicability on the single-cell level, *Analyst*, **3**: 943-953

**237. Kitzinger K, Padilla CC, Marchant HK, Hach PF, Herbold CW, Kidane AT, Könneke M, Littmann S, Mooshammer M, Niggemann J, Petrov S, Richter A, Stewart FJ, Wagner M, Kuypers MMM, Bristow LA.** 2019. Cyanate and urea are substrates for nitrification by thaumarchaeota in the marine environment. *Nat Microbiol*, **2**: 234-243

**236. Zumstein MT, Schintlmeister A, Nelson TF, Baumgartner R, Wobken D, Wagner M, Kohler H-PE, McNeill K, Sander M.** 2018. Biodegradation of synthetic polymers in soils: Tracking carbon into CO<sub>2</sub> and microbial biomass. *Science Advances*, **4**: eaas9024

235. **Bjerg JT, Boschker HTS, Larsen S, Berry D, Schmid M, Millo D, Tataru P, Meysman FJR, Wagner M, Nielsen LP, Schramm A.** 2018. Long-distance electron transport in individual, living cable bacteria. *Proc Natl Acad Sci U S A*, **115**: 5786-5791
234. **Reese A, Pereira F, Schintlmeister A, Berry D, Wagner M, Hale L, Wu A, Jiang S, Durand H, Zhou X, Premont R, Diehl AM, O'Connell T, Alberts S, Kartzinel T, Pringle R, Dunn R, Wright J, and David L.** 2018. Microbial nitrogen limitation in the mammalian large intestine. *Nat Microbiol*, **12**: 1441-1450
233. **Kitzinger K, Koch H, Lücker S, Sedlacek CJ, Herbold C, Schwarz J, Daebeler A, Mueller AJ, Lukumbuzya M, Romano S, Leisch N, Karst SM, Kirkegaard R, Albertsen M, Nielsen PH, Wagner M, Daims H.** 2018. Characterization of the first “*Candidatus Nitrotoga*” isolate reveals metabolic versatility and separate evolution of widespread nitrite-oxidizing bacteria. *mBio*, **9**: e01186-18
232. **Yu Y, Han P, Zhou L-J, Li Z, Wagner M, Men Y.** 2018. Ammonia monooxygenase-mediated cometabolic biotransformation and hydroxylamine-mediated abiotic transformation of micropollutants in an AOB/NOB co-culture. *Environ. Sci. Technol.* **52**: 9196-9205
231. **Daims H, Wagner M.** 2018. *Nitrospira*. *Trends Microbiol.*, **5**: 462-463
230. **Webster NS, Wagner M, Negri AP.** 2018. Microbial conservation in the Anthropocene. *Environ. Microbiol*, **6**: 1925-1928
229. **Hausmann B, Pjevac P, Schreck K, Herbold CW, Daims H, Wagner M, Loy A.** 2018. Draft genome sequence of *Telmatospirillum siberiense* 26-4b1T, an acidotolerant peatland alphaproteobacterium potentially involved in sulfur cycling. *Genome Announc*, **6** (4) e01524-17
228. **Volland J-M, Schintlmeister A, Zambalos H, Reipert S; Mozetič P, Espada-Hinojosa S, Turk V, Wagner M, Bright M.** 2018. NanoSIMS and tissue autoradiography reveal symbiont carbon fixation and organic carbon transfer to giant ciliate host. *ISME J*, **3**: 714-727
227. **Daebeler A, Herbold C, Vierheilig J, Sedlacek CJ, Pjevac P, Albertsen M, Kirkegaard RH, De La Torre JR, Daims H, Wagner M.** 2018. Cultivation and genomic analysis of “*Candidatus Nitrosocaldus islandicus*”, an obligately thermophilic, ammonia-oxidizing thaumarchaeon from a hot spring biofilm in Graendalur valley, Iceland. *Front Microbiol*, **9**: 193
226. **Kits KD, Sedlacek CJ, Lebedeva EV, Han P, Bulaev A, Pjevac P, Daebeler A, Romano S, Albertsen M, Stein LY, Daims H, Wagner M.** 2017. Kinetic analysis of a complete nitrifier reveals an oligotrophic lifestyle. *Nature*, **549**: 269-272
225. **Pjevac P, Schauburger C, Poghosyan L, Herbold CW, van Kessel MAHJ, Daebeler A, Steinberger M, Jetten MSM, Luecker S, Wagner M, Daims H.** 2017. *AmoA*-targeted

polymerase chain reaction primers for the specific detection and quantification of comammox *Nitrospira* in the environment. *Front Microbiol*, **8**: 1508

224. **Schulz F, Yutin N, Ivanova NN, Ortega DR, Lee TK, Vierheilig J, Daims H, Wagner M, Jensen GJ, Kyrpides NC, Koonin EV, Woyke T.** 2017. Giant viruses encoding an unprecedented complement of translation system components. *Science*, **6333**: 82-85

223. **Herbold CW, Lehtovirta-Morley LE, Jung MY, Jehmlich N, Hausmann B, Han P, Loy A, Pester M, Sayavedra-Soto LA, Rhee SK, Prosser JI, Nicol GW, Wagner M, Gubry-Rangin C.** 2017. Ammonia-oxidising archaea living at low pH: Insights from comparative genomics. *Environ. Microbiol.*, **12**: 4939-4952

222. **Liu S, Han P, Hink L, Prosser JI, Wagner M, Brüggemann N.** 2017. Abiotic conversion of extracellular  $\text{NH}_2\text{OH}$  contributes to  $\text{N}_2\text{O}$  emission during ammonia oxidation. *Environ. Sci. Technol.*, **22**: 13122-13132

221. **Oswald K, Graf JS, Liftmann S, Tierken D, Brand A, Wehrli B, Albertsen M, Daims H, Wagner M, Kuypers MMM, Schubert CJ, Milucka J.** 2017. *Crenothrix* are major methane consumers in stratified lakes. *ISME J*, **11**: 2124-2140

220. **Singer E., Wagner M, Woyke T.** 2017. Capturing the genetic makeup of the active microbiome in situ. *ISME J*, **11**: 1949-1963

219. **Sauder LA, Albertsen M, Engel K, Schwarz J, Nielsen PH, Wagner M, Neufeld JD.** 2017. Cultivation and characterization of *Candidatus Nitrosocosmicus exaquare*, an ammonia-oxidizing archaeon from a municipal wastewater treatment system. *ISME J*, **11**: 1142-1157

218. **Daims H, Lücker S, Wagner M.** 2016. A new perspective on microbes formerly known as nitrite-oxidizing bacteria. *Trends Microbiol*, **24**: 699-712

217. **Wang Y, Huang WE, Cui L, Wagner M.** 2016. Single cell stable isotope probing in microbiology using Raman microspectroscopy. *Curr Opin Biotechnol*, **41**: 34-42

216. **Legin AA, Theiner S, Schintlmeister A, Reipert S, Heffeter P, Jakupec MA, Varbanov HP, Kowol CR, Galanski, Berger MW, Wagner M, Keppler BK.** 2016. Multi-scale imaging of anticancer platinum(IV) compounds in murine tumor and kidney. *Chem Sci*, 2016, **7**: 3052–3061

215. **Men Y, Han P, Helbling DE, Jehmlich N, Herbold C, Gulde R, Onnis-Hayden A, Gu AZ, Johnson DR, Wagner M, Fenner K.** 2016. Biotransformation of two pharmaceuticals by the ammonia-oxidizing archaeon *Nitrososphaera gargensis*. *Environ Sci Technol*, **9**: 4682-4692

214. **Beam JP, Jay ZJ, Schmid MC, Rusch DB, Romine MF, Jennings RdM, Kozubal MA, Tringe SG, Wagner M, Inskeep WP.** 2016. Ecophysiology of an uncultivated lineage

of *Aigarchaeota* from an oxic, hot spring filamentous 'streamer' community. *ISME J.*, **1**: 210-224

213. Nesme J, Achouak W, Agathos SN, Bailey M, Baldrian P, Brunel D, Frostegård A, Heulin T, Jansson JK, Jurkevitch E, Kruus KL, Kowalchuk GA, Lagares A, Lappin-Scott HM, Lemanceau P, Le Paslier D, Mandic-Mulec I, Murrell JC, Myrold DD, Nalin R, Nannipieri P, Neufeld JD, O'Gara F, Parnell JJ, Pühler A, Pylro V, Ramos JL, Roesch LF, Schloter M, Schleper C, Sczyrba A, Sessitsch A, Sjöling S, Sørensen J, Sørensen SJ, Tebbe CC, Topp E, Tsiamis G, van Elsas JD, van Keulen G, Widmer F, Wagner M, Zhang T, Zhang X, Zhao L, Zhu YG, Vogel TM, Simonet P. 2016. Back to the future of soil metagenomics. *Front Microbiol*, **7**:73

212. Daims H, Lebedeva EV, Pjevac P, Han P, Herbold C, Albertsen M, Jehmlich N, Palatinszky M, Vierheilig J, Bulaev A, Kirkegaard RH, Bergen MV, Rattei T, Bendinger B, Nielsen PH, Wagner M. 2015. Complete nitrification by *Nitrospira* bacteria. *Nature*, **528**: 504-509

211. Wagner M. 2015. Conductive consortia (News & Views piece), *Nature* **526**: 513-514

210. Palatinszky M, Herbold C, Jehmlich N, Pogoda M, Han P, von Bergen M, Lagkouvardos I, Karst SM, Galushko A, Koch H, Berry D, Daims H, Wagner M. 2015. Cyanate as an energy source for nitrifiers. *Nature*, **524**: 105-108

209. Koch H, Lüscher S, Albertsen M, Kitzinger K, Herbold C, Spieck E, Nielsen PH, Wagner M, Daims H. 2015 Expanded metabolic versatility of ubiquitous nitrite-oxidizing bacteria from the genus *Nitrospira*. *Proc Natl Acad Sci U S A*, **112**: 11371-11376

208. Klose J, Polz MF, Wagner M, Schimak MP, Gollner S, Bright M. 2015. Endosymbionts escape dead hydrothermal vent tubeworms to enrich the free-living population. *Proc. Natl. Acad. Sci. U.S.A.*, **36**: 11300-11305

207. Hainzl E, Stockinger S, Rauch I, Heider S, Berry D., Lassnig C, Schwab C, Rosebrock F, Milinovich G, Schleder M, Wagner M, Schleper C, Loy A, Urich T, Kenner L, Han X, Decker T, Strobl B, Müller M. 2015. Intestinal epithelial cell tyrosine kinase 2 transduces interleukin-22 signals to protect from acute colitis. *J Immunol.*, **195**: 5011-5024

206. Berry D, Kuzyk O, Rauch I, Heider S, Schwab C, Hainzl E, Decker T, Müller M, Strobl B, Schleper C, Urich T, Wagner M, Kenner L, Loy A. 2015. Intestinal microbiota signatures associated with inflammation history in mice experiencing recurring colitis. *Front Microbiol*, **6**: 1408

205. Eichorst SA, Strasser F, Woyke T, Schintlmeister A, Wagner M, Wobken D. 2015. Advancements in the application of NanoSIMS and Raman microspectroscopy to investigate the activity of microbial cells in soils. *FEMS Microbiology Ecology*, **91**: fiv106.

204. Berry D, Mader E, Lee TK, Wobken D, Wang Y, Zhu D, Palatinszky M, Schintlmeister A, Schmid MC, Hanson BT, Shterzer N, Mizrahi I, Rauch I, Decker T,



**Bocklitz T, Popp J, Gibson CM, Fowler PW, Huang WE, Wagner M.** 2015. Tracking heavy water (D<sub>2</sub>O) incorporation for identifying and sorting active microbial cells. *Proc. Natl. Acad. Sci. USA*, **112**: E194-203

**203. Gruber-Dorninger C, Pester M, Kitzinger K, Savio DF, Loy A, Rattei T, Wagner M, Daims H.** 2015. Functionally relevant diversity of closely related *Nitrospira* in activated sludge. *ISME J.*, **9**: 643-655

**202. Lückner S, Schwarz J, Gruber-Dorninger C, Spieck E, Wagner M, Daims H.** 2015. *Nitrotoga*-like bacteria are previously unrecognized key nitrite oxidizers in full-scale wastewater treatment plants. *ISME J.*, **9**: 708-720

**201. Pernice M, Dunn SR, Tonk L, Dove S, Domart-Coulon I, Hoppe P, Schintlmeister A, Wagner M, Meibom A.** 2015. A nanoscale secondary ion mass spectrometry study of dinoflagellate functional diversity in reef-building corals. *Environ Microbiol.*, **10**: 3570-3580

**200. Taylor A, Taylor K, Tennigkeit B, Palatinszky M, Stieglmeier M, Myrold D, Schleper C, Wagner M, Bottomley P.** 2015. Inhibitory properties of C<sub>2</sub> - C<sub>10</sub> 1-alkynes on ammonia oxidation in two *Nitrososphaera* species. *Appl Environ Microbiol.*, **81**: 1942-1948

**199. Woebken D, Burow L, Behnam F, Mayali X, Schintlmeister A, Fleming E, Prufert-Bebout L, Singer S, López Cortés A, Hoehler T, Pett-Ridge J, Spormann A, Wagner M, Weber P, Bebout B.** 2015. Revisiting N<sub>2</sub> fixation in Guerrero Negro intertidal microbial mats with a functional single-cell approach. *ISME J.*, **9**: 485-496

**198. Daniel H, Moghaddas Gholami A, Berry D, Desmarchelier C, Hahne H, Loh G, Mondot S, Lepage P, Rothballer M, Walker A, Böhm C, Wenning M, Wagner M, Blaut M, Schmitt-Kopplin P, Kuster B, Haller D, Clavel T.** 2014. High-fat diet alters gut microbiota physiology in mice. *ISME J.*, **8**: 295-308

**197. Koch H, Galushko A, Albertsen M, Schintlmeister A, Gruber-Dorninger C, Lückner S, Pelletier E, Le Paslier D, Spieck E, Richter A, Nielsen PH, Wagner M, Daims H.** 2014. Growth of nitrite-oxidizing bacteria by aerobic hydrogen oxidation. *Science*, **345**: 1052-1054

**196. Probst A, Weinmaier T, Raymann K, Perras A, Emerson J, Rattei T, Wanner G, Klingl A, Berg I, Viehweger B, Yoshinaga M, Hinrichs K-U, Thomas B, Meck S, Auerbach A, Heise M, Schintlmeister A, Schmid M, Wagner M, Gribaldo S, Banfield J, Moissl-Eichinger C.** 2014. Biology of a widespread uncultivated archaeon that contributes to carbon fixation in the subsurface. *Nat Commun.*, **5**: 5497

**195. Schwab C, Berry D, Rauch I, Rennisch I, Ramesmayer J, Hainzl E, Heider S, Decker T, Kenner L, Müller M, Strobl B, Wagner M, Schleper C, Loy A, Urich T.** 2014. Longitudinal study of murine microbiota activity and interactions with the host during acute inflammation and recovery. *ISME J.* **8(5)**:1101-14

194. Rauch I, Hainzl E, Rosebrock F, Heider S, Schwab C, Berry D, Stoiber D, Wagner M, Schleper C, Loy A, Urich T, Müller M, Strobl B, Kenner L, Decker T. 2014. Opposing effects of type I interferons during the emergence and recovery phases of colitis. *Eur. J. Immunol.*, **44**: 2749-60
193. Pester M, Maixner F, Berry D, Rattei T, Koch H, Lückner S, Nowka B, Richter A, Spieck E, Lebedeva E, Loy A, Wagner M, Daims H. 2014. NxrB encoding the beta subunit of nitrite oxidoreductase as functional and phylogenetic marker for nitrite-oxidizing *Nitrospira*. *Environ. Microbiol.* , **16**: 3055-3071
192. Kyrpides NC, Hugenholtz P, Eisen JA, Woyke T, Göker, M, Parker CT, Amann R, Beck BJ, Chain PSG, Chun J, Colwell, RR, Danchin A, Dawyndt P, Dedeurwaerdere T, DeLong EF, Detter JC, DeVos P, Donohue TJ, Dong X-Z, Ehrlich DS; Fraser C, Gibbs R, Gilbert J, Gilna P, Glöckner FO, Jansson JK, Keasling JD, Knight R, Labeda D, Lapidus A, Lee J-S, Li W-J, Juncai MA, Markowitz V, Moore ERB, Morrison M, Meyer F, Nelson KE, Ohkuma M, Ouzounis CA, Pace N, Parkhill J, Qin N, Rosello-Mora R, Sikorski J, Smith D, Sogin M, Stevens R, Stingl U, Suzuki K-I, Taylor D, Tiedje JM, Tindall B, Wagner M, Weinstock G, Weissenbach J, White O, Wang J, Zhang L, Zhou Y-G, Field D, Whitman WB, Garrity GM, Klenk H-P. 2014. Genomic encyclopedia of Bacteria and Archaea: Sequencing a myriad of type strains. *PLOS Biology***12(8)**:e1001920
191. Legin AA, Schintlmeister A, Jakupec MA, Galanski M, Lichtscheidl I, Wagner M, Keppler B. 2014. NanoSIMS combined with fluorescence microscopy as a tool for subcellular imaging of isotopically labeled platinum-based anticancer drugs. *Chemical Science*, **5**: 3135-3143.
190. Lebedeva EV, Hatzenpichler R, Pelletier E, Schuster N, Hauzmayer S, Bulaev A, Grigoreva NV, Galushko A, Schmid M, Palatinszky M, Le Paslier D, Daims H, Wagner M. 2013. Enrichment and genome sequence of the group I.1a ammonia-oxidizing archaeon "*Ca. Nitrosotenuis uzonensis*" representing a clade globally distributed in thermal habitats. *PLoS One* **8**: e80835
189. Dolinsek J, Lagkouvardos I, Wanek W, Wagner M, Daims H. 2013. Interactions of nitrifying bacteria and heterotrophs: Identification of a *Micavibrio*-like, putative predator of *Nitrospira*. *Appl. Environ. Microbiol.* **79**: 2027-2037
188. Dolinsek J, Dorninger C, Lagkouvardos I, Wagner M, Daims H. 2013. Depletion of unwanted nucleic acid templates by selective cleavage: LNAzymes open a new window for detecting rare microbial community members. *Appl. Environ. Microbiol.* **79**: 1534-1544
187. Berry D, Stecher B, Schintlmeister A, Reichert J, Brugiroux S, Wildd B, Wanek W, Richter A, Rauch I, Decker T, Loy A, Wagner M. 2013. Host-compound foraging by intestinal microbiota revealed by single-cell stable isotope probing. *Proc. Natl. Acad. Sci. USA* **110**: 4720-4725
186. Yilmaz LF, Loy A, Wright E, Wagner M, Noguera DR. 2012. Modeling formamide denaturation of probe-target hybrids for improved microarray probe design in microbial diagnostics. *PLoS One* **7**: e43862
185. Wagner M, Haider S. 2012. New trends in fluorescence *in situ* hybridization for identification and functional analyses of microbes. *Curr. Opinion. Biotech.* **23**: 96-102

184. Toenshoff ER, Penz T, Narzt T, Collingro A, Schmitz-Esser S, Pfeiffer S, Klepal W, Wagner M, Weinmaier T, Rattei T, Horn M. 2012. Bacteriocyte-associated gammaproteobacterial symbionts of the *Adelges nordmanniana/piceae* complex (Hemiptera: Adelgidae) *ISME J.* 6: 384-396
183. Spang A, Poehlein A, Offre P, Zumbärgel S, Haider S, Rychlik N, Nowka B, Schmeisser C, Lebedeva EV, Rattei T, Böhm C, Schmid M, Galushko A, Hatzepichler R, Weinmaier T, Daniel R, Schleper C, Spieck E, Streit W, Wagner M. 2012. The genome of the ammonia-oxidizing *Candidatus Nitrososphaera gargensis*: Insights into metabolic versatility and environmental adaptations. *Environ. Microbiol.* 14: 3122-45
182. Sorokin DY, Lüscher S, Vejmekova D, Kostrikina NA, Kleerebezem R, Rijpstra WIC, Sinninghe Damsté JS, Le Paslier D, Muyzer G, Wagner M, van Loosdrecht MCM, Daims H. 2012. Nitrification expanded: Discovery, physiology, and genomics of a nitrite-oxidizing bacterium from the phylum *Chloroflexi*. *ISME J.* 6: 2245-2256
181. Pester M, Rattei T, Flechl S, Grönggröft A, Richter A, Overmann J, Reinhold-Hurek B, Loy A, Wagner M. 2012. *amoA*-based consensus phylogeny of ammonia-oxidizing archaea and deep sequencing of *amoA* genes from soils of four different geographic regions. *Environ. Microbiol.* 14: 525-539
180. Pester M, Knorr K-H, Friedrich MW, Wagner M, Loy A. 2012. Sulfate-reducing microorganisms in wetlands - fameless actors in carbon cycling and climate change. *Frontiers Microbiol.* 3: 72
179. Pester M, Brambilla E, Alazard D, Rattei T, Weinmaier T, Han J, Lucas S, Lapidus A, Cheng J-F, Goodwin L, Pitluck S, Peters L, Ovchinnikova G, Teshima H, Detter JC, Han CS, Tapia R, Land ML, Hauser L, Kyrpides NC, Ivanova NN, Pagani I, Huntemann M, Wei C-L, Davenport KW, Daligault H, Chain PSG, Chen A, Mavromatis K, Markowitz V, Szeto E, Mikhailova N, Pati A, Wagner M, Woyke T, Ollivier B, Klenk H-P, Spring S, and Loy A. 2012. Complete genome sequences of *Desulfosporosinus orientis* DSM765T, *Desulfosporosinus youngiae* DSM17734T, *Desulfosporosinus meridiei* DSM13257T, and *Desulfosporosinus acidiphilus* DSM22704T. *J. Bacteriol.* 194: 6300-1
178. Milucka J, Ferdelman TG, Polerecky L, Franzke D, Wegener G, Schmid M, Lieberwirth I, Wagner M, Widdel F, Kuypers MMM. 2012. Zero-valent sulphur is a key intermediate in marine methane oxidation. *Nature* 491: 541-546
177. Briers Y, Staubli T, Schmid MC, Wagner M, Schuppler M, Loessner MJ. 2012. Intracellular vesicles as reproduction elements in cell wall-deficient L-form bacteria. *PLoS One* 7: e38514
176. Berry D, Schwab C, Milinovich G, Reichert J, Ben Mahfoudh K, Decker T, Engel M, Hai B, Hainzl E, Heider S, Kenner L, Müller M, Rauch I, Strobl B, Wagner M, Schleper C, Urich T, Loy A. 2012. Phylotype-level 16S rRNA analysis reveals new bacterial indicators of health state in acute murine colitis. *ISME J.* 6: 2091-106

175. **Behnam F, Vilcinskas A, Wagner M, Stoecker K.** 2012. A straightforward DOPE-FISH method for simultaneous multicolor detection of six microbial populations. *Appl. Environ. Microbiol.* **78**: 5138-42
174. **Tourna M, Stieglmeier M, Spang A, Könneke M, Schintlmeister A, Urich T, Engel M, Schloter M, Wagner M, Richter A, Schleper C.** 2011. *Nitrososphaera viennensis*, an ammonia oxidizing archaeon from soil. *Proc. Natl. Acad. Sci. USA* **108**: 8420-8425
173. **Steger D, Wentrup C, Braunegger C, Deevong P, Hofer M, Richter A, Baranyi C, Pester M, Wagner M, Loy A.** 2011. Microorganisms with novel dissimilatory (bi)sulfite reductase genes are widespread and part of the core microbiota in low-sulfate peatlands. *Appl. Environ. Microbiol.* **77**: 1231-1242
172. **Steger D, Berry D, Haider S, Horn M, Wagner M, Stocker R, Loy A.** 2011. Systematic spatial bias in DNA microarray hybridization is caused by probe spot position-dependent variability in lateral diffusion. *PLoS One* **6**: e23727
171. **Sixt BS, Heinz C, Pichler P, Heinz E, Montanaro J, Op den Camp HJM, Ammerer G, Mechtler K, Wagner M, Horn M.** 2011. Proteomic analysis reveals a virtually complete set of proteins for translation and energy generation in elementary bodies of the amoeba symbiont *Protochlamydia amoebophila*. *Proteomics* **11**: 1868-1892
170. **Schmitt S, Deines P, Behnam F, Wagner M, Taylor MW.** 2011. *Chloroflexi* bacteria are more diverse, abundant and similar in high than in low microbial abundance sponges. *FEMS Microbiol. Ecol.* **78**: 497-510
169. **Pester M, Schleper C, Wagner M.** 2011. The *Thaumarchaeota*: An emerging view of their phylogeny and ecophysiology. *Curr. Opin. Microbiol.* **14**: 300-306
168. **Mußmann M, Brito I, Pitcher A, Damsté JSS, Hatzenpichler R, Richter A, Nielsen JL, Nielsen PH, Müller A, Daims H, Wagner M, Head IM.** 2011. Thaumarchaeotes abundant in refinery nitrifying sludges express *amoA* but are not obligate autotrophic ammonia oxidizers. *Proc. Natl. Acad. Sci. USA* **108**: 16771-16776.
167. **Mlynek G, Sjöblom B, Kostan J, Füreder S, Maixner F, Gysel K, Furtmüller PG, Obinger C, Wagner M, Daims H, Djinovic-Carugo K.** 2011. Unexpected diversity of chlorite dismutases: A catalytically efficient dimeric enzyme from *Nitrobacter winogradskyi*. *J. Bacteriol.* **193**: 2408-2417
166. **Gruber-Vodicka HR, Dirks U, Leisch N, Baranyi C, Stoecker K, Bulgheresi S, Heindl NR, Horn M, Lott C, Loy A, Wagner M, Ott J.** 2011. *Paracatenula*, an ancient symbiosis between thiotrophic *Alphaproteobacteria* and catenulid flatworms. *Proc. Natl. Acad. Sci. USA* **108**: 12078-12083
165. **Daims H, Wagner M.** 2011. In situ techniques and digital image analysis methods for quantifying spatial localization patterns of nitrifiers and other microorganisms in biofilm and flocs. *Methods Enzymol.* **496**: 185-215
164. **Berry D, Ben Mahfoudh K, Wagner M, Loy A.** 2011. Barcoded primers used in multiplex amplicon pyrosequencing bias amplification. *Appl. Environ. Microbiol.* **77**: 7846-7849

163. **Lücker S, Wagner M, Maixner F, Pelletier E, Koch H, Vacherie B, Rattei T, Sinnighe Damsté JS, Spieck E, Le Paslier D, Daims H.** 2010. A *Nitrospira* metagenome illuminates the physiology and evolution of globally important nitrite-oxidizing bacteria. *Proc. Natl. Acad. Sci. USA* 107: 13479-13484.
162. **Haider S, Wagner M, Schmid MC, Sixt BS, Christian JG, Häcker G, Pichler P, Mechtler K, Müller A, Baranyi C, Toenshoff ER, Montanaro J, Horn M.** 2010. Raman microspectroscopy reveals long-term extracellular activity of chlamydiae. *Mol. Microbiol.*, 77: 687-700.
161. **Pester M, Bittner N, Deevong P, Wagner M, and Loy A.** 2010 A 'rare biosphere' microorganism contributes to sulfate reduction in a peatland. *ISME Journal*. 12: 1591-1602.
160. **Spang A, Hatzenpichler R, Brochier-Armanet C, Rattei T, Tischler P, Spieck E, Streit W, Stahl DA, Wagner M, Schleper C.** 2010. Distinct gene set in two lineages of ammonia-oxidizing-archaea supports the phylum *Thaumarchaeota*. *Trends Microbiol.* 18: 331-340.
159. **Webster NS, Taylor MW, Behnam F, Lücker S, Rattei T, Whalan S, Horn M, Wagner M.** 2010. Deep sequencing reveals exceptional diversity and modes of transmission for bacterial sponge symbionts. *Environ. Microbiol.*, 12: 2070-2082.
158. **Heinz E, Pichler P, Heinz C, op den Camp HJM, Toenshoff ER, Ammerer G, Mechtler K, Wagner M, Horn M.** 2010. Proteomic analysis of the outer membrane of *Protochlamydia amoebophila* elementary bodies. *Proteomics* 10: 4363-4376.
157. **Heinz E, Rockey DD, Montanaro J, Aistleitner K, Wagner M, Horn M.** 2010. Inclusion membrane proteins of *Protochlamydia amoebophila* UWE25 reveal a conserved mechanism for host cell interaction among the *Chlamydiae*. *J. Bacteriol.* 192: 5093-5102.
156. **Kostan J, Sjöblom B, Maixner F, Mlynek G, Furtmüller PG, Obinger C, Wagner M, Daims H, Djinovic-Carugo K.** 2010. Structural and functional characterisation of the chlorite dismutase from the nitrite-oxidizing bacterium "*Candidatus Nitrospira defluvii*": Identification of a catalytically important amino acid residue. *J. Struct. Biol.* 172: 331-342
155. **Schmitz-Esser S, Tischler P, Arnold R, Montanaro J, Wagner M, Rattei T, Horn M.** 2010. The genome of the amoeba symbiont '*Candidatus Amoebophilus asiaticus*' reveals common mechanisms for host cell interaction among amoeba-associated bacteria. *J. Bacteriol.*, 192: 1045-1057.
154. **Stoecker K, Dorninger C, Daims H, Wagner M.** 2010. Double-labeling of oligonucleotide probes for fluorescence *in situ* hybridization (DOPE-FISH) improves signal intensity and increases rRNA accessibility. *Appl. Environ. Microbiol.*, 79: 922–926.
153. **Pitcher A, Rychlik N, Hopmans EC, Spieck E, Rijpstra WIC, Ossebaar J, Schouten S, Wagner M, Sinnighe Damsté JS.** 2010. Crenarchaeol dominates the membrane lipids of *Candidatus Nitrososphaera gargensis*, a thermophilic Group I.1b Archaeon. *ISME Journal*, 4: 542-52.
152. **Heinz E, Tischler P, Rattei T, Myers G, Wagner M, Horn M.** 2009. Comprehensive *in silico* prediction and analysis of chlamydial outer membrane proteins reflects evolution and life style of the *Chlamydiae*. *BMC Genomics* 10:634.

151. **Hesselsøe M, Füreder S, Schloter M, Bodrossy L, Iversen N, Roslev P, Nielsen PH, Wagner M, Loy A.** 2009. Isotope array analysis of *Rhodocyclales* uncovers functional redundancy and versatility in an activated sludge. *ISME Journal* 3:1349-64.
150. **Wagner M.** 2009. Single-cell ecophysiology of microbes as revealed by Raman microspectroscopy or secondary ion mass spectrometry imaging. *Ann. Rev. Microbiol.*, 63:411-29.
149. **Rinke C, Schmitz-Esser S, Loy A, Horn M, Wagner M, Bright M.** 2009. High genetic similarity between two geographically distinct strains of the sulfur-oxidizing symbiont '*Candidatus Thiobios zoothamnicoli*' *FEMS Microbiol. Ecol.* 67: 229-41.
148. **Loy A, Duller S, Baranyi C, Mußmann M, Ott J, Sharon I, Béjà O, Le Paslier D, Dahl C, Wagner M.** 2009. Reverse dissimilatory sulfite reductase as phylogenetic marker for a subgroup of sulfur-oxidizing prokaryotes. *Environ. Microbiol.* 11: 289-299.
147. **Schmitz-Esser S, Toenshoff ER, Haider S, Heinz E, Hoenninger VM, Wagner M, Horn M.** 2008. Diversity of bacterial endosymbionts of environmental *Acanthamoeba* isolates. *Appl. Environ. Microbiol.* 74: 5822-5831.
146. **Schmitz-Esser S, Haferkamp I, Knab S, Penz T, Ast M, Kohl C, Wagner M, Horn M.** 2008. *Lawsonia intracellularis* encodes a functional rickettsia-like ATP/ADP translocase for host exploitation. *J. Bacteriol.* 190: 5746-5752.
145. **Maixner F, Wagner M, Lücker S, Pelletier E, Schmitz-Esser S, Hace K, Spieck E, Konrat R, Le Paslier D, Daims H.** 2008. Environmental genomics reveals a functional chlorite dismutase in the nitrite-oxidizing bacterium "*Candidatus Nitrospira defluvii*". *Environ. Microbiol.* 10: 3043-3056.
144. **Loy A, Arnold R, Tischler P, Rattei T, Wagner M, Horn M.** 2008. probeCheck - a central resource for evaluating oligonucleotide probe coverage and specificity. *Environ. Microbiol.* 10: 2894-2896.
143. **Hoshino T, Yilmaz LS, Noguera DR, Daims H, Wagner M.** 2008. Quantification of target molecules needed to detect microorganisms by fluorescence *in situ* hybridization (FISH) and catalyzed reporter deposition-FISH. *Appl. Environ. Microbiol.* 74: 5068-5077.
142. **Steger D, Ettinger-Epstein P, Whalan S, Hentschel U, de Nys R, Wagner M, Taylor MW.** 2008. Diversity and mode of transmission of ammonia-oxidizing archaea in marine sponges. *Environ. Microbiol.* 10: 1087-1094.
141. **Hatzenpichler R, Lebedeva EV, Spieck E, Stoecker K, Richter A, Daims H, Wagner M.** 2008. A moderately thermophilic ammonia-oxidizing crenarchaeote from a hot spring. *Proc. Natl. Acad. Sci. USA* 105: 2134-2139. (Track II)
140. **Haider S, Collingro A, Walochnik J, Wagner M, Horn M.** 2008. Chlamydia-like bacteria in respiratory samples of community-acquired pneumonia patients. *FEMS Microbiol. Lett.* 281: 198-202.
139. **Achtman M, Wagner M.** 2008. Microbial diversity and the genetic nature of microbial species. *Nature Rev. Microbiol.*, 6:431-40.

138. **Wagner M, Smidt H, Loy A, Zhou J.** 2007. Unravelling microbial communities with DNA-microarrays: challenges and future directions. *Microb. Ecol.* 53: 498-506.
137. **Taylor M, Radax R, Steger D, Wagner M.** 2007. Sponge-associated microorganisms: evolution, ecology and biotechnological potential. *Microbiol. Mol. Biol. Rev.* 71: 295-347.
136. **Neufeld JD, Wagner M, Murrell JC.** 2007. Who eats what, where and when? Isotope-labelling experiments are coming of age. *ISME J* 1: 103-110.
135. **Lücker S, Steger D, Kjeldsen KU, MacGregor BJ, Wagner M, Loy A.** 2007. Improved 16S rRNA-targeted oligonucleotide probe set for analysis of sulfate-reducing bacteria by fluorescence in situ hybridization. *J. Microbiol. Methods.* 69: 523-528.
134. **Loy A, Maixner F, Wagner M, Horn M.** 2007. probeBase - an online resource for rRNA-targeted oligonucleotide probes: new features 2007. *Nucleic Acids Res.* 35: D800-D804.
133. **Leloup J, Loy A, Knab NJ, Borowski C, Wagner M, Jørgensen BB.** 2007. Diversity and abundance of sulfate-reducing microorganisms in the sulfate and methane zones of a marine sediment, Black Sea. *Environ. Microbiol.* 9: 131-142.
132. **Kjeldsen KU, Loy A, Thomsen TR, Jakobsen TF, Wagner M, and Ingvorsen K.** 2007. Diversity of sulfate-reducing bacteria from an extreme hypersaline sediment in Great Salt Lake (Utah, USA). *FEMS Microbiol. Ecol.* 60: 287-298.
131. **Huang WE, Stoecker K, Griffiths R, Newbold L, Daims H, Whiteley AS, Wagner M.** 2007. Raman-FISH: Combining stable-isotope Raman spectroscopy and fluorescence *in situ* hybridization for the single cell analysis of identity and function. *Environ. Microbiol.* 9: 1878-1889.
130. **Heinz E, Kolarov I, Kästner C, Toenshoff ER, Wagner M, Horn M.** 2007. An *Acanthamoeba* sp. containing two phylogenetically different bacterial endosymbionts *Environ. Microbiol.* 9: 1604-1609.
129. **Daims H, Wagner M.** 2007. Quantification of uncultured microorganisms by fluorescence microscopy and digital image analysis. *Appl. Microbiol. Biotech.* 75: 237-248.
128. **Wagner M, Nielsen PH, Loy A, Nielsen JL, Daims H.** 2006. Linking microbial community structure with function: fluorescence *in situ* hybridization-microautoradiography and isotope arrays. *Curr. Opin. Biotechnol.* 17: 1-9.
127. **Wagner M, Horn M.** 2006. The *Planctomycetes*, *Verrucomicrobia*, *Chlamydiae* and sister phyla comprise a superphylum with biotechnological and medical relevance. *Curr. Opin. Biotechnol.* 17: 241-249.
126. **Strous M, Pelletier E, Mangenot S, Rattei T, Lehner A, Taylor MW, Horn M, Daims H, Bartol-Mave D, Wincker P, Barbe V, Fonknechten N, Vallenet D, Segurens B, Schenowitz-Truong C, Médigue C, Collingro A, Snel B, Dutilh BE, Op den Camp HJM, van der Drift C, Cirpus I, van de Pas-Schoonen KT, Harhangi HR, van Niftrik L, Schmid M, Keltjens J, van de Vossenberg J, Kartal B, Meier H, Frishman D, Huynen MA, Mewes HW, Weissenbach J, Jetten MSM, Wagner M, Le Paslier D.** 2006.

Deciphering the evolution and metabolism of an anammox bacterium from a community genome. *Nature* 440: 790-794.

125. **Stoecker K, Bendinger B, Schöning B, Nielsen PH, Nielsen JL, Baranyi C, Toenshoff ER, Daims H, Wagner M.** 2006. Cohn's *Crenothrix* is a filamentous methane oxidizer with an unusual methane monooxygenase. *Proc. Natl. Acad. Sci. USA* 7: 2363-2367 (Track II).

124. **Spieck E, Hartwig C, McCormack I, Maixner F, Wagner M, Lipski A, Daims H.** 2006. Selective enrichment and molecular characterization of a previously uncultured *Nitrospira*-like bacterium from activated sludge. *Environ. Microbiol.* 8: 405-415.

123. **Rittmann B, Hausner M, Loeffler F, Love NG, Muyzer G, Okabe S, Oerther DB, Peccia J, Raskin L, Wagner M.** 2006. A vista for microbial ecology and environmental biotechnology. *Environ. Sci. Technol.* 40: 1096-103.

122. **Rinke C, Schmitz-Esser S, Stoecker K, Nussbaumer AD, Molnár DA, Vanura K, Wagner M, Horn M, Ott J, Bright M.** 2006. *Candidatus* Thiobios zoothamnicoli, an ectosymbiotic bacterium covering the giant marine ciliate *Zoothamnium niveum*. *Appl. Environ. Microbiol.* 72: 2014-2021.

121. **Maixner F, Noguera DR, Anneser B, Stoecker K, Wegl G, Wagner M, Daims H.** 2006. Nitrite concentration influences the population structure of *Nitrospira*-like bacteria. *Environ. Microbiol.* 8: 1487-1495.

120. **Kreuzer K, Adamczyk J, Iijima M, Wagner M, Scheu S, Bonkowski M.** 2006. Grazing of a common species of soil protozoa (*Acanthamoeba castellanii*) affects rhizosphere bacterial community composition and root architecture of rice (*Oryza sativa* L.). *Soil Biol. Biochem.* 38: 1665-1672.

119. **Imachi H, Sekiguchi Y, Kamagata Y, Loy A, Qiu YL, Hugenholtz P, Kimura N, Wagner M, Ohashi A, Harada H.** 2006. Non-sulfate-reducing, syntrophic bacteria affiliated with the *Desulfotomaculum* cluster I are widely distributed in methanogenic environments. *Appl. Environ. Microbiol.* 72: 2080-2091.

118. **Haferkamp I, Schmitz-Esser S, Wagner M, Neigel N, Horn M, Neuhaus HE.** 2006. Tapping the nucleotide pool of the host: novel nucleotide carrier proteins of *Protochlamydia amoebophila*. *Mol. Microbiol.* 60: 1534-1545.

117. **Daims H, Taylor MW, Wagner M.** 2006. Wastewater treatment: a model system for microbial ecology. *Trends Biotechnol.* 24: 483-489.

116. **Daims H, Maixner F, Lückner S, Stoecker K, Hace K, Wagner M.** 2006. Ecophysiology and niche differentiation of *Nitrospira*-like bacteria, the key nitrite oxidizers in wastewater treatment plants. *Wat. Sci. Tech.* 54: 21-27.

115. **Daims H, Lückner S, Wagner M.** 2006. daime, a novel image analysis program for microbial ecology and biofilm research. *Environ. Microbiol.* 8: 200-213.



114. **Zverlov V, Klein M, Lückner S, Friedrich MW, Kellermann J, Stahl DA, Loy A, Wagner M.** 2005. Lateral gene transfer of dissimilatory (bi)sulfite reductase revisited. *J. Bacteriol.* **187**: 2203-2208.
113. **Wagner M, Loy A, Klein M, Lee N, Ramsing NB, Stahl DA, Friedrich MW.** 2005. Functional marker genes for identification of sulphate-reducing prokaryotes. *Methods Enzymol.* **397**: 469-489.
112. **Spring S, Wagner M, Schumann P, Kämpfer P.** 2005. *Malikia granosa* gen. nov., sp. nov., a novel polyhydroxyalkanoate- and polyphosphate-accumulating bacterium isolated from activated sludge and reclassification of *Pseudomonas spinosa* as *Malikia spinosa* comb. nov. *Int. J. Syst. Evol. Microbiol.* **55**: 621-629.
111. **Schmid MW, Ng EYW, Lampidis R, Emmerth M, Walcher M, Kreft J, Goebel W, Wagner M, Schleifer KH.** 2005. Evolutionary history of the genus *Listeria* and its virulence genes. *Syst. Appl. Microbiol.* **28**: 1-18.
110. **Schmid MC, Maas B, Dapena A, van de Pas-Schoonen K, van de Vossenberg J, Kartal B, van Niftrik L, Schmidt I, Cirpus I, Kuenen JG, Wagner M, Damste JSS, Kuypers M, Revsbech NP, Mendez R, Jetten MSM, Strous M.** 2005. Biomarkers for *in situ* detection of anaerobic ammonium-oxidizing (ANAMMOX) bacteria. *Appl. Environ. Microbiol.* **71**: 1677-1684.
109. **Sabehi G, Loy A, Jung KH, Partha R, Spudich JL, Isaacson T, Hirschberg J, Wagner M, Beja O.** 2005. New insights into metabolic properties of marine bacteria encoding proteorhodopsins. *PLoS Biology* **3**: e273.
108. **Molmeret M, Horn M, Wagner M, Santic M, Abu Kwaik Y.** 2005. Amoeba as training grounds intracellular bacterial pathogens. *Appl. Environ. Microbiol.* **71**: 20-28.
107. **Loy A, Schulz C, Lückner S, Schöpfer-Wendels A, Stoecker K, Baranyi C, Lehner A, Wagner M.** 2005. 16S rRNA gene-based oligonucleotide microarray for environmental monitoring of the betaproteobacterial order *Rhodocyclales*. *Appl. Environ. Microbiol.* **71**: 1373-1386.
106. **Lehner A, Loy A, Behr T, Gaenge H, Ludwig W, Wagner M, Schleifer KH.** 2005. Oligonucleotide microarray for identification of *Enterococcus* species. *FEMS Microbiol. Lett.* **246**: 133-142.
105. **Collingro A, Toenshoff ER, Taylor MW, Fritsche TR, Wagner M, Horn M.** 2005. '*Candidatus* Protochlamydia amoebophila', an endosymbiont of *Acanthamoeba* spp. *Int. J. Syst. Evol. Microbiol.* **55**: 1863-1866.
104. **Collingro A, Poppert S, Heinz E, Schmitz-Esser S, Essig A, Schweikert M, Wagner M, Horn M.** 2005. Recovery of an environmental chlamydia strain from activated sludge by co-cultivation with *Acanthamoeba* sp. *Microbiology* **151**: 301-309.
103. **Wagner M.** 2004. Deciphering the function of uncultured microorganisms. *ASM News* **70**: 63-70.
102. **Spring S, Jäckel U, Wagner M, Kämpfer P.** 2004. *Ottowia thiooxydans* gen. nov., sp. nov., a novel facultatively anaerobic, N<sub>2</sub>O producing bacterium isolated from activated sludge

and transfer of *Aquaspirillum gracile* to *Hylemonella gracilis* gen. nov. comb. nov. *Int. J. Syst. Evol. Microbiol.* **54**: 99-106.

101. **Schmitz-Esser S, Linka N, Collingro A, Beier CL, Neuhaus HE, Wagner M, Horn M.** 2004. ATP/ADP translocases: A common feature of obligate intracellular amoebal symbionts related to chlamydiae and rickettsiae. *J. Bacteriol.* **186**: 683-691.

100. **Loy A, Küsel K, Lehner A, Drake HL, Wagner M.** 2004. Microarray and functional gene analyses of sulfate-reducing prokaryotes in low sulfate, acidic fens reveal co-occurrence of recognized genera and novel lineages. *Appl. Environ. Microbiol.* **70**: 6998-7009.

99. **Horn M, Wagner M.** 2004. Bacterial endosymbionts of free-living amoebae. *J. Euk. Microbiol.* **51**: 509-514.

98. **Horn M, Collingro A, Schmitz-Esser S, Beier CL, Purkhold U, Fartmann B, Brandt P, Nyakatura GJ, Droege M, Frishman D, Rattei T, Mewes HW, Wagner M.** 2004. Illuminating the evolutionary history of chlamydiae. *Science* **304**: 728-730.

97. **Haferkamp I, Schmitz-Esser S, Linka N, Urbany C, Collingro A, Wagner M, Horn M, Neuhaus HE.** 2004. A candidate NAD<sup>+</sup> transporter in an intracellular bacterial symbiont related to chlamydiae. *Nature* **432**: 622-625.

96. **Ginige MP, Hugenholtz P, Daims H, Wagner M, Keller J, Blackall LL.** 2004. Use of stable-isotope probing, full-cycle rRNA analysis, and fluorescence *in situ* hybridization-microautoradiography to study a methanol-fed denitrifying microbial community. *Appl. Environ. Microbiol.* **70**: 588-596 .

95. **Fieseler L, Horn M, Wagner M, Hentschel U.** 2004. Discovery of the novel candidate phylum "Poribacteria" in marine sponges. *Appl. Environ. Microbiol.* **70**: 3724-3732.

94. **Collingro A, Walochnik J, Baranyi C, Michel R, Wagner M, Horn M, Aspöck H.** 2004. Chlamydial endocytobionts of free-living amoebae differentially affect the growth rate of their hosts. *Europ. J. Protist.* **40**: 57-60.

93. **Wagner M, Horn M, Daims H.** 2003. Fluorescence *in situ* hybridisation for the identification and characterisation of prokaryotes. *Curr. Opin. Microbiol.* **6**: 302-309.

92. **Thoms C, Horn M, Wagner M, Hentschel U, Proksch P.** 2003. Monitoring microbial diversity and natural products profiles of the sponge *Aplysina cavernicola* following transplantation. *Marine Biology* **142**: 685-692.

91. **Schmid M, Walcher M, Bubert A, Wagner M, Wagner M, Schleifer KH.** 2003. Nucleic acid-based, cultivation-independent detection of *Listeria* spp. and genotypes of *L. monocytogenes*. *FEMS Immunol. Med. Microbiol.* **35**: 215-225.

90. **Schmid M, Thill A, Purkhold U, Walcher M, Bottero JY, Ginestet P, Nielsen PH, Wuertz S, Wagner M.** 2003. Characterization of activated sludge flocs by confocal laser scanning microscopy and image analysis. *Wat. Res.* **37**: 2043-2052.

89. **Rossello-Mora R, Lee N, Anton J, Wagner M.** 2003. Substrate uptake in extremely halophilic microbial communities revealed by microautoradiography and fluorescence *in situ* hybridization. *Extremophiles* **7**: 409-413.

88. **Purkhold U, Wagner M, Timmermann G, Pommerening-Röser A, Koops HP.** 2003. 16S rRNA and *amoA*-based phylogeny of 12 novel betaproteobacterial ammonia oxidizing isolates: Extension of the data set and proposal of a new lineage within the *Nitrosomonads*. *Int. J. Syst. Evol. Microbiol.* **53**: 1485-1494.
87. **Nielsen JL, Wagner M, Nielsen PH.** 2003. Use of microautoradiography to study *in situ* physiology of bacteria in biofilms. *Rev. Environ. Sci. Biotechnology* **2**: 261-268.
86. **Loy A, Horn M, Wagner M.** 2003. probeBase - an online resource for rRNA-targeted oligonucleotide probes. *Nucleic Acids Res.* **31**: 514-516.
85. **Jetten MS, Sliemers O, Kuypers M, Dalsgaard T, van Niftrik L, Cirpus I, van de Pas-Schoonen K, Lavik G, Thamdrup B, Le Paslier D, Op den Camp HJ, Hulth S, Nielsen LP, Abma W, Third K, Engstrom P, Kuenen JG, Jorgensen BB, Canfield DE, Sinninghe Damste JS, Revsbech NP, Fuerst J, Weissenbach J, Wagner M, Schmidt I, Schmid M, Strous M.** 2003. Anaerobic ammonium oxidation by marine and freshwater planctomycete-like bacteria. *Appl. Microbiol. Biotech.* **63**: 107-114.
84. **Gieseke A, Bjerrum L, Wagner M, Amann R.** 2003. Structure and activity of multiple nitrifying bacterial populations coexisting in a biofilm. *Environ. Microbiol.* **5**: 355-369.
83. **Engel AS, Lee N, Porter ML, Stern LA, Bennett PC, Wagner M.** 2003. Filamentous Epsilonproteobacteria dominate microbial mats from sulfidic cave springs. *Appl. Environ. Microbiol.* **69**: 5503-5511.
82. **Egli K, Langer C, Siegrist HR, Zehnder AJ, Wagner M, van der Meer JR.** 2003. Community analysis of ammonia and nitrite oxidizers during start-up of nitrification reactors. *Appl. Environ. Microbiol.* **69**: 3213-3222.
81. **Baker BJ, Moser DP, MacGregor BJ, Fishbain S, Wagner M, Fry NK, Jackson B, Speolstra N, Loos S, Takai K, Lollar BS, Fredrickson J, Balkwill D, Onstott TC, Wimpee CF, Stahl DA.** 2003. Related assemblages of sulphate-reducing bacteria associated with ultradeep gold mines of South Africa and deep basalt aquifers of Washington State. *Environ. Microbiol.* **5**: 267-277.
80. **Adamczyk J, Hesselsoe M, Iversen N, Horn M, Lehner A, Nielsen PH, Schloter M, Roslev P, Wagner M.** 2003. The isotope array, a new tool that employs substrate-mediated labeling of rRNA for determination of microbial community structure and function. *Appl. Environ. Microbiol.* **69**: 6875-6887.
79. **Wilderer PA, Bungartz HJ, Lemmer H, Wagner M, Keller J, Wuertz S.** 2002. Modern scientific methods and their potential in wastewater science and technology. *Wat. Res.* **36**: 370-393.
78. **Wagner M, Loy A, Nogueira R, Purkhold U, Lee N, Daims H.** 2002. Microbial community composition and function in wastewater treatment plants. *Antonie van Leeuwenhoek* **81**: 665-680.
77. **Wagner M, Loy A.** 2002. Bacterial community composition and function in sewage treatment systems. *Curr. Opin. Biotechnol.* **13**: 218-227.

76. **Strous M, Kuenen JG, Fuerst J A, Wagner M, Jetten MSM** . 2002. The anammox case - A new experimental manifesto for microbiological eco-physiology. *Antonie van Leeuwenhoek* **81**: 693-702.
75. **Stahl DA, Fishbain S, Klein M, Baker BJ, Wagner M**. 2002. Origins and diversification of sulfate-respiring microorganisms. *Antonie van Leeuwenhoek* **81**: 189-195.
74. **Skriwan C, Fajardo M, Hagele S, Horn M, Wagner M, Michel R, Krohne G, Schleicher M, Hacker J, Steinert M**. 2002. Various bacterial pathogens and symbionts infect the amoeba *Dictyostelium discoideum*. *Int. J. Med. Microbiol.* **291**: 615-624.
73. **Poppert S, Essig A, Marre R, Wagner M, Horn M**. 2002. Detection and differentiation of chlamydiae by fluorescence *in situ* hybridization (FISH). *Appl. Environ. Microbiol.* **68**: 4081-4089.
72. **Nogueira R, Melo LF, Purkhold U, Wuertz S, Wagner M**. 2002. Nitrifying and heterotrophic population dynamics in biofilm reactors: effects of hydraulic retention time and the presence of organic carbon. *Wat. Res.* **36**: 469-481.
71. **Nielsen JL, Juretschko S, Wagner M, Nielsen PH**. 2002. Abundance and phylogenetic affiliation of iron-reducers in activated sludge as assessed by fluorescence *in situ* hybridization and microautoradiography. *Appl. Environ. Microbiol.* **68**: 4629-4636.
70. **Loy A, Lehner A, Lee N, Adamczyk J, Meier H, Ernst J, Schleifer KH, Wagner M**. 2002. An oligonucleotide microarray for 16S rRNA gene-based detection of all recognized lineages of sulfate-reducing prokaryotes in the environment. *Appl. Environ. Microbiol.* **68**: 5064-5081.
69. **Lee N, la Cour Jansen J, Aspegren H, Henze M, Nielsen PH, Wagner M**. 2002. Population dynamics in wastewater treatment plants with enhanced biological phosphorous removal operated with and without nitrogen removal. *Wat. Sci. Tech.* **46**: 163-170.
68. **Juretschko S, Loy A, Lehner A, Wagner M**. 2002. The microbial community composition of a nitrifying-denitrifying activated sludge from an industrial sewage treatment plant analyzed by the full-cycle rRNA approach. *Syst. Appl. Microbiol.* **25**: 84-99.
67. **Horn M, Fritsche TR, Linner T, Gautom RK, Harzenetter MD, Wagner M**. 2002. Obligate bacterial endosymbionts of *Acanthamoeba* spp. related to the  $\beta$ -subclass of Proteobacteria: proposal of '*Candidatus* Procabacter acanthamoebae' gen. nov., sp. nov. *Int. J. Syst. Evol. Microbiol.* **52**: 599-605.
66. **Hentschel U, Hopke J, Horn M, Friedrich AB, Wagner M, Hacker J, Moore BS**. 2002. Molecular evidence for a uniform microbial community in sponges from different oceans. *Appl. Environ. Microbiol.* **68**: 4431-4440.
65. **Helmer-Madhok C, Schmid M, Filipov E, Gaul T, Hippen A, Rosenwinkel KH, Seyfried CF, Wagner M, Kunst S**. 2002. Deammonification in biofilm systems: Population structure and function. *Wat. Sci. Tech.* **46**: 223-231.
64. **Beier CL, Horn M, Michel R, Schweikert M, Gortz HD, Wagner M**. 2002. The genus *Caedibacter* comprises endosymbionts of *Paramecium* spp. related to the *Rickettsiales*

(Alphaproteobacteria) and to *Francisella tularensis* (Gammaproteobacteria). *Appl. Environ. Microbiol.* **68**: 6043-6050.

63. **Sorokin D, Tourova T, Schmid M, Wagner M, Koops HP, Kuenen JG, Jetten M.** 2001. Isolation and properties of obligately chemolithoautotrophic and extremely alkalitolerant ammonia oxidizing bacteria from Mongolian soda lakes. *Arch. Microbiol.* **176**: 170-177.

62. **Schmid MC, Schmitz-Esser S, Jetten M, Wagner M.** 2001. 16S-23S rDNA intergenic spacer and 23S rDNA of anaerobic ammonium oxidizers: implications for phylogeny and *in situ* detection. *Environ. Microbiol.* **3**: 450-459.

61. **Manz W, Wagner M, Kalmbach S.** 2001. Assessment of metabolic potential of biofilm-associated bacteria. *Methods Enzymol.* **336**: 265-76.

60. **Liebig T, Wagner M, Bjerrum L, Denecke M.** 2001. Nitrification performance and nitrifier community composition of a chemostat and a membrane-assisted bioreactor for the nitrification of sludge reject waters. *Bioprocess and Biosystems Engineering*, **24**: 203-210.

59. **Klein M, Friedrich M, Roger AJ, Hugenholtz P, Fishbain S, Abicht H, Blackall LL, Stahl DA, Wagner M.** 2001. Multiple lateral transfer events of dissimilatory sulfite reductase genes between major lineages of sulfate-reducing prokaryotes. *J. Bacteriol.* **183**: 6028-6035.

58. **Jetten MSM, Wagner M, Fuerst J, Schalk J, van Loosdrecht M, Strous M.** 2001. Microbiology and application of the anoxic ammonium oxidation 'Anammox' process. *Curr. Opin. Biotechnol.* **12**: 283-288.

57. **Horn M, Wagner M.** 2001. Evidence for additional genus-level diversity of *Chlamydiales* in the environment. *FEMS Microbiol. Lett.* **204**: 71-74.

56. **Horn M, Harzenetter MD, Linner T, Schmid EN, Muller KD, Michel R, Wagner M.** 2001. Members of the Cytophaga-Flavobacterium-Bacteroides phylum as intracellular bacteria of acanthamoebae: proposal of '*Candidatus* Amoebophilus asiaticus'. *Environ. Microbiol.* **3**: 440-449.

55. **Hentschel U, Schmid M, Wagner M, Fieseler L, Gernert C, Hacker J.** 2001. Isolation and phylogenetic analysis of bacteria with antimicrobial activities from the Mediterranean sponges *Aplysina aerophoba* and *Aplysina cavernicola*. *FEMS Microbiol. Ecol.* **35**: 305-312.

54. **Gieseke A, Purkhold U, Wagner M, Amann R, Schramm A.** 2001. Community structure and activity dynamics of nitrifying bacteria in a phosphate-removing biofilm. *Appl. Environ. Microbiol.* **67**: 1351-1362.

53. **Dubilier N, Mülders C, Ferdelmann T, de Beer D, Thiermann F, Klein M, Wagner M, Erséus C, Krieger J, Giere O, Amann R.** 2001. Endosymbiotic sulphate-reducing and sulphide-oxidizing bacteria in an oligochaete worm. *Nature* **411**: 298-302.

52. **Daims H, Ramsing NB, Schleifer KH, Wagner M.** 2001. Cultivation-independent, semiautomatic determination of absolute bacterial cell numbers in environmental samples by fluorescence *in situ* hybridization. *Appl. Environ. Microbiol.* **67**: 5810-5818.

51. **Daims H, Purkhold U, Bjerrum L, Arnold E, Wilderer PA, Wagner M.** 2001. Nitrification in sequencing biofilm batch reactors: lessons from molecular approaches. *Wat. Sci. Tech.* **43**: 9-18.
50. **Daims H, Nielsen JL, Nielsen PH, Schleifer KH, Wagner M.** 2001. In situ characterization of *Nitrospira*-like nitrite-oxidizing bacteria active in waste water treatment plants. *Appl. Environ. Microbiol.* **67**: 5273-5284.
49. **Bouchez T, Dabert P, Wagner M, Godon JJ, Moletta R.** 2001. Quantification of bacterial populations in complex ecosystems using fluorescent in situ hybridization, confocal laser scanning microscopy and image analysis. *Genetics Selection Evolution* **33**: S307-S318.
48. **Schmid M, Twachtmann U, Klein M, Strous M, Juretschko S, Jetten M, Metzger JW, Schleifer KH, Wagner M.** 2000. Molecular evidence for genus level diversity of bacteria capable of catalyzing anaerobic ammonium oxidation. *Syst. Appl. Microbiol* **23**: 93-106.
47. **Rodenacker K, Brühl A, Hausner M, Kühn M, Liebscher V, Wagner M, Winkler G, Wuertz S.** 2000. Quantification of biofilms in multi-spectral digital volumes from confocal laser-scanning microscopes. *Image Anal. Stereol.* **19**: 151-156.
46. **Purkhold U, Pommerening-Röser A, Juretschko S, Schmid MC, Koops HP, Wagner M.** 2000. Phylogeny of all recognized species of ammonia-oxidizers based on comparative 16S rRNA and *amoA* sequence analysis: implications for molecular diversity surveys. *Appl. Environ. Microbiol.* **66**: 5368-5382.
45. **Morgenroth E, Obermayer A, Arnold E, Brühl A, Wagner M, Wilderer PA .** 2000. Effect of long-term idle periods on the performance of sequencing batch reactors. *Wat. Science Technol.* **41**: 105-113.
44. **Kanagawa T, Kamagata Y, Aruga S, Kohno T, Horn M, Wagner M.** 2000. Phylogenetic relationships of filamentous bacteria of the Eikelboom Type 021N isolated from bulking activated sludge and development of an encompassing set of 021N-specific oligonucleotide probes. *Appl. Environ. Microbiol.* **66**: 5043-5052.
43. **Horn M, Wagner M, Muller KD, Schmid EN, Fritsche TR, Schleifer KH, Michel R.** 2000. *Neochlamydia hartmannellae* gen. nov. sp. nov. (Parachlamydiaceae), an endoparasite of the amoeba *Hartmannella vermiformis*. *Microbiology* **146**: 1231-1239.
42. **Fritsche TR, Horn M, Wagner M, Herwig RP, Schleifer KH, Gautom RK.** 2000. Phylogenetic diversity among geographically dispersed *Chlamydiales* endosymbionts recovered from clinical and environmental isolates of *Acanthamoeba* spp. *Appl. Environ. Microbiol.* **66**: 2613-2619.
41. **Daims H, Nielsen PH, Nielsen JL, Juretschko S, Wagner M.** 2000. Novel *Nitrospira*-like bacteria as dominant nitrite-oxidizers in biofilms from wastewater treatment plants: Diversity and *in situ* physiology. *Wat. Science Tech.* **41**: 85-90.
40. **Bouchez T, Patureau D, Dabert P, Wagner M, Delgenès JP, Moletta R.** 2000. Successful and unsuccessful bioaugmentation experiments monitored by fluorescent *in situ* hybridization. *Wat. Science Tech.* **41**: 61-68.

39. **Bouchez T, Patureau D, Dabert P, Juretschko S, Dore J, Delgenes P, Moletta R, Wagner M.** 2000. Ecological study of a bioaugmentation failure. *Environ. Microbiol.* **2**: 179-190.
38. **Thill A, Wagner M, Bottero JY.** 1999. Confocal scanning laser microscopy as a tool for the determination of 3D floc structure. *Journal of Colloid and Interface Science* **220**: 465-467.
37. **Snaidr J, Fuchs B, Wallner G, Wagner M, Schleifer KH, Amann R.** 1999. Phylogeny and in situ identification of a morphologically conspicuous bacterium *Candidatus "Magnospira bakii"* present at very low frequency in activated sludge. *Environ. Microbiol.* **1**: 125-135.
36. **Schramm A, Santegoeds CM, Nielsen HK, Ploug H, Wagner M, Pribyl M, Wanner J, Amann R, de Beer D.** 1999. On the occurrence of anoxic microniches, denitrification, and sulfate reduction in aerated activated sludge. *Appl. Environ. Microbiol.* **65**: 4189-4196.
35. **Pellegrin V, Juretschko S, Wagner M, Cottenceau G.** 1999. Morphological and biochemical properties of *Sphaerotilus* sp. isolated from paper mill slimes. *Appl. Environ. Microbiol.* **65**: 156-162.
34. **Nielsen PH, Andreasen K, Lee N, Wagner M.** 1999. Use of microautoradiography and fluorescent *in situ* hybridization for characterization of microbial activity in activated sludge. *Wat. Sci. Tech.* **39**: 1-9.
33. **Minz D, Flax JL, Green SJ, Muyzer G, Cohen Y, Wagner M, Rittmann BE, Stahl DA.** 1999. Diversity of sulfate-reducing bacteria in oxic and anoxic regions of a microbial mat characterized by comparative analysis of dissimilatory sulfite reductase genes. *Appl. Environ. Microbiol.* **65**: 4666-4671.
32. **Lee N, Nielsen PH, Andreasen KH, Juretschko S, Nielsen JL, Schleifer KH, Wagner M.** 1999. Combination of fluorescent *in situ* hybridization and microautoradiography - a new tool for structure-function analyses in microbial ecology. *Appl. Environ. Microbiol.* **65**: 1289-1297.
31. **Horn M, Fritsche TR, Gautom RK, Schleifer KH, Wagner M.** 1999. Novel bacterial endosymbionts of *Acanthamoeba* isolates related to the Paramecium symbiont *Caedibacter caryophilus*. *Environ. Microbiol.* **1**: 357-367.
30. **Helmer C, Kunst S, Juretschko S, Schmid MC, Schleifer KH, Wagner M.** 1999. Nitrogen loss in a nitrifying biofilm system. *Wat. Sci. Tech.* **39**: 13-21.
29. **Fritsche TR, Horn M, Seyedirashti S, Gautom RK, Schleifer KH, Wagner M.** 1999. In situ detection of novel bacterial endosymbionts of *Acanthamoeba* spp. phylogenetically related to members of the *Rickettsiales*. *Appl. Environ. Microbiol.* **65**: 206-212.
28. **Daims H, Bruhl A, Amann R, Schleifer KH, Wagner M.** 1999. Probe EUB338 is insufficient for the detection of all Bacteria: Development and evaluation of a more comprehensive probe set. *Syst. Appl. Microbiol.* **22**: 434-444.

27. **Bond PL, Erhart R, Wagner M, Keller J, Blackall LL.** 1999. Identification of some of the major groups of bacteria in efficient and nonefficient biological phosphorus removal activated sludge systems. *Appl. Environ. Microbiol.* **65**: 4077-4084.
26. **Wagner M, Schmid M, Juretschko S, Trebesius KH, Bubert A, Goebel W, Schleifer KH.** 1998. *In situ* detection of a virulence factor mRNA and 16S rRNA in *Listeria monocytogenes*. *FEMS Microbiol. Lett.* **160**: 159-168.
25. **Wagner M, Roger AJ, Flax JL, Brusseau GA, Stahl DA.** 1998. Phylogeny of dissimilatory sulfite reductases supports an early origin of sulfate respiration. *J. Bacteriol.* **180**: 2975-2982.
24. **Wagner M, Noguera DR, Juretschko S, Rath G, Koops HP, Schleifer KH.** 1998. Combining fluorescent *in situ* hybridization (FISH) with cultivation and mathematical modeling to study population structure and function of ammonia-oxidizing bacteria in activated sludge. *Wat. Sci. Tech.* **37**: 441-449.
23. **Schuppler M, Wagner M, Schon G, Gobel UB.** 1998. *In situ* identification of nocardioform actinomycetes in activated sludge using fluorescent rRNA-targeted oligonucleotide probes. *Microbiology* **144**: 249-259.
22. **Schramm A, De Beer D, Wagner M, Amann R.** 1998. *Nitrosospira* sp. and *Nitrospira* sp. as dominant populations in a nitrifying fluidized bed reactor: Identification and activity *in situ*. *Appl. Environ. Microbiol.* **64**: 3480-3485.
21. **Schleifer K-H, Wagner M.** 1998. *In situ* detection and identification of bacteria prior to their cultivation. *Bioscience Microflora* **17**: 15-22.
20. **Nielsen PH, Andreasen K, Wagner M, Blackall LL, Lemmer H, Seviour RJ.** 1998. Variability of Type 021N in activated sludge as determined by *in situ* substrate uptake pattern and *in situ* hybridization with fluorescent rRNA-targeted probes. *Wat. Sci. Tech.* **37**: 423-430.
19. **Moter A, Leist G, Rudolph R, Schrank K, Choi BK, Wagner M, Gobel UB.** 1998. Fluorescent *in situ* hybridization shows spatial distribution of yet uncultured Treponemes in biopsies from digital dermatitis lesions. *Microbiology* **144**: 2459-2467.
18. **Kühn M, Hausner M, Bungartz H-J, Wagner M, Wilderer PA, Wuertz S.** 1998. Semi-automated confocal laser scanning microscopy and image processing for the analysis of biofilms. *Appl. Environ. Microbiol.* **64**: 4115-4127.
17. **Juretschko S, Timmermann G, Schmid M, Schleifer KH, Pommerening-Roser A, Koops HP, Wagner M.** 1998. Combined molecular and conventional analyses of nitrifying bacterium diversity in activated sludge: *Nitrosococcus mobilis* and *Nitrospira*-like bacteria as dominant populations. *Appl. Environ. Microbiol.* **64**: 3042-3051.
16. **Amann R, Lemmer H, Wagner M.** 1998. Monitoring the community structures of wastewater treatment plants: a comparison of old and new techniques. *FEMS Microbiol. Ecol.* **25**: 205-216.
15. **Fry NK, Frederickson JK, Fishbain S, Wagner M, Stahl DA.** 1997. Phylogenetic analysis of microbial communities associated with two deep, anaerobic, alkaline aquifers. *Appl. Environ. Microbiol.* **63**: 1498-1504.



14. **Wagner M, Rath G, Koops H-P, Flood J, Amann R.** 1996. *In situ* analysis of nitrifying bacteria in sewage treatment plants. *Wat. Sci. Tech.* **34**: 237-244 .
13. **Mobarry BK, Wagner M, Urbain V, Rittmann BE, Stahl DA.** 1996. Phylogenetic probes for analyzing abundance and spatial organization of nitrifying bacteria. *Appl. Environ. Microbiol.* **62**: 2156-2162.
12. **Kampfer P, Erhart R, Beimfohr C, Bohringer J, Wagner M, Amann R.** 1996. Characterization of bacterial communities from activated sludge: Culture-dependent numerical identification versus *in situ* identification using group- and genus-specific rRNA-targeted oligonucleotide probes. *Microb. Ecol.* **32**: 101-121.
11. **Amann R, Snaidr J, Wagner M, Ludwig W, Schleifer KH.** 1996. *In situ* visualization of high genetic diversity in a natural microbial community. *J. Bacteriol.* **178**: 3496-3500.
10. **Wagner M, Rath G, Amann R, Koops H-P, Schleifer KH.** 1995. *In situ* identification of ammonia-oxidizing bacteria. *Syst. Appl. Microbiol.* **17**: 251-264.
9. **Rossello-Mora RA, Wagner M, Amann R, Schleifer KH.** 1995. The abundance of *Zoogloea ramigera* in sewage treatment plants. *Appl. Environ. Microbiol.* **61**: 702-707.
8. **Wagner M, Erhart R, Manz W, Amann R, Lemmer H, Wedi D, Schleifer KH.** 1994. Development of an rRNA-targeted oligonucleotide probe specific for the genus *Acinetobacter* and its application for *in situ* monitoring in activated sludge. *Appl. Environ. Microbiol.* **60**: 792-800.
7. **Wagner M, Assmus B, Hartmann A, Hutzler P, Amann R.** 1994. *In situ* analysis of microbial consortia in activated sludge using fluorescently labelled, rRNA-targeted oligonucleotide probes and confocal scanning laser microscopy. *J. Microscopy* **176**: 181-187.
6. **Wagner M, Amann R, Lemmer H, Manz W, Schleifer KH.** 1994. Probing activated sludge with fluorescently labeled rRNA targeted oligonucleotides. *Wat. Sci. Tech.* **29**: 15-23.
5. **Wagner M, Amann R, Kämpfer P, Assmus B, Hartmann A, Hutzler P, Springer N, Schleifer KH.** 1994. Identification and *in situ* detection of gram-negative filamentous bacteria in activated sludge. *Syst. Appl. Microbiol.* **17**: 405-417.
4. **Roller C, Wagner M, Amann R, Ludwig W, Schleifer KH.** 1994. *In situ* probing of Gram-positive bacteria with high DNA G+C content using 23S rRNA-targeted oligonucleotides. *Microbiology* **140**: 2849-2858.
3. **Manz W, Wagner M, Amann R, Schleifer KH.** 1994. *In situ* characterization of the microbial consortia active in two wastewater treatment plants. *Wat. Res.* **28**: 1715-1723.
2. **Wagner M, Amann R, Lemmer H, Schleifer KH.** 1993. Probing activated sludge with oligonucleotides specific for proteobacteria: inadequacy of culture-dependent methods for describing microbial community structure. *Appl. Environ. Microbiol.* **59**: 1520-1525.

1. **Manz W, Amann R, Ludwig W, Wagner M, Schleifer KH.** 1992. Phylogenetic oligodeoxynucleotide probes for the major subclasses of proteobacteria: problems and solutions. *Syst. Appl. Microbiol.* **15**: 593-600.