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Education
2016 PhD in Palaeogenetics, Faculty of Science, University of Copenhagen. Thesis: *Palaeo-Environmental Reconstruction Using Ancient DNA*. Awarded 22 November 2016.
2011 MSc in Geography and Geoinformatics, University of Copenhagen.
2009 BSc in Geography and Geoinformatics, University of Copenhagen.

Current position
September 2026–present Associate Professor, Globe Institute, University of Copenhagen. Group Leader of the Palaeo-Environmental Genomics Group.

Previous positions
2022–2026 Tenure-track Assistant Professor, Globe Institute, University of Copenhagen.
2019–2022 Assistant Professor, Globe Institute, University of Copenhagen.
2019 Postdoctoral Researcher, Lundbeck Foundation Centre for GeoGenetics.
2017–2019 Carlsberg Foundation Postdoctoral Researcher, Evolutionary Ecology Group, Department of Zoology, University of Cambridge, UK.
2016–2017 Researcher, Centre for GeoGenetics, Natural History Museum of Denmark.

Research leadership and supervision
I lead the Palaeo-Environmental Genomics Group and coordinate field, laboratory and analytical research across interdisciplinary collaborations. I have supervised 12 MSc students, 9 PhD students and 11 postdoctoral researchers as main or co-supervisor, alongside BSc students, visiting researchers and research assistants.

Teaching and academic service
Course responsible and teacher for the PhD course Ancient Environmental Genomics, run for four consecutive years. Elected member of the Globe Institute Board and Scientific Board member of the Sedimentary Ancient DNA Society.
Organiser, 3rd sedaDNA Scientific Society Meeting, Copenhagen, 28–30 June 2027 (in preparation). Peer reviewer for Nature, Science, PNAS, Cell, Nature Communications, Current Biology and other journals.

Selected funding
Individual awards and grants
2026 Carlsberg Foundation Conference Grant CF26-1390: DKK 79,900, awarded 16 October 2026 for the 3rd sedaDNA Scientific Society Meeting (June 2027).
2018–2019 Main applicant. Carlsberg Internationalisation Grant CF16-0728 (DKK 0.4 million).
2017–2018 Main applicant. Carlsberg Internationalisation Grant CF17-0275 (DKK 0.4 million).

Collaborative projects and centres

Amounts below are total project or centre budgets, rather than individual funding secured or managed by me.

2026–2029 Scientific team member. TIME-DNA, Horizon Europe Twinning (€1.50 million; DKK 11.2 million).

2024–2031 Co-PI. Ancient Environmental Genomics Initiative for Sustainability (AEGIS), Novo Nordisk Foundation and Wellcome (up to DKK 585 million).

2023–2029 Co-PI. Centre for Ancient Environmental Genomics, Danish National Research Foundation Centre of Excellence (DKK 75 million).

2019–2025 Co-PI. ERC Advanced Grant LASTJOURNEY, grant 834514 (DKK 18.6 million).

2019–2023 Co-applicant. Marie Skłodowska-Curie Actions SeaChanges project (DKK 31.5 million).

Field experience

I have led expeditions in Alaska (2026), US (2026), Morocco (2025), Canada (2012–2013), northern Sweden (2014), and the Republic of the Congo (2018), with additional fieldwork in Greenland, Laos, Colombia, Tajikistan, and Azerbaijan. I have also participated in fieldwork across Europe, the Americas, and the Arctic.

Research achievements

My publications include papers in Nature, Nature Communications, Nature Ecology & Evolution, Current Biology and Annual Review of Plant Biology. My work contributed to research recognised as second runner-up for Science's Breakthrough of the Year in 2021 and as Science's Breakthrough of the Year in 2022. Publications have received substantial international attention, including two Nature covers and coverage in The New York Times.

Selected invited talks and keynotes

Ancient environmental genomics: A geneticist's window into past ecosystems. 1st International Conference in PaleoGenomics, 24 June 2026. Keynote speaker.

Applications of Sedimentary Ancient DNA in Evolutionary Anthropology. Symposium, University of Vienna, Austria, 7 November 2025. **Invited speaker.**

Meadowcroft Rockshelter from a metagenomics perspective. Society for American Archaeology (SAA), 25 April 2025. **Invited speaker.**

Deep-time genomics. Kaamos Symposium, University of Oulu, 4 December 2024. **Keynote speaker.**

Selected public engagement and media

Featured in internationally broadcast documentaries, including the Emmy-winning Hunt for the Oldest DNA, and in The New York Times, The Guardian and National Geographic. Public engagement includes Folkemødet, national television appearances, newspaper interviews, public lectures recently at Forskningens Døgn, and Arktisk Festival.

Selected publications

1. Kjær, K. H., et al. Environmental DNA reveals Reykjavík's human and ecological history. *Nature*, accepted. Co-author: **Pedersen, M. W.**
Co-author; led bioinformatic processing and interpretation.

2. Sawafuji, R., Sawaura, R., Yokoo, M., Kumaki, T., Thomasen, N. A., Tsutaya, T., & **Pedersen, M. W.** (2026). From bones to sediments: Ancient human DNA from open-air archaeological sites. *Journal of Archaeological Science*, 189, 106537. doi:10.1016/j.jas.2026.106537
Senior author; supervision, analysis, interpretation and manuscript writing.

3. Wang, Y., Schleheck, D., Marinova, E., Wessels, M., Schaller, S., Anselmetti, F. S., Schwalb, A., **Pedersen, M. W.**, & Epp, L. S. (2026). Prokaryotic assemblages recovered by sedimentary DNA record natural and human-driven disturbances over the past 13,500 years in a cultural landscape. *The ISME Journal*, 20, wrag031. doi:10.1093/ismejo/wrag031
Co-senior author; supervision, analysis, interpretation and manuscript writing.

4. Zampirolo, G., Holman, L. E., Sawafuji, R., Ptáková, M., Kovačiková, L., Šída, P., Pokorný, P., **Pedersen, M. W.**, & Walls, M. (2024). Tracing early pastoralism in Central Europe using sedimentary ancient DNA. *Current Biology*, 34, 4650–4661.e4. doi:10.1016/j.cub.2024.08.047
Senior and corresponding author; conceived the study, secured funding and supervised the first author.

5. Kjær, K. H., **Pedersen, M. W.**, De Sanctis, B., et al. (2022). A 2-million-year-old ecosystem in Greenland uncovered by environmental DNA. *Nature*, 612, 283–291. doi:10.1038/s41586-022-05453-y
Co-first author; led metagenomic analyses and contributed to the analytical framework and manuscript.

6. Wang, Y., Korneliussen, T. S., Holman, L. E., Manica, A., & **Pedersen, M. W.** (2022). ngsLCA—A toolkit for fast and flexible lowest common ancestor inference and taxonomic profiling of metagenomic data. *Methods in Ecology and Evolution*, 13, 2699–2708. doi:10.1111/2041-210X.14006
Senior and corresponding author; conceived the method and supervised development and testing.

7. Wang, Y., **Pedersen, M. W.**, Alsos, I. G., et al. (2021). Late Quaternary dynamics of Arctic biota from ancient environmental genomics. *Nature*, 600, 86–92. doi:10.1038/s41586-021-04016-x
Co-first author; multiproxy analyses, metagenomic analysis, initial interpretation and manuscript drafts.

8. **Pedersen, M. W.**, De Sanctis, B., Saremi, N. F., et al. (2021). Environmental genomics of Late Pleistocene black bears and giant short-faced bears. *Current Biology*, 31, 2728–2736.e8. doi:10.1016/j.cub.2021.04.027
First author; led fieldwork, multiproxy analyses, metagenomic analysis and the initial manuscript.

9. **Pedersen, M. W.**, Ruter, A., Schweger, C., et al. (2016). Postglacial viability and colonization in North America's ice-free corridor. *Nature*, 537, 45–49. doi:10.1038/nature19085
First author; led fieldwork, multiproxy analyses, metagenomic analysis and the initial manuscript.