Towards a structural understanding of plant-microbiota interactions using cryo-EM techniques

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Curriculum Vitæ

Janine Liedtke was born in Berlin, Germany, in 1983. She studied Biology at the Freie Universität Berlin and obtained her B.Sc. in 2012. She continued her studies in microbiology at the Rheinische Friedrich-Wilhelms-Universität Bonn, earning her M.Sc. degree in 2015. During her master's studies, she participated in the Erasmus programme at the University of Bergen, Norway (2013–2014), focusing on environmental and food microbiology.

From 2016 to 2018, she worked at the European Space Research and Technology Centre (ESTEC) in the Netherlands, contributing to ESA's MELiSSA project on microbial life support systems for long-term space missions, as well as to activities within the Human Spaceflight and Robotic Exploration department.

Between 2018 and 2020, she worked at the Norwegian University of Life Sciences (NMBU) on the *Bacillus cereus* endospore appendages project in the field of food safety. She performed method development for the extraction and purification of non-soluble spore surface structures for further structural investigation and conducted a short-term research visit at Vrije Universiteit Brussel in Belgium in 2019, focusing on structural investigation techniques by cryo-EM.

In 2020, she joined the Microbial Ultrastructure group led by Prof. Ariane Briegel at Leiden University to pursue her PhD. Her research focused on the structural investigation of plant-associated microbiota and the development of workflows for large-volume biological sample preparation for cryo-electron tomography (cryo-ET).

From January to March 2024, she conducted a research visit at the Central European Institute of Technology (CEITEC) in Brno, Czech Republic, in the group of Jiří Nováček, Ph.D. There, she worked on PFIB/SEM instruments and developed workflows for high-resolution imaging of cryofixed samples, including plant tissue, and arbuscular mycorrhizal fungi. She optimized her experimental design and cryo-electron microscopy techniques to establish reproducible protocols for future studies.

List of Publications

1. **Liedtke, J.**, Rodenburg, F., Du, C., Zhang, L., van Wezel, G. P., & Briegel, A. (2025). Morphological plasticity of endophytic *Chitinophaga pinensis*. *bioRxiv*, 2025.07.09.663833. https://doi.org/10.1101/2025.07.09.663833. (preprint)
2. Munar-Palmer, M., Santamaría-Hernando, S., **Liedtke, J.**, Ortega, D. R., López-Torrejón, G., Rodríguez-Herva, J. J., Briegel, A., & López-Solanilla, E. (2024). Chemosensory systems interact to shape relevant traits for bacterial plant pathogenesis. mBio, 15(7), e0087124. https://doi.org/10.1128/mbio.00871-24.
3. **Liedtke, J.**, Depelteau, J. S., & Briegel, A. (2022). How advances in cryo-electron tomography have contributed to our current view of bacterial cell biology. Journal of Structural Biology X, 6, 100065. https://doi.org/10.1016/j.yjsbx.2022.100065.
4. Kaplan, M., Chreifi, G., Metskas, L. A., **Liedtke, J.**, Wood, C. R., Oikonomou, C. M., Nicolas, W. J., Subramanian, P., Zacharoff, L. A., Wang, Y., Chang, Y. W., Beeby, M., Dobro, M. J., Zhu, Y., McBride, M. J., Briegel, A., Shaffer, C. L., & Jensen, G. J. (2021). In situ imaging of bacterial outer membrane projections and associated protein complexes using electron cryo-tomography. eLife, 10, e73099. https://doi.org/10.7554/eLife.73099.
5. **Liedtke, J.***, Pradhan, B.*, Sleutel, M., Lindbäck, T., Zegeye, E. D., O'Sullivan, K., Llarena, A. K., Brynildsrud, O., Aspholm, M., & Remaut, H. (2021). Endospore Appendages: a novel pilus superfamily from the endospores of pathogenic Bacilli. EMBO Journal, 40(17), e106887. https://doi.org/10.15252/embj.2020106887. (*shared first authorship)
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7. Brinkert, K., Akay, Ö., Richter, M. H., **Liedtke, J.**, Giersig, M., Fountaine, K. T., & Lewerenz, H.-J. (2019). Experimental methods for efficient solar hydrogen production in microgravity environment. Journal of Visualized Experiments, 154, e59122. https://doi.org/10.3791/59122.
8. Brinkert, K., Richter, M. H., Akay, Ö., **Liedtke, J.**, Giersig, M., Fountaine, K. T., & Lewerenz, H.-J. (2018). Efficient solar hydrogen generation in microgravity environment. Nature Communications, 9(1), 2527. https://doi.org/10.1038/s41467-018-04968-w.
9. **Liedtke, J.**, & Vahjen, W. (2012). In vitro antibacterial activity of zinc oxide on a broad range of reference strains of intestinal origin. Veterinary Microbiology, 160(1-2), 251-255. https://doi.org/10.1016/j.vetmic.2012.05.013.