

## Miguel Méndez Sandín, Ph.D.

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<b>Personal website</b>	<a href="https://MiguelMSandin.github.io">MiguelMSandin.github.io</a>	
<b>Other websites</b>	Research Gate: <a href="#">Miguel-Mendez-Sandin</a>	Google Scholar: <a href="#">Miguel Mendez Sandin</a>
	Protocols.io: <a href="#">miguel-mendez-sandin1</a>	GitHub: <a href="#">MiguelMSandin</a>
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### Professional experience

01/09/2024 - 31/08/2026	<b>Marie Skłodowska-Curie Actions Postdoctoral Fellow</b> , Institute of Evolutionary Biology, CSIC - Pompeu Fabra University, Spain <i>Host:</i> <a href="#">Daniel J. Richter</a> <i>Project:</i> The hidden majority: high-resolution imaging and genomics of the most ecologically important microbial eukaryotes in the ocean
01/03/2023 - Present	<b>Beatriu de Pinos Postdoctoral Fellow</b> , Institute of Evolutionary Biology, CSIC - Pompeu Fabra University, Spain <i>Host:</i> <a href="#">Daniel J. Richter</a> <i>Project:</i> The hidden majority: high-resolution imaging of the most ecologically important microbial eukaryotes in the ocean
08/09/2022 - 28/02/2023	<b>Parental leave</b>
15/09/2020 - 07/09/2022	<b>Postdoctoral researcher</b> , Dept. of Organismal Biology, Uppsala University, Sweden <i>Advisor:</i> <a href="#">Fabien Burki</a> <i>Project:</i> Eco-evolution of microbial eukaryotes, insights from metabarcoding surveys <i>Experience:</i> Diversification analysis, networks analysis, large data mining, lecturer, workshop organisation, fluorescence in situ hybridization
01/10/2016 - 30/11/2019	<b>Ph.D. Student</b> , Biological Station of Roscoff, CNRS - Sorbonne University, France <i>Supervisor:</i> <a href="#">Fabrice Not</a> <i>Project:</i> Diversity and Evolution of Nassellaria and Spumellaria (Radiolaria) <i>Experience:</i> Single-cell molecular approaches, phylogenetics, molecular clock, metabarcoding and next generation sequencing analysis, scanning electron and confocal microscopy, student supervision
01/03/2016 - 31/05/2016	<b>Research assistant</b> , Biological Station of Roscoff - Sorbonne University, France <i>Supervisor:</i> <a href="#">Sophie Martin</a> <i>Project:</i> Impact of global and local changes in Maerl, red algae <i>Experience:</i> Experimental development
05/10/2015 - 29/01/2016	<b>Research assistant</b> , Oviedo University, Spain <i>Supervisor:</i> <a href="#">Eva Garcia-Vazquez</a> <i>Project:</i> Top-down regulation in freshwater communities suggested from environmental DNA. A case study in mountain stream communities <i>Experience:</i> Field work, environmental DNA sampling and analysis
12/01/2015 - 30/06/2015	<b>Master thesis</b> , Oviedo University, Spain <i>Supervisor:</i> <a href="#">Consolación Fernández</a> <i>Project:</i> Long-term changes in low intertidal rocky shore assemblages in the coast of Cape Peñas (North of Spain). <i>Experience:</i> Multivariate analysis

## Education

01/10/2016 - 31/11/2019	<b>Ph.D. in molecular diversity and evolution</b> , Biological Station of Roscoff - Sorbonne University, France. <i>Supervisor: Fabrice Not.</i> Awarded on <b>November 22, 2019</b>
- 28/01 - 09/02/2019	Visiting scientist: Institute of Marine Science, CSIC, Barcelona (Spain). <i>Host: Ramón Massana</i>
- 15/10 - 07/12/2018	Visiting scientist: National Institute of Water and Atmospheric Research, Wellington (New Zealand). <i>Host: Andrés Gutiérrez</i>
- 30/10 - 03/11/2017	Visiting scientist: Tropical Biosphere Research Center, Okinawa (Japan). <i>Host: Noritoshi Suzuki</i>
- 05/10 - 28/10/2016	Visiting scientist: Oceanographic Observatory of Villefranche sur Mer, CNRS (France). <i>Host: John Dolan</i>
02/09/2013 - 30/06/2015	<b>International MSc in Marine Biodiversity and Conservation</b> (EMBC+)
- 12/01 - 30/06/2015	Oviedo University, Spain. Master Thesis. <i>Supervisor: Consolación Fernández</i>
- 01/09 - 19/12/2014	Sorbonne University, France
- 07/04 - 18/04/2014	Göteborg University, Sweden. Spring School. <i>Supervisor: Rick Officer</i>
- 02/09/2013 - 27/06/2014	Algarve University, Portugal
29/09/2008 - 04/06/2013	<b>BSc in Biology</b> , Ecology speciality. 311 ECTS. Oviedo University, Spain
- 14/01 - 31/07/2013	Student intern: Ecology department. <i>Supervisor: Jose Luis Acuña</i>
- 03/09 - 21/12/2012	ERASMUS: Klaipeda University, Lithuania
04/09/2006 - 31/06/2008	<b>International Baccalaureate</b> , IES Real Instituto de Jovellanos, Gijón, Spain

## Fellowships and awards

2023	<b>Marie Skłodowska-Curie Actions - Postdoctoral Fellowship</b> (MSCA-2022-PF 101103530): 181 152.96 € (2 years); score: 98.6%
2022	<b>Postdoctoral fellowship Beatriz de Pinós</b> (2021 BP 00068): 144 300 € (3 years); score: 87.3%
10/05/2022	International Society Of Protistologists (ISOP) <b>grant</b> to attend Protistology Nordics
22/01/2020	<b>Best oral presentation award</b> in Young Researchers Day (JJC) Biological Station of Roscoff, France
2019	The Micropalaeontological Society: Microfossil Image Competition & Calendar 2019
07/12/2018	<b>3<sup>rd</sup> best oral presentation award</b> in Young Researchers Day (JJC) Biological Station of Roscoff, France
24/10/2017	<b>Best oral presentation for Young Scientists</b> in InterRad XV, Japan
15/05/2017	Young Research Association (AJC, Biological Station of Roscoff) <b>grant</b> to attend InterRad XV, France
2016 - 2019	<i>Agence Nationale de la Recherche</i> (ANR) and the Brittany Region Grants, France, to carry out doctoral studies (PhD)
2008 - 2013	Scholarship to study BSc from the National Ministry of Education, Spain

## Skills and qualifications

<b>Languages</b>	Spanish: Native English: Working knowledge French: Conversational Portuguese: Basics	<b>Softwares</b>	LibreOffice: Extensive experience Inkscape: Advanced FIJI and GIMP: User-level
<b>Programming</b>	R and python: Advanced Bash, UNIX/LINUX: Intermediate	<b>Driving licence</b>	B
		<b>Diving</b>	GUE fundamentals (Nitrox 32) SSI advanced and scientific

## Professional training

24/06 - 28/06/2019	Evolutionary Networks, AIRE Team, Sorbonne University
14/05 - 18/05/2018	Metabarcoding Analysis, IFREMER
01/18 - 01/19/2018	Data Management With Python, ABiMS, Biological Station of Roscoff
16/05 - 17/05/2017	Advanced Linux, ABiMS, Biological Station of Roscoff
02/03/2017	Advanced R Language, ABiMS, Biological Station of Roscoff
06/03 - 10/03/2017	Phylogenetic Analysis Using R, Barcelona
27/11 - 06/12/2015	International Summer School: New challenges for research in biodiversity and ecology of micro- and macro-algae. ECIM, Las Cruces, Chile
19/01 - 14/03/2015	Statistical Online Course: Statistical Learning. Stanford University
02/10/2013 - 14/04/2014	Diving: GUE Fundamentals (Nitrox 32), Advanced & scientific diver 1 (SSI)

## Teaching

06/04/2022	<b>Lecturer:</b> 2.5 hours: Diversity of single-celled marine eukaryotes, Uppsala University, Sweden. Bachelor students year 1.
29/11 - 03/12/2021	<b>Invited teacher assistant:</b> 30 hours. Novel methods for exploring molecular microbial diversity: long-read sequencing. Masters " <i>Océanographie et Environnements Marins</i> " (OEM), Biological Station of Roscoff, France
15/04/2021	<b>Lecturer:</b> 1.5 hours: Diversity of single-celled marine eukaryotes, Uppsala University, Sweden. Bachelor students year 1.
19/01/2021	<b>Organiser and lecturer:</b> 8 hours: An introduction to Sequence Similarity Networks, Uppsala University, Sweden. Systematic Biology.
12/04 - 13/04/2018	<b>Teacher assistant:</b> 12 hours. Single-cell molecular approaches for studying mixotrophs, Biological Station of Roscoff, France. MixITiN MSCA-ITN.
20/11 - 24/11/2017	<b>Teacher assistant:</b> 30 hours. Marine MICROorganisms: MOLEcular approaches to their taxonomic and functional diversity (MICROMOL). Masters " <i>Océanographie et Environnements Marins</i> " (OEM) and "Marine Biodiversity and Conservation" (EMBC), Biological Station of Roscoff, France

## Supervision

31/03/2022	<u>Thomas M. Huber</u> , Master thesis: Little big data - extending plastid genome databases using marine planktonic metagenomes. Master: Erasmus Mundus Master Programme in Evolutionary Biology, Uppsala University, Sweden. <b>Opponent</b>
08/01 - 18/06/2018	<u>Elsa Gadoin</u> , Master thesis: Molecular diversity of microalgae in symbiosis with Nassellaria and Spumellaria (Radiolaria). Master: " <i>Océanographie et Environnements Marins</i> ", Sorbonne University, France

## Outreach

01/10 - 11/10/2021	<i>Fête de la Science</i> : interactive poster: Rhizaria (Ocean Touch), Brest, France
13/02/2020	Introducing biodiversity and DNA to high-school students, Morlaix, France
06/10/2019	<i>Fête de la Science</i> : Introducing plankton to the public, Morlaix, France
15/10/2017	<i>Fête de la Science</i> : Introducing plankton to the public, Roscoff, France

## Expeditions & Fieldworks

21/10 - 21/11/2018	<b>TAN1810</b> expedition, 5 weeks, <i>Tangaroa</i> Ocean Research Vessel, New Zealand
11/09 - 24/09/2017	<b>Bio-MOOSE</b> expedition, 2 weeks, <i>L'atalante</i> Ocean Research Vessel, France
28/04 - 04/05/2013	<b>BioCant 3</b> expedition, 1 week, <i>Sarmiento de Gamboa</i> Ocean Research Vessel, Spain

## Conferences

11/07/2023	IX ECOP - ISOP Joint meeting, Rome, Italy: <b>Talk</b>
05/07/2023	<i>Jornada de Biología Evolutiva</i> , Barcelona, Spain: <b>Talk</b>
20/01/2023	International Society for Evolutionary Protistology (ISEP), virtual meeting: <b>Talk</b>
13/09/2022	16th InterRad congress, Ljubljana, Slovenia: <b>Talk</b> (Previously recorded)
22/06/2022	Systematic Biology Seminar Series, Uppsala University, Sweden: <b>Talk</b>
10/05/2022	Protistology Nordics, Natural History Museum of Oslo, Norway: <b>Talk</b>
21/10/2021	Systematic Biology Seminar Series, Uppsala University, Sweden: <b>Talk</b>
22/01/2020	Young Researchers Day, Biological Station of Roscoff, France: <b>Talk &amp; Poster</b>
30/07/2019	VIII ECOP - ISOP Joint meeting, Rome, Italy: <b>Talk</b>
07/12/2018	Young Researchers Day, Biological Station of Roscoff, France: <b>Talk &amp; Poster</b>
24/10/2017	15th InterRad congress, Niigata, Japan: <b>Talk</b>
08/12/2016	Young Researchers Day, Biological Station of Roscoff, France: <b>Flash-Talk</b>

## Scientific services

Reviewer for [ISME](#), [Molecular Ecology Resources](#), [PNAS](#) and [Protist](#) journals since 2020

Expert curator of PR2, Radiolaria: [pr2-database.org/team/](https://pr2-database.org/team/)

## Other scientific output

A total of 16 Silhouettes of Radiolaria available to the public domain for further presentations, manuscripts and outreach purposes: available at [beta.phylopic.org/](https://beta.phylopic.org/)

A pipeline for the high throughput design of specific primers/probes: [github.com/MiguelMSandin/oligoN-design](https://github.com/MiguelMSandin/oligoN-design)

An introduction to Sequence Similarity Networks: [github.com/MiguelMSandin/SSNetworks](https://github.com/MiguelMSandin/SSNetworks)

A practical guide to phylogenetic analyses: [miguelmsandin.github.io/phylogeniesQuickStart](https://miguelmsandin.github.io/phylogeniesQuickStart)

A set of scripts and functions to deal with common DNA fasta files and phylogenetic trees through the command line: [github.com/MiguelMSandin/random](https://github.com/MiguelMSandin/random)

A tool to estimate the entropy of a multiple sequence alignment (published in Sandin et al., 2021)

[github.com/MiguelMSandin/DNA-alignment-entropy](https://github.com/MiguelMSandin/DNA-alignment-entropy)

A wet-laboratory protocol for single-cell rDNA amplification of Nassellaria (doi: [10.17504/protocols.io.t5req56](https://doi.org/10.17504/protocols.io.t5req56)) and Spumellaria (doi: [10.17504/protocols.io.xwvfpe6](https://doi.org/10.17504/protocols.io.xwvfpe6))

A protocol for cleaning and staining of radiolaria skeletons to be imaged in a confocal microscope (doi: [10.17504/protocols.io.t5qeq5w](https://doi.org/10.17504/protocols.io.t5qeq5w))

A protocol for scanning electron microscopy imaging of opaline silica single-cell skeletons (Polycystine Radiolaria: doi: [10.17504/protocols.io.ug9etz6](https://doi.org/10.17504/protocols.io.ug9etz6))

## Publications

Total citations: 244

H-index: 9 (Excluding self-citations: 9)

## Pre-prints

Llopis-Monferrer N, Romac S, Laget M, Biard T, **Sandin MM** (2024) Gelatinous matrix, an original convergent evolution to cope with oligotrophy in Nassellaria (Radiolaria). *bioRxiv*. 2024.01.22.576765 doi:

[10.1101/2024.01.22.576765](https://doi.org/10.1101/2024.01.22.576765)

## Peer reviewed publications

- Llopis-Monferrer N, Biard T, **Sandin MM**, Lombard F, Picheral M, Elineau A, Guidi L, Leynaert A, Tréguer PJ, Not F (2022) Siliceous Rhizaria abundances and diversity in the Mediterranean Sea assessed by combined imaging and metabarcoding approaches. *Front. Mar. Sci.* 9:895995. doi: [10.3389/fmars.2022.895995](https://doi.org/10.3389/fmars.2022.895995)
- Sandin MM**, Romac S, Not F (2022) Intra-genomic rDNA gene variability of Nassellaria and Spumellaria (Rhizaria, Radiolaria) assessed by Sanger, MinION and Illumina sequencing. *Environ Microbiol.* 24(7):2979-2993. doi: [10.1111/1462-2920.16081](https://doi.org/10.1111/1462-2920.16081)
- Xiao L, Johansson S, Rughöft S, Burki F, **Sandin MM**, Tenje M, Behrendt L (2022) Photophysiological response of Symbiodiniaceae single cells to temperature stress. *ISME J* doi:[10.1038/s41396-022-01243-6](https://doi.org/10.1038/s41396-022-01243-6)
- Burki F, **Sandin MM**, and Mahwash J (2021) Diversity and ecology of protists revealed by metabarcoding. *Curr. Biol.* 31-19: R1267-R1280. Doi: [10.1016/j.cub.2021.07.066](https://doi.org/10.1016/j.cub.2021.07.066)
- Sandin MM**, Biard T, Romac S, O'Dogherty L, Suzuki N, Not F (2021) A Morpho-molecular Perspective on the Diversity and Evolution of Spumellaria (Radiolaria). *Protist.* 172, 125806. doi:[10.1016/j.protis.2021.125806](https://doi.org/10.1016/j.protis.2021.125806)
- Llopis-Monferrer N, Boltovskoy D, Tréguer P, **Sandin MM**, Not F, Leynaert A (2020) Estimating biogenic silica production of Rhizaria in the global ocean. *Global Biogeochemical Cycles*, 34, e2019GB006286. doi:[org/10.1029/2019GB006286](https://doi.org/10.1029/2019GB006286)
- Nakamura Y, **Sandin MM**, Suzuki N, Somiya R, Tuji A, Not F (2020) Phylogenetic revision of the order Entactinaria—Paleozoic relict Radiolaria (Rhizaria, SAR). *Protist* 171. doi:[10.1016/j.protis.2019.125712](https://doi.org/10.1016/j.protis.2019.125712)
- Sandin MM**. Diversity and Evolution of Nassellaria and Spumellaria (Radiolaria). Protistology. Sorbonne Université, 2019. **PhD Thesis**. HAL Id : [tel-03137926](https://tel.archives-ouvertes.fr/tel-03137926)
- Qui-minet ZN, Coudret J, Davoult D, Grall J, Cariou T, **Sandin MM**, Martin S (2019) Combined effects of global climate change and nutrient enrichment on the physiology of three temperate maerl species. *Ecol.* 00, 1–21. doi:[10.1002/ece3.5802](https://doi.org/10.1002/ece3.5802)
- Sandin MM**, Pillet L, Biard T, Poirier C, Bigeard E, Romac S, Suzuki N, Not F (2019) Time Calibrated Morpho-molecular Classification of Nassellaria (Radiolaria). *Protist* 170, 187–208. doi:[10.1016/j.protis.2019.02.002](https://doi.org/10.1016/j.protis.2019.02.002) (**Journal cover**)
- Villar E, Dani V, Bigeard E, Linhart T, **Sandin MM**, Bachy C, Six C, Lombard F, Sabourault C, Not F (2018) Symbiont Chloroplasts Remain Active During Bleaching-Like Response Induced by Thermal Stress in Collozoum pelagicum (Collodaria, Retaria). *Front. Mar. Sci.* 5, 1–11. doi:[10.3389/fmars.2018.00387](https://doi.org/10.3389/fmars.2018.00387)
- Fernandez S, **Sandin MM**, Beaulieu PG, Clusa L, Martinez JL, Ardura A, García-Vázquez E (2018) Environmental DNA for freshwater fish monitoring: insights for conservation within a protected area. *PeerJ* 6 e4486. doi:[10.7717/peerj.4486](https://doi.org/10.7717/peerj.4486)
- Sandin MM**, Fernández C (2016) Changes in the structure and dynamics of marine assemblages dominated by Bifurcaria bifurcata and Cystoseira species over three decades (1977-2007). *Estuar. Coast. Shelf Sci.* 175, 46–56. doi:[org/10.1016/j.ecss.2016.03.015](https://doi.org/10.1016/j.ecss.2016.03.015)