

Maria de Fátima Cardoso Pereira, PhD

Division of Microbial Ecology, Department of Microbiology and Ecosystem Science, Centre for Microbiology and Environmental Systems Science, University of Vienna

Address: Althanstrasse 14, A-1090 Wien, Austria

E-mails: fatima.pereira@univie.ac.at; faticardosopereira@gmail.com

Tel: +43 1 4277 76638

Nationality: Portuguese

Websites: <https://orcid.org/0000-0002-1288-6481>

Main Areas of Research

Microbiome research; microbial ecology; genetics and molecular microbiology; microbial pathogenesis; anaerobic microbiology; stable-isotope probing methods to study the function of microorganisms in complex communities; genomics and metagenomics; *in vivo* infection and colonization models; small RNAs and RNA modifications.

Academic Degrees

July 2014 - PhD Degree in Biology (branch Molecular Biology), Instituto de Tecnologia Química e Biológica, New University of Lisbon, Portugal.

September 2006 – Bachelor Degree (5 years Degree) in Biological Engineering, Instituto Superior Técnico, Technical University of Lisbon (IST-UTL, Lisbon, Portugal).

Scientific Experience

Current position: Senior Postdoc/Principal Investigator (Project grant). Division of Microbial Ecology, Department of Microbiology and Ecosystem Science, University of Vienna, Austria.

September 2014 – June 2019: Postdoc/Marie Skłodowska-Curie Individual Postdoctoral Fellow at the Division of Microbial Ecology, University of Vienna, Austria. Supervision/Host: Prof. David Berry.

October 2008 – July 2014. PhD student in Molecular Biology, Instituto de Tecnologia Química e Biológica, Universidade Nova de Lisboa, Portugal. Supervision: Professor Adriano O. Henriques. PhD thesis entitled “Sporulation as a virulence factor in epidemic *Clostridium difficile*”. The thesis involved four training periods at the Pathogenesis of Bacterial Anaerobes Laboratory, under supervision of Dr. Bruno Dupuy, Institut Pasteur, Paris, France.

June - September 2008: Research trainee at the Morphogenesis Unit, Instituto de Medicina Molecular, Faculdade de Medicina da Universidade de Lisboa (FM-UL, Lisbon, Portugal). Supervision: Dr. António Jacinto.

March 2006 - April 2008: Research trainee at the Cell Cycle Group, Instituto Gulbenkian de Ciência, Oeiras, Portugal. Supervision: Professor Álvaro Tavares.

Third-party funding (peer-reviewed)

Project grant: “Adjusting the base: (Epi)transcriptomic RNA modification in inflammation & host-microbiome crosstalk”. Project ZK-57 funded by the FWF-Austrian Science Fund. (408.426,54 EUR)

Project grant: "MUCDIFF: Competition between the enteric pathogen *Clostridium difficile* and the commensal members of the gut microbiota for mucosal sugars". Project funded by the European Commission/ Marie Skłodowska-Curie Individual Fellow under Grant agreement No. 658718 to Fátima C. Pereira. (166.157,00 EUR)

EMBO short-term fellowship (ATSF 184-2012) to visit the Pathogenesis of Bacterial Anaerobes Laboratory, headed by Dr. Bruno Dupuy, Institut Pasteur, Paris, France. March - April, 2012. (2.000 EUR)

PhD scholarship (SFRH/BD/45459/2008) awarded by the Portuguese Science Foundation (FCT) (47.040 EUR)

Prizes and Awards

Best Poster. 9th Seon Conference - Microbiota, Probiotics and Host, Seon, Germany, July 7-9, 2017.

Best Poster. 5th European Spores Conference. Royal Holloway, University of London, United Kingdom. April 16-19, 2012.

Travel Grant (ICDS/ESCMID) to attend the 4th International *Clostridium difficile* Symposium (ICDS) in Bled, Slovenia. September 20-22, 2012.

Best Poster (3rd place). ELSO meeting, Dresden, Germany. September 1-4, 2007.

Invited presentations

2019 Fourth Microbial Single Cell Genomics Workshop, Boothbay Harbour, Maine, USA

Teaching activity

June 2015-Present. Laboratory/Project co-supervision of 2 Bachelor students, 1 Scientific Practice student and 1 visiting PhD student, Division of Microbial Ecology, University of Vienna, Vienna, Austria.

September 2019. Tutor in the "International FISH Course" held at the Division of Microbial Ecology, University of Vienna, Austria.

February 2016/ 2017/ 2018. Tutor in a practical course of a Master's Program in "Molecular Microbiology, Microbial Ecology and Immunobiology" held by Professor David Berry, Dr. Dagmar Wobcken and Dr. Jill Petersen at the University of Vienna.

October 2009. Tutor in a practical course of a Master's Program in Medical Microbiology, a joint Master from ITQB/IHMT/FCM/FCT, Lisbon, Portugal. The module taught, entitled "Methodologies for the functional analysis of genes. Bacterial Development", was led by Professor Adriano O. Henriques.

Peer-reviewed Publications (12)

Lee KS, Palatinszky M, Pereira FC, Nguyen J, Fernandez VI, Mueller AJ, Menolascina F, Daims H, Berry D, Wagner M, Stocker R (2019) An automated Raman-based platform for the sorting of live cells by functional properties. *Nature Microbiology* 4: 1035-1048. DOI:10.1038/s41564-019-0394-9.

Pereira FC, Nunes F, Cruz F, Fernandes C, Isidro AL, Lousa D, Soares CM, Moran CP, Henriques AO, Serrano M (2019) A LysM Domain Intervenes in Sequential Protein-Protein and Protein-Peptidoglycan Interactions Important for Spore Coat Assembly in *Bacillus subtilis*. *Journal of Bacteriology* 201: e00642-00618. DOI: 10.1128/JB.00642-18

Reese AT, Pereira FC, Schintlmeister A, Berry D, Wagner M, Hale LP, Wu A, Jiang S, Durand HK, Zhou X, Premont RT, Diehl AM, O'Connell TM, Alberts SC, Kartzinel TR, Pringle RM, Dunn RR, Wright JP, David LA (2018) Microbial nitrogen limitation in the mammalian large intestine. *Nature Microbiology* 3: 1441-1450. DOI: 10.1038/s41564-018-0267-7.

Ladurner A., Zehl M., Grienke U., Hofstadler C., Faur N., Pereira F.C., Berry D., Dirsch V.M., Rollinger J.M.. (2017) Allspice and Clove As Source of Triterpene Acids Activating the G Protein-Coupled Bile Acid Receptor TGR5. *Front Pharmacol* 8:468. DOI: 10.3389/fphar.2017.0046

Pereira F.C., Berry D. (2017). Microbial nutrient niches in the gut. *Environ Microbiol* 19:1366–1378. DOI: 10.1111/1462-2920.13659

Serrano M., Kint N., Pereira F.C., Saujet L., Boudry P., Dupuy B., Henriques A.O., Martin-Verstraete I. (2016) A Recombination Directionality Factor Controls the Cell Type-Specific Activation of σ K and the Fidelity of Spore Development in *Clostridium difficile*. *PLoS Genet.* 12(9):e1006312. DOI: 10.1371/journal.pgen.1006312

Serrano M., Crawshaw A.D., Dembek M., Monteiro J.M., Pereira F.C., Pinho M.G., Fairweather N.F., Salgado P.S., Henriques A.O. (2016) The SpoIIQ-SpoIIAH complex of *Clostridium difficile* controls forespore engulfment and late stages of gene expression and spore morphogenesis. *Mol Microbiol.* 100(1):204-28. DOI: 10.1111/mmi.13311

Cassona C.P., Pereira F. C., Serrano M.. and Henriques A.O. (2016) A Fluorescent Reporter for Single Cell Analysis of Gene Expression in *Clostridium difficile*. *Methods Mol Biol.*1476:69-90. DOI: 10.1007/978-1-4939-6361-4_6

Saujet L., Pereira F.C., Henriques A.O. and I. Martin-Verstraete. (2014) The regulatory network controlling spore formation in *Clostridium difficile*. *FEMS Microbiol Lett.* 358(1):1-10. DOI: 10.1111/1574-6968.12540

Pereira F. C., L. Saujet, Tomé A. R., Serrano M., Monot M., Couture-Tosi E., Martin-Verstraete I., Dupuy B. and A.O. Henriques. (2013) The spore differentiation pathway in the enteric pathogen *Clostridium difficile*. *PLoS Genetics*, 9(10):e1003782. DOI: 10.1371/journal.pgen.1003782

Saujet L., Pereira F. C., M. Serrano, O. Soutorina, M. Monot, P. Shelyakin, M. S. Gelfand, B. Dupuy I., A.O. Henriques and I. Martin-Verstraete. (2013) Genome-wide analysis of cell type-specific gene expression during spore formation in *Clostridium difficile*. *PLoS Genetics*, 9(10):e1003756. DOI: 10.1371/journal.pgen.1003756

Janoir C., Denève C., Bouttier S., Barbut F., Caleechurn L., Hoys S., Chapeton-Montes D., Pereira F. C., Henriques A. O., Collignon A., Monot M. and B. Dupuy. (2013) Insights into the adaptive strategies and pathogenesis of *Clostridium difficile* from *in vivo* transcriptomics. *Infect Immun*, 81(10):3757-69. DOI: 10.1128/IAI.00515-13

Other Publications (2)

Antunes, W.* , Pereira, F.C.*, Feliciano, C., Saujet, L., Vultos, T.d., Couture-Tosi, E., Péchiné, S., Bruxelles, J.-F., Janoir, C., Melo, L.V., et al. (2018). Structure and assembly of a *Clostridioides difficile* spore polar appendage. bioRxiv, 468637. DOI: 10.1101/468637. *equal contributions

PhD Thesis: "Spore differentiation in relation to the infectious of the enteric pathogen *Clostridium difficile*". 14th July, 2014, by Instituto de Tecnologia Química e Biológica, Universidade Nova de Lisboa, Portugal (ITQB-UNL, Lisbon, Portugal). <http://hdl.handle.net/10362/13506>

Participation in Courses and Workshops

FEMAC Career Development Programme for Female Academics organized by the Gender Equality and Diversity Office of the University of Vienna, Vienna, Austria. October 2016-January 2018.

Introduction to Laboratory Animal Science/FELASA B course held by the University of Veterinary Medicine, Vienna, Austria. February 2016.

Bacterial Secretion Clostnet Workshop held at CNRS, Marseille, France, led by Professor Chantal Tardif. September 16-19, 2012.

Gene Technologies I Clostnet Workshop held at University of Nottingham, Nottingham, UK, led by Professor Nigel Minton. December 11-15, 2010.

Quantitative Image Analysis Course held at Instituto Gulbenkian de Ciência, Oeiras, Portugal. February 10-12, 2008.

Introduction to Light Microscopy Course held at Instituto de Medicina Molecular, Lisbon, Portugal. January 11-13, 2007.

International Cooperation partners

Dr. Kang Soo Lee and Prof. Roman Stocker: Environmental Microfluidics Group, ETH Zurich, Switzerland.

Dr. Claudia Serra: CIIMAR, Matosinhos, Portugal.

Dr. Ji-Xin Cheng: College of Engineering, Boston University, USA.

Peer-review activities

Ad-hoc Reviewer for *Environmental Microbiology*, *Frontiers in Microbiology* and *Microbial Biotechnology*.

Public Outreach

University of Vienna, Kinderuni. 2016, 2017 & 2019. Co-organizer of the KinderUni workshop "A journey into microbial life on earth". (<https://kinderuni.at/kinderuniwien/>)

European Researcher's Night. 2016. Vienna Institute of Technology (TGM), Vienna, Austria. (<http://www.be-scienced.eu/de/>)