

## Publication List

Total number of citations according to ISI Web of Science (as of December 2018): 8,410

h-Index: 41

### Publications in Peer-Reviewed Journals

(\* indicates corresponding authorship)

1. Sakoula D, Nowka B, Spieck E, **Daims H**, Lücker S\* (2018). The draft genome sequence of “*Nitrospira lenta*” strain BS10, a nitrite oxidizing bacterium isolated from activated sludge. *Stand Genomic Sci* 13: 32.
2. 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.
3. Daebeler A\*, Herbold CW, 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.
4. Füssel J\*, Lücker S\*, Yilmaz P, Nowka B, van Kessel MAHJ, Bourceau P, Hach PF, Littmann S, Berg J, Spieck E, **Daims H**, Kuypers MMM, Lam P (2017). Adaptability as the key to success for the ubiquitous marine nitrite oxidizer *Nitrococcus*. *Sci. Adv.* 3:e1700807.
5. 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.
6. Pjevac P, Schauburger C, Poghosyan L, Herbold CW, van Kessel MAHJ, Daebeler A, Steinberger M, Jetten MSM, Lücker 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.
7. Schulz F\*, Yutin N, Ivanova NN, Ortega DR, Lee TW, Vierheilig J, **Daims H**, Horn M, Wagner M, Jensen GJ, Kyrpides NC, Koonin EV, Woyke T (2017). Giant viruses with an expanded complement of translation system components. *Science* 356: 82-85.
8. 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.
9. **Daims H\***, Lücker S, Wagner M (2016). A new perspective on microbes formerly known as nitrite-oxidizing bacteria. *Trends Microbiol.* 24: 699-712.
10. Hemp J\*, Lücker S, Schott J, Pace L, Johnson J, Schink B, **Daims H**, Fischer W (2016). Genomics of a phototrophic nitrite oxidizer: Insights into the evolution of photosynthesis and nitrification. *ISME J.* 10: 2669-2678.
11. Hüpeden J, Wegen S, Off S, Lücker S, Bedarf Y, **Daims H**, Kühn C, Spieck E\* (2016). Relative abundance of *Nitrotoga* in a biofilter of a cold freshwater aquaculture plant appears to be stimulated by slightly acidic pH. *Appl. Environ. Microbiol.* 82: 1838-1845.
12. **Daims H**, Lebedeva EV, Pjevac P, Han P, Herbold C, Albertsen M, Jehmlich N, Palatinszky M, Vierheilig J, Bulaev A, Kirkegaard RH, von Bergen M, Rattei T, Bendinger B, Nielsen PH, Wagner M\* (2015). Complete nitrification by *Nitrospira* bacteria. *Nature* 528: 504-509.
13. Koch H, Lücker 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. USA* 112: 11371-11376.

14. 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.
15. Schaffner I, Hofbauer S, Krutzler M, Pirker KF, Bellei M, Stadlmayr G, Mlynek G, Djinovic-Carugo K, Battistuzzi G, Furtmüller PG, **Daims H**, Obinger C\* (2015). Dimeric chlorite dismutase from the nitrogen-fixing cyanobacterium *Cyanothece* sp. PCC7425. *Mol. Microbiol.* 96: 1053-1068.
16. Nowka B, Off S, **Daims H**, Spieck E\* (2015). Improved isolation strategies allowed the phenotypic differentiation of two *Nitrospira* strains from widespread phylogenetic lineages. *FEMS Microbiol. Ecol.* 91: fiu031.
17. Hofbauer S, Hagmüller A, Schaffner I, Mlynek G, Krutzler M, Stadlmayr G, Pirker KF, Obinger C, **Daims H**, Djinovic-Carugo K\*, Furtmüller PG\* (2015). Structure and heme-binding properties of HemQ (chlorite dismutase-like protein) from *Listeria monocytogenes*. *Arch. Biochem. Biophys.* 574: 36-48.
18. 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.
19. 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.
20. Nowka B, **Daims H**, Spieck E (2015). Comparison of oxidation kinetics of nitrite-oxidizing bacteria: nitrite availability as a key factor in niche differentiation. *Appl. Environ. Microbiol.* 81: 745-753.
21. 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.
22. Sorokin DY\*, Vejmekova D, Lückner S, Streshinskaya GM, Rijpstra I, Sinnighe Damsté J, Kleerebezem R, Van Loosdrecht M, Muyzer G, **Daims H** (2014). *Nitrolancea hollandica* gen. nov., sp. nov., a chemolithoautotrophic nitrite-oxidizing bacterium from a bioreactor belonging to the phylum Chloroflexi. *Int. J. Syst. Evol. Microbiol.* 64: 1859-1865.
23. Remus-Emsermann MNP\*, Lückner S, Müller DB, Potthoff E, **Daims H**, Vorholt JA (2014). Spatial distribution analyses of natural phyllosphere-colonizing bacteria on *Arabidopsis thaliana* revealed by fluorescence in situ hybridization. *Environ. Microbiol.* 16: 2329-2340.
24. 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.
25. Almstrand R, Persson F, **Daims H**, Ekenberg M, Christensson M, Wilén BM, Sörensson F, Hermansson M\* (2014). Three-dimensional stratification of bacterial biofilm populations in a moving bed biofilm reactor for nitrification anammox. *Int. J. Mol. Sci.* 15: 2191-2206.
26. Hofbauer S, Gysel, K, Bellei M, Hagmueller A, Schaffner I, Mlynek G, Kostan J, Pirker K, **Daims H**, Furtmüller P, Battistuzzi G, Djinovic-Carugo K, Obinger C\* (2014). Manipulating conserved heme cavity residues of chlorite dismutase: effect on structure, redox chemistry and reactivity. *Biochemistry* 53: 77-89.
27. Lopez-Vazquez CM\*, Kubare M, Saroj DP, Chikamba C, Schwarz J, **Daims H**, Brdjanovic D (2014). Thermophilic biological nitrogen removal in industrial wastewater treatment. *Appl. Microbiol. Biotechnol.* 98: 945-956.
28. Almstrand R, **Daims H**, Persson F, Sörensson F, Hermansson M\* (2013). New methods for analysis of spatial distribution and coaggregation of microbial populations in complex biofilms. *Appl. Environ. Microbiol.* 79(19):5978-5987.

29. Lücker S, Nowka B, Rattei T, Spieck E, **Daims H\*** (2013). The genome of *Nitrospina gracilis* illuminates the metabolism and evolution of the major marine nitrite oxidizer. *Front. Microbiol.* 4: 27.
30. 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.
31. Mussmann M\*, Ribot M, von Schiller D, Merbt S, Augpurger C, Karwautz C, Winkel M, Battin T, Marti E, **Daims H** (2013). Colonization of freshwater biofilms by nitrifying bacteria from activated sludge. *FEMS Microbiol. Ecol.* 85(1):104-115.
32. Kostanjšek R\*, Pasic L, **Daims H**, Sket B (2013). Structure and community composition of sprout-like bacterial aggregates in a Dinaric karst subterranean stream. *Microb. Ecol.* 66: 5-18.
33. Dolinšek 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* spp. *Appl. Environ. Microbiol.* 79:2027-2037.
34. Dolinšek J, Dorninger C, Lagkouvardos I, Wagner M, **Daims H\*** (2013). Depletion of unwanted nucleic acid templates by selective cleavage: LNAzymes, catalytically active oligonucleotides containing locked nucleic acids, open a new window for detecting rare microbial community members. *Appl. Environ. Microbiol.* 79: 1534-1544.
35. Hofbauer S, Bellei M, Sündermann A, Pirker K, Hagmueller A, Mlynek G, Kostan J, **Daims H**, Furtmüller P, Djinić-Carugo K, Oostenbrink C, Battistuzzi G, Obinger C\* (2012). Redox thermodynamics of high-spin and low-spin forms of chlorite dismutases with diverse subunit and oligomeric structures. *Biochemistry* 51: 9501-9512.
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37. Hofbauer S, Gysel K, Mlynek G, Kostan J, Hagmueller A, **Daims H**, Furtmueller PG, Djinić-Carugo K, Obinger C\* (2012). Impact of subunit and oligomeric structure on the thermal and conformational stability of chlorite dismutases. *Biochim. Biophys. Acta* 1824:1031-1038.
38. Sorokin DY, Lücker S, Vejmelkova 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.
39. Schillinger C, Lux R, Riep B, Kikhney J, Petrich A, Friedmann A, Wolinsky LE, Göbel UB, **Daims H\***, Møller A\* (2012). Co-localized or randomly distributed? Pair cross correlation of in vivo grown subgingival biofilm bacteria quantified by digital image analysis. *PLoS One* 7: e37583.
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41. Mlynek G, Sjöblom B, Kostan J, Füreder S, Maixner F, Gysel K, Furtmüller PG, Obinger C, Wagner M, **Daims H\***, Djinić-Carugo K\* (2011). Unexpected diversity of chlorite dismutases: A catalytically efficient dimeric enzyme from *Nitrobacter winogradskyi*. *J. Bacteriol.* 193: 2408-2417.
42. **Daims H\*** and 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.

43. Hall E\*, Maixner F, Franklin O, Richter A, **Daims H**, Battin T (2011). Linking microbial and ecosystem ecology using ecological stoichiometry: a synthesis of conceptual and empirical approaches. *Ecosystems* 14: 261-273.
44. Lebedeva EV, Off S, Zumbrägel S, Kruse M, Shagzhina A, Lücker S, Maixner F, Lipski A, **Daims H**, Spieck S\* (2011). Isolation and characterization of a moderately thermophilic nitrite-oxidizing bacterium from a geothermal spring. *FEMS Microbiol. Ecol.* 75: 195-204.
45. Hall EK\*, Singer GA, Pölzl M, Hämmerle I, Schwarz C, **Daims H**, Maixner F, Battin T (2011). Looking inside the box: Using Raman microspectroscopy to deconstruct microbial biomass stoichiometry one cell at a time. *ISME J.* 5: 196-208.
46. Lücker S, Wagner M, Maixner F, Pelletier E, Koch H, Vacherie B, Rattei T, Sinninghe 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.
47. Kostan J, Sjöblom B, Maixner F, Mlynek G, Furtmüller PG, Obinger C, Wagner M, **Daims H\***, Djinić-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(3):331-342.
48. 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.* 76: 922–926.
49. Augspurger C, Karwautz C, Mussmann M, **Daims H**, Battin T\* (2010). Drivers of bacterial colonization patterns in stream biofilms. *FEMS Microbiol. Ecol.* 72(1):47-57.
50. **Daims H\*** (2009). Use of fluorescence *in situ* hybridization and the *daime* image analysis program for the cultivation-independent quantification of microorganisms in environmental and medical samples. *Cold Spring Harb. Protoc.* doi:10.1101/pdb.prot5253.
51. Schwitalla P, Mennerich A, Austermann-Haun U, Müller A, Dorninger C, **Daims H**, Holm NC, Rönner-Holm SG\* (2008). NH<sub>4</sub><sup>+</sup> ad-/desorption in sequencing batch reactors: simulation, laboratory and full-scale studies. *Water Sci. Technol.* 58(2):345-350.
52. Hoshino T, Yilmaz S, 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. *Applied Environ. Microbiol.* 74(16):5068-5077.
53. 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(11): 3043–3056.
54. Biasi C, Meyer H, Rusalimova O, Hämmerle R, Kaiser C, Baryani C, **Daims H**, Lashchinsky N, Barsukov P, Richter A\* (2008). Initial effects of experimental warming on carbon exchange rates, plant growth and microbial dynamics of a lichen-rich dwarf shrub tundra in Siberia. *Plant Soil* 307(1-2):191-205.
55. Reigstad LJ, Richter A, **Daims H**, Urich T, Schwark L, Schleper C\* (2008). Nitrification in terrestrial hot springs of Iceland and Kamchatka. *FEMS Microbiol. Ecol.* 64(2):167-174.
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57. Lebedeva EV, Alawi M, Maixner F, Jozsa PG, **Daims H**, Spieck E\* (2008). Physiological and phylogenetical characterization of a new lithoautotrophic nitrite-oxidizing bacterium '*Candidatus Nitrospira bockiana*' sp. nov. *Int. J. Syst. Evol. Microbiol.* 58:242-250.
58. 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.

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60. Battin TJ\*, Sloan WT, Kjelleberg S, **Daims H**, Head IM, Curtis T, Eberl L (2007). Microbial landscapes: New paths to biofilm research. *Nature Rev. Microbiol.* 5(1):76-81.
61. **Daims H\***, Taylor MW, Wagner M (2006). Wastewater Treatment: A Model System for Microbial Ecology. *Trends Biotechnol.* 24(11): 483-489.
62. Meyer H, Kaiser C, Biasi C, Hämmerle R, Rusalimova O, Lashchinsky N, Baranyi C, **Daims H**, Barsukov P, Richter A\* (2006). Soil carbon and nitrogen dynamics along a latitudinal transect in Western Siberia, Russia. *Biogeochemistry* 81(2):239-252.
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65. Strous M, Pelletier E, Mangenot S, Rattai T, Lehner A, Taylor MW, Horn M, **Daims H**, 27 other authors, Wagner M\*, Le Paslier D (2006). Deciphering the evolution and metabolism of an anammox bacterium from a community genome. *Nature* 440: 790-794.
66. 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. U.S.A.* **103**: 2363-2367.
67. 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**: 83-91.
68. 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**(3): 405-415.
69. **Daims H\***, Lückner S, Wagner M (2006). *daime*, a novel image analysis program for microbial ecology and biofilm research. *Environ. Microbiol.* **8**(2): 200-213.
70. Ginige M, 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**(1): 588-596.
71. Wagner M\*, Horn M, **Daims H** (2003). Fluorescence in situ hybridisation for the identification of prokaryotes. *Curr. Opinion Microbiol.* **6**: 302-309.
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#### Book Chapters and Other Publications

1. Sorokin DY, Lückner S, **Daims H** (2018). *Nitrolancea*. In *Bergey's Manual of Systematics of Archaea and Bacteria*. John Wiley & Sons. DOI: 10.1002/9781118960608.gbm01563.
2. **Daims H**, Wagner M (2018). *Nitrospira*. *Trends Microbiol.* **5**: 462-463.
3. **Daims H** (2018). Stickstoffkreisläufe in der Abwasserreinigung – neue und bewährte Wege. In *Wiener Mitteilungen Wasser-Abwasser-Gewässer*, vol. 247, pp. 31-46. (Krampe J, Kreuzinger N, eds). Riegelnik, Vienna.
4. 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**: e01524-17.
5. Lückner L and **Daims H** (2014). The Family *Nitrospinaceae*. In *The Prokaryotes*, pp. 231-237. (Rosenberg E, DeLong EF, Lory S, Stackebrandt E, Thompson F, eds.). Springer, New York.
6. **Daims H** (2014). The Family *Nitrospiraceae*. In *The Prokaryotes*, pp. 733-749. (Rosenberg E, DeLong EF, Lory S, Stackebrandt E, Thompson F, eds.). Springer, New York.
7. **Daims H** and Wagner M (2010). The microbiology of nitrogen removal. In *The microbiology of activated sludge*, pp. 259-280. (Seviour RJ, Nielsen PH, eds.). IWA Publishing, London, UK.
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10. **Daims H** (2009). Quantitative FISH for the cultivation-independent quantification of microbes in wastewater treatment plants. In *FISH Handbook for Biological Wastewater Treatment: Identification and quantification of microorganisms in activated sludge and biofilms by FISH*, (Nielsen PH, **Daims H**, Lemmer H, eds.). IWA Publishing, London, UK. pp. 85-92.
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12. **Daims H** (2005). Molecular analyses of microbial community structure and function of flocs. In *Flocculation in Natural and Engineered Environmental Systems*, (Droppo IG, Leppard GG, Liss SN, Milligan TG, eds.), CRC Press, Boca Raton, pp. 317-338.
13. Loy A, **Daims H**, Wagner M (2002). Activated sludge: Molecular techniques for determining community composition. In *The Encyclopedia of Environmental Microbiology*, (Bitton G, ed.), Wiley, New York, pp. 26-43.
14. **Daims H**, Schleifer K-H, Wagner M (2002). Halbautomatische und kultivierungs-unabhängige Quantifizierung von Bakterien in komplexen Umweltproben. *Laborwelt* **1/2002**: 10-14.