

Tina Santl-Temkiv
Adjunkt
Institut for Biologi - Mikrobiologi
Institut for Fysik og Astronomi
Institut for Biologi - Arctic Research Centre
Institut for Miljøvidenskab - iCLIMATE Aarhus University Interdisciplinary Centre
for Climate Change



Curriculum Vitae

[Link to my CV](#)

Publikationer

Micro-PINGUIN: microtiter-plate-based instrument for ice nucleation detection in gallium with an infrared camera

Wieber, C., Jeppesen, M. R., Finster, K., Melvad, C. & Santl-Temkiv, T., maj 2024, I: Atmospheric Measurement Techniques. 17, 9, s. 2707–2719 13 s.

Atmospheric dispersal shapes rapid bacterial colonization of Icelandic Lava Rocks

Daussin, A., Vannier, P., Daboussy, L., Šantl-Temkiv, T., Cockell, C. & Marteinson, V. Þ., 2024, I: FEMS Microbes. 5, xtae016.

Biological Characterisation of Hailstones from Two Storms in South Brazil

Mantoani, M. C., Quintino, T. B., Emygdio, A. P. M., Guerra, L., Dias, M. A. S., Rodrigues, F., Silva, D. M. C., Filho, V. B. D., Rudke, A. P., Alves, R. A., Martins, L. D., Martins, J. A., Siqueira, A., Boschilia, S. M., Carotenuto, F., Santl-Temkiv, T., Phillips, V. T. J. & Gonçalves, F. L. T., dec. 2023, I: Aerobiology. 1, 2, s. 98-108

Survival of Icelandic airborne microbes towards simulated atmospheric stress factors

Daussin, A., Vannier, P., Mater, É., Šantl-Temkiv, T., Cockell, C. & Marteinson, V. Þ., aug. 2023, I: Extremophiles. 27, 2, 17.

Indoor Airborne Microbiome and Endotoxin: Meteorological Events and Occupant Characteristics Are Important Determinants

Amin, H., Šantl-Temkiv, T., Cramer, C., Finster, K., Real, F. G., Gislason, T., Holm, M., Janson, C., Jögi, N. O., Jogi, R., Malinowski, A., Marshall, I. P. G., Modig, L., Norbäck, D., Shigdel, R., Sigsgaard, T., Svanes, C., Thorarinsdottir, H., Wouters, I. M. & Schlünssen, V. & 1 flere, Bertelsen, R. J., 31 jul. 2023, I: Environmental Science & Technology. 57, 32, s. 11750-11766 17 s.

Contribution of soil bacteria to the atmosphere across biomes

Archer, S. D. J., Lee, K. C., Caruso, T., Alcamí, A., Araya, J. G., Cary, S. C., Cowan, D. A., Etchebehere, C., Gantsetseg, B., Gomez-Silva, B., Hartery, S., Hogg, I. D., Kansour, M. K., Lawrence, T., Lee, C. K., Lee, P. K. H., Leopold, M., Leung, M. H. Y., Maki, T. & McKay, C. P. & 9 flere, Al Maillem, D. M., Ramond, J. B., Rastrojo, A., Šantl-Temkiv, T., Sun, H. J., Tong, X., Vandenbrink, B., Warren-Rhodes, K. A. & Pointing, S. B., maj 2023, I: Science of the Total Environment. 871, 162137.

Measurement report: Atmospheric fluorescent bioaerosol concentrations measured during 18 months in a coniferous forest in the south of Sweden

Petersson Sjögren, M., Alsved, M., Šantl-Temkiv, T., Bjerring Kristensen, T. & Löndahl, J., maj 2023, I: Atmospheric Chemistry and Physics. 23, 9, s. 4977-4992 16 s.

Comparison of Atmospheric and Lithospheric Culturable Bacterial Communities from Two Dissimilar Active Volcanic Sites, Surtsey Island and Fimmvörðuháls Mountain in Iceland

Daussin, A., Vannier, P., Ménager, M., Daboussy, L., Šantl-Temkiv, T., Cockell, C. & Marteinson, V. Þ., mar. 2023, I: Microorganisms. 11, 3, 665.

Rainfall effects on vertical profiles of airborne fungi over a mixed land-use context at the Brazilian Atlantic Forest biodiversity hotspot

Mantoani, M. C., Emygdio, A. P. M., Degobbi, C., Sapucci, C. R., Guerra, L. C. C., Dias, M. A. F. S., Dias, P. L. S., Zanetti, R. H. S., Rodrigues, F., Araujo, G. G., Silva, D. M. C., Filho, V. B. D., Boschilia, S. M., Martins, J. A., Carotenuto, F., Šantl-Temkiv, T., Morris, C. E. & Gonçalves, F. L. T., mar. 2023, I: *Agricultural and Forest Meteorology*. 331, 8 s., 109352.

Optimization of bacterial DNA and endotoxin extraction from settled airborne dust

Amin, H., Marshall, I. P. G., Bertelsen, R. J., Wouters, I. M., Schlünssen, V., Sigsgaard, T. & Šantl-Temkiv, T., jan. 2023, I: *Science of the Total Environment*. 857, Part 2, 10 s., 159455.

Thirty-Five Years of Aerosol-PBAP *in situ* Research in Brazil: The Need to Think outside the Amazonian Box

Mantoani, M. C., Martins, J. A., Martins, L. D., Carotenuto, F., Šantl-Temkiv, T., Morris, C. E., Rodrigues, F. & Gonçalves, F. L. T., jan. 2023, I: *Climate*. 11, 1, 13 s., 17.

Editorial: The atmospheric microbiota II: Microbial biomarkers and imprint of biological activity in the atmosphere

Amato, P., Šantl-Temkiv, T. & Bianco, A., okt. 2022, I: *Frontiers in Microbiology*. 13, 3 s., 1055818.

Microbial ecology of the atmosphere

Šantl-Temkiv, T., Amato, P., Casamayor, E. O., Lee, P. K. H. & Pointing, S. B., jul. 2022, I: *FEMS Microbiology Reviews*. 46, 4, 18 s., fuac009.

Seasonal Variation of the Atmospheric Bacterial Community in the Greenlandic High Arctic Is Influenced by Weather Events and Local and Distant Sources

Jensen, L. Z., Glasius, M., Gryning, S. E., Massling, A., Finster, K. & Šantl-Temkiv, T., jul. 2022, I: *Frontiers in Microbiology*. 13, 13 s., 909980.

Cow Farmers' Homes Host More Diverse Airborne Bacterial Communities Than Pig Farmers' Homes and Suburban Homes

Amin, H., Šantl-Temkiv, T., Cramer, C., Vestergaard, D. V., Holst, G. J., Elholm, G., Finster, K., Bertelsen, R. J., Schlünssen, V., Sigsgaard, T. & Marshall, I. P. G., 17 jun. 2022, I: *Frontiers in Microbiology*. 13, 12 s., 883991.

Structure and Protein-Protein Interactions of Ice Nucleation Proteins Drive Their Activity

Hartmann, S., Ling, M., Dreyer, L. S. A., Zipori, A., Finster, K., Grawe, S., Jensen, L. Z., Borck, S., Reicher, N., Niedermeier, D., Jones, N. C., Hoffmann, S. V., Wex, H., Rudich, Y., Boesen, T. & Šantl-Temkiv, T., 17 jun. 2022, I: *Frontiers in Microbiology*. 13, 872306.

Intracellular nitrate storage by diatoms can be an important nitrogen pool in freshwater and marine ecosystems

Stief, P., Schauburger, C., Lund, M. B., Greve, A., Abed, R. M. M., Al-Najjar, M. A. A., Attard, K., Bonaglia, S., Deutzmann, J. S., Franco-Cisterna, B., García-Robledo, E., Holtappels, M., John, U., Maciute, A., Magee, M. J., Pors, R., Šantl-Temkiv, T., Scherwass, A., Sevilgen, D. S. & de Beer, D. & 3 flere, Glud, R. N., Schramm, A. & Kamp, A., 2022, I: *Communications Earth & Environment*. 3, 1, 11 s., 154.

Ice-nucleating proteins are activated by low temperatures to control the structure of interfacial water

Roeters, S. J., Golbek, T. W., Bregnhøj, M., Drace, T., Alamdari, S., Roseboom, W., Kramer, G., Šantl-Temkiv, T., Finster, K., Pfaendner, J., Woutersen, S., Boesen, T. & Weidner, T., feb. 2021, I: *Nature Communications*. 12, 1, 9 s., 1183.

Properties relevant to atmospheric dispersal of the ice-nucleation active *Pseudomonas syringae* strain R10.79 isolated from rain water

Ling, M. L., Marshall, I. P. G., Rosati, B., Schreiber, L., Boesen, T., Finster, K. & Šantl-Temkiv, T., 2021, I: *Aerobiologia*. 37, 2, s. 225-241 17 s.

DNA metabarcoding of fungal diversity in air and snow of Livingston Island, South Shetland Islands, Antarctica

Rosa, L. H., Pinto, O. H. B., Šantl-Temkiv, T., Convey, P., Carvalho-Silva, M., Rosa, C. A. & Câmara, P. E. A. S., dec. 2020, I: *Scientific Reports*. 10, 1, 21793.

Bioaerosol field measurements: Challenges and perspectives in outdoor studies

Santl-Temkiv, T., Sikoparija, B., Maki, T., Carotenuto, F., Amato, P., Yao, M., E. Morris, C., Schnell, R., Jaenicke, R., Pöhler, C., DeMott, P. J., Hill, T. C. J. & Huffman, J. A., maj 2020, I: *Aerosol Science and Technology*. 54, 5, s. 520-546

Enrichment of organic nitrogen in primary biological particles during advection over the North Atlantic

Dall'Osto, M., Santl-Temkiv, T., O'Dowd, C. D. & Harrison, R. M., 1 feb. 2020, I: *Atmospheric Environment*. 222, 117160.

Biogenic Sources of Ice Nucleating Particles at the High Arctic Site Villum Research Station

Santl-Temkiv, T., Lange, R., Beddows, D., Rauter, U., Pilgaard, S., Dall'Osto, M., Gunde-Cimerman, N., Massling, A. & Wex, H., 2019, I: *Environmental Science & Technology*. 53, 18, s. 10580-10590 11 s.

Effect of Aerosolization and Drying on the Viability of *Pseudomonas syringae* Cells

Alsved, M., Holm, S., Christiansen, S., Smidt, M., Ling, M., Boesen, T., Finster, K., Bilde, M., Löndahl, J. & Santl-Temkiv, T., 18 dec. 2018, I: *Frontiers in Microbiology*. 9, 11 s., 3086.

Ice Nucleation Activity and Aeolian Dispersal Success in Airborne and Aquatic Microalgae

Tesson, S. V. & Santl-Temkiv, T., 12 nov. 2018, I: *Frontiers in Microbiology*. 9, NOV, 14 s., 2681.

The Exo-Life Finder (ELF) telescope: New strategies for direct detection of exoplanet biosignatures and technosignatures

Berdugina, S. V., Kuhn, J. R., Langlois, M., Moretto, G., Krissansen-Totton, J., Catling, D., Grenfell, J. L., Santl-Temkiv, T., Finster, K., Tarter, J., Marchis, F. & Apai, D., okt. 2018, *Ground-based and Airborne Telescopes VII*. SPIE - International Society for Optical Engineering, Bind 10700. 14 s.

Aeolian dispersal of bacteria in southwest Greenland: their sources, abundance, diversity and physiological states

Santl-Temkiv, T., Gosewinkel, U., Starnawski, P., Lever, M. & Finster, K., apr. 2018, I: *F E M S Microbiology Reviews*. 94, 4, 10 s., 031.

Corrigendum: Effect of aerosolization and drying on the viability of *pseudomonas syringae* cells (Front. Microbiol) 9, 3086, (10.3389/fmicb.2018.03086)

Alsved, M., Holm, S., Christiansen, S., Smidt, M., Rosati, B., Ling, M., Boesen, T., Finster, K., Bilde, M., Löndahl, J. & Santl-Temkiv, T., 29 mar. 2018, I: *Frontiers in Microbiology*. 10, OCT, 2378.

Effects of Ice Nucleation Protein Repeat Number and Oligomerization Level on Ice Nucleation Activity

Ling, M. L., Wex, H., Grawe, S., Jakobsson, J., Löndahl, J., Hartmann, S., Finster, K., Boesen, T. & Santl-Temkiv, T., 16 feb. 2018, I: *Journal of Geophysical Research: Atmospheres*. 123, 3, s. 1802-1810 9 s.

Temperature-controlled airflow ventilation in operating rooms compared with laminar airflow and turbulent mixed airflow

Alsved, M., Civilis, A., Ekolind, P., Tammelin, A., Andersson, A. E., Jakobsson, J., Svensson, T., Ramstorp, M., Sadrizadeh, S., Larsson, P.-A., Bohgard, M., Santl-Temkiv, T. & Löndahl, J., feb. 2018, I: *Journal of Hospital Infection*. 98, 2, s. 181-190 10 s.

Pig Farmers' Homes Harbor More Diverse Airborne Bacterial Communities Than Pig Stables or Suburban Homes

Vestergaard, D. V., Holst, G. J., Basinas, I., Elholm, G., Schlunssen, V., Linneberg, A., Santl-Temkiv, T., Finster, K., Sigsgaard, T. & Marshall, I. P. G., 2018, I: *Frontiers in Microbiology*. 9, MAY, 14 s., 870.

Impact of bacterial ice nucleating particles on weather predicted by a numerical weather prediction model

Sahyoun, M., Korsholm, U., Sørensen, J., Santl-Temkiv, T., Finster, K., Gosewinkel, U. B. & Nielsen, N., dec. 2017, I: *Atmospheric Environment*. 170, 170, s. 33-44 12 s.

High-Flow-Rate Impinger for the Study of Concentration, Viability, Metabolic Activity, and Ice-Nucleation Activity of Airborne Bacteria

Santl-Temkiv, T., Amato, P., Gosewinkel, U. B., Thyraug, R., Charton, A., Chicot, B., Finster, K., Bratbak, G. & Löndahl, J., 24 aug. 2017, I: *Environmental Science and Technology*. 51, 19, s. 11224-11234 11 s.

Quantifying bioaerosols and proteinaceous ice nuclei that may impact atmospheric processes in the high Arctic

Santl-Temkiv, T., Rauter, U., Pilgaard, S., Tesson, I. S., Lange, R., Gunde-Cimerman, N., Svendsen, S., Massling, A. & Finster, K., 2017.

Remote Sensing of Life: Polarimetric Signatures of Photosynthetic Pigments as Sensitive Biomarkers

Berdyugina, S., Kuhn, J. R., Harrington, D. M., Santl-Temkiv, T. & Messersmith, J. E., jan. 2016, I: *International Journal of Astrobiology*. 15, 1, s. 45-56 12 s.

Airborne microalgae: insights, opportunities and challenges

Tesson, S. V., Skjoth, C., Santl-Temkiv, T. & Löndahl, J., 2016, I: *Applied and Environmental Microbiology*. 82, 7, s. 1978-1991 14 s.

First year of research activities at Villum Research Station, Station Nord, North Greenland

Skov, H., Bossi, R., Massling, A., Nøjgaard, J. K., Nielsen, I. E., Nguyen, Q. T., Vorkamp, K., Lange, R., Poulsen, M. B., Christensen, J. H., Hansen, K. M., Bilde, M., Glasius, M., Sørensen, S. B., Santl-Temkiv, T., Finster, K., Pilgaard, S., Sørensen, L. L., Jensen, J. K. & Liisberg, J. B., 2016.

General And Ice-Nucleation Activity Of Airborne Bacteria In The Arctic

Santl-Temkiv, T., Starnawski, P., Gosewinkel, U. B., Rauter, U., Pilgaard, S. M., Alsved, M., Marshall, I., Tesson, S., Lever, M., Löndahl, J., Lange, R., Gunde-Cimerman, N., Svendsen, S., Massling, A. & Finster, K., 2016, *Danish Microbiological Society Congress 2016*.

Heterogeneous ice nucleation of bacterial ice nucleation protein

Ling, M., Wex, H., Grawe, S., Santl-Temkiv, T., Jakobsson, J., Finster, K., Hartmann, S. & Boesen, T., 2016.

On the usage of classical nucleation theory in quantification of the impact of bacterial INP on weather and climate

Sahyoun, M., Wex, H., Gosewinkel, U. B., Santl-Temkiv, T., Nielsen, N. W., Finster, K., Sørensen, J. H., Stratmann, F. & Korsholm, U. S., 2016, I: *Atmospheric Environment*. 139, s. 230-240 11 s.

The role of ice nucleation protein in active atmospheric dissemination of *P. syringae*

Ling, M., Santl-Temkiv, T., Holm, S., Finster, K. & Boesen, T., 2016.

The viability state of airborne bacteria

Lange, R., Massling, A., Santl-Temkiv, T., Löndahl, J. & Gosewinkel, U. B., 2016.

Characterization of airborne ice-nucleation-active bacteria and bacterial fragments

Santl-Temkiv, T., Sahyoun, M., Finster, K., Hartmann, S., Augustin-Bauditz, S., Stratmann, F., Wex, H., Clauss, T., Nielsen, N. W., Sørensen, J. H., Korsholm, U. S., Wick, L. Y. & Gosewinkel, U. B., 1 maj 2015, I: *Atmospheric Environment*. 109, s. 105-117 13 s.

A modular method for the extraction of DNA and RNA, and the separation of DNA pools from diverse environmental sample types

Lever, M., Torti, A., Eickenbusch, P., Michaud, A. B., Santl-Temkiv, T. & Jørgensen, B. B., 2015, I: *Frontiers in Microbiology*. 6, 25 s., 476.

The in situ study of active bacterial cells and their sources during atmospheric dispersal

Santl-Temkiv, T., Karlson, U. G., Lever, M., Starnawski, P. & Finster, K., 28 aug. 2014.

Structural studies of bacterial ice nucleation proteins and their relevance for atmospheric processes

Ling, M., Santl-Temkiv, T., Finster, K. & Boesen, T., 4 aug. 2014.

Microbial production of ice crystals in clouds as a novel atmospheric biosignature

Santl-Temkiv, T., Sahyoun, M., Korsholm, U., Sørensen, J. H., Nielsen, N. W., Kjeldsen, H., Ling, M., Boesen, T. & Karlson, U. G., 20 maj 2014.

Molecular and physical characterization of bacterial ice nucleation proteins provide an insight into their biosignature potential.

Ling, M., Santl-Temkiv, T., Finster, K. & Boesen, T., 20 maj 2014.

Remote detection of biological pigments by spectro-polarimetry

Berdyugina, S., Santl-Temkiv, T., Finster, K. & Kuhn, J., 20 maj 2014.

Airborne Pseudomonas sp. and the ice nucleation activity of their cell fragments

Santl-Temkiv, T., Sahyoun, M., Ling, M., Boesen, T., Hartmann, S., Augustin, S., Stratmann, F., Wex, H., Korsholm, U. S., Nielsen, N. W., Sørensen, J. H., Karlson, U. G. & Finster, K., 26 apr. 2014.

Microbial production of ice crystals in clouds as a novel atmospheric biosignature

Santl-Temkiv, T., Sahyoun, M., Kjeldsen, H., Ling, M., Boesen, T., Karlson, U. G. & Finster, K., 19 mar. 2014.

Detection of airborne bacteria with UV-Vis-NIR spectroscopy

Zou, Z., Temkiv, T. S., Jakobsson, J., Benneke, B., Grundahl, F., Kjeldsen, H., Finster, K. & Löndahl, J., 2014.

The impact of INA bacteria on ice and precipitation formation - A model study

Sahyoun, M., Nielsen, N. W., Sørensen, J. H., Finster, K., Gosewinkel, U. B., Temkiv, T. S., Augustin, S., Hartmann, S., Niedermeier, D., Stratmann, F., Wex, H. & Korsholm, U. S., 2014.

Hailstones: A window into the microbial and chemical inventory of a storm cloud

Temkiv, T. S., Finster, K., Dittmar, T., Hansen, B. M., Thyraug, R., Nielsen, N. W. & Gosewinkel, U. B., 2013, I: P L o S One. 8, 1

Heterogeneous ice nucleation on biological particles: Bacteria and pollen

Stratmann, F., Augustin, S., Clauss, T., Hartmann, S., Grothe, H., Niedermeier, D., Pummer, B., Santl-Temkiv, T. & Wex, H., 2013, I: AIP Conference Proceedings. s. 891-894 4 s.

Immersion freezing of ice nucleation active protein complexes

Hartmann, S., Augustin, S., Clauss, T., Wex, H., Temkiv, T. S., Voigtländer, J., Niedermeier, D. & Stratmann, F., 2013, I: Atmospheric Chemistry and Physics. s. 5751-5766

Vejrudsigten: nu med bakterier

Finster, K., Temkiv, T. S. & Gosewinkel, U. B., 2013, I: Aktuel Naturvidenskab. 6, s. 6-11 5 s.

Viable methanotrophic bacteria enriched from air and rain can oxidize methane at cloud-like conditions

Temkiv, T. S., Finster, K., Hansen, B. M., Pasic, L. & Gosewinkel, U. B., 2013, I: Aerobiologia. 29, 3, s. 373-384

Atmospheric methane oxidation by airborne methanotrophic bacteria at cloudlike conditions

Temkiv, T. S., Finster, K., Hansen, B. M., Pasic, L. & Karlson, U. G., 20 aug. 2012.

Hailstones: a window into microbial life in storm clouds

Temkiv, T. S., Finster, K., Dittmar, T., Hansen, B. M., Thyraug, R., Nielsen, N. W. & Karlson, U. G., 20 aug. 2012.

Hailstones: a window into microbial life in storm clouds

Temkiv, T. S., Finster, K., Dittmar, T., Hansen, B. M., Thyraug, R., Nielsen, N. W. & Gosewinkel, U. B., aug. 2012.

Studying low bacterial density environments: Reducing background contamination problems with sensitive DNA-targeting techniques

Temkiv, T. S., Finster, K. & Gosewinkel, U. B., aug. 2012.

Studying low bacterial density environments: Reducing background contamination problems with sensitive DNA-targeting techniques

Temkiv, T. S., Finster, K. & Gosewinkel, U. B., aug. 2012.

Can the diverse bacterial community grow on dissolved organic matter in a storm cloud?

Temkiv, T. S., Finster, K., Dittmar, T., Hansen, B. M., Thyrrhaug, R. & Nielsen, N. W., 2012.

Can the diverse bacterial community grow on dissolved organic matter in a storm cloud?

Temkiv, T. S., Finster, K., Dittmar, T., Hansen, B. M., Thyrrhaug, R., Nielsen, N. W. & Gosewinkel, U. B., 2012.

Can the diverse bacterial community grow on dissolved organic matter in a storm cloud?

Temkiv, T. S., Finster, K., Dittmar, T., Hansen, B. M., Thyrrhaug, R., Nielsen, N. W. & Gosewinkel, U. B., 2012. 1 s.

Comparison of methods for generating bioaerosols

Löndahl, J., Nerbrink, O., Massling, A. & Temkiv, T. S., 2012.

Er der liv derude?

Finster, K., Temkiv, T. S. & Kjeldsen, H., 2012, I: *Aktuel Naturvidenskab*. 6, s. 22-25 4 s.

Immersion freezing of biological particles

Hartmann, S., Temkiv, T. S., Pummer, B., Augustin, S., Clauss, T., Niedermeier, D., Wex, H., Voigtländer, J., Gosewinkel, U. B., Grothe, H. & Stratmann, F., 2012.

Immersion freezing of biological particles investigated at LACIS

Hartmann, S., Augustin, S., Temkiv, T. S., Gosewinkel, U. B., Clauss, T., Niedermeier, D., Wex, H., Voigtländer, J. & Stratmann, F., 2012.

Metagenomics of clouds and atmosphere

Temkiv, T. S., Finster, K. & Gosewinkel, U. B., 2012, *Encyclopedia of Metagenomics*. Springer Science+Business Media

The application of a decontamination technique within the study of low bacterial density environments

Temkiv, T. S., Finster, K. & Gosewinkel, U. B., 2012. 11 s.

The application of a decontamination technique within the study of low bacterial density environments

Temkiv, T. S., Finster, K. & Gosewinkel, U. B., 2012.

The microbial diversity of a storm cloud as assessed by hailstones

Temkiv, T. S., Finster, K., Hansen, B. M., Woetmann Nielsen, N. & Gosewinkel, U. B., 2012, I: *F E M S Microbiology Ecology*. 81, 3, s. 684-695

The impact of bacteria in clouds on atmospheric processes: PhD

Temkiv, T. S., 31 okt. 2011, Institut for Miljøvidenskab: Aarhus Universitet, Institut for Miljøvidenskab. 154 s.