Ricardo Henriques

Instituto Gulbenkian de Ciência
MRC-Laboratory for Molecular Cell Biology, UCL
rjhenriques@igc.gulbenkian.pt; @HenriquesLab
Born 20/05/1980; Portuguese

OVERVIEW

My laboratory focuses on advancing the boundaries of optical microscopy, with the aim of establishing novel technologies to address cell biology and biophysical questions, both in health and disease. We are recognized by our open-source and widely available contributions to the optical microscopy community, as well as our translational work with industry. For example, we have established the novel SRRF super-resolution approach that underpins Andor Technology's latest super-resolution spinning disk microscopes. In cell biology, we tackle broad questions through links with collaborating laboratories, in fields such as virology, host-pathogen interactions, immunology, cell signaling and evolution. We do so by establishing new classes of fluorescent probes, high-speed cell friendly super-resolution methods and computational modelling approaches that, although designed to answer questions of interest in the lab, have extensive applications in cell biology.

EDUCATION

PhD in Biophysics 2008-2011
Faculdade de Medicina Universidade de Lisboa
"Beyond Rayleigh's limit: achieving real-time super-resolution fluorescence microscopy"
Thesis advisor: Dr. Musa Mhlanga (CSIR, Pretoria, South Africa; IMM, Lisbon, Portugal)

Diploma in Physics 1998-2005
Faculdade de Ciências Universidade de Lisboa
Research advisors: Dr. Nuno Moreno and Prof. José Feijó (IGC, Portugal)

PROFESSIONAL HISTORY

Research Group Leader 2020-
Instituto Gulbenkian de Ciência, Oeiras, Portugal

- Research: technology development for super-resolution microscopy, computational bioimaging, machine learning, structural modelling, viral host-pathogen interactions
- Honorary Professor at *University College London*
- Affiliate Group Leader at *The Francis Crick Institute* with a Satellite Laboratory

Professor Chair of Computational and Optical Biophysics 2019-2020
MRC-Laboratory for Molecular Cell Biology, University College London

Associate Professor 2013-2019
MRC-Laboratory for Molecular Cell Biology, University College London

Postdoctoral Fellow 2011-2013
Institut Pasteur Paris, Department of Cell Biology and Infection

- Research at Zimmer Lab: super-resolution microscopy, T-cell immunological synapse formation, HIV-1 intracellular trafficking and uncoating.

Systems Developer and Consultant 2009-2019
Andor Technology (US and Northern Ireland)

- Scientific advisor, software developer, optical design consultant

Bioimaging Facility Manager 2005-2008
Instituto de Medicina Molecular and Instituto Gulbenkian de Ciência

- Teaching-on and maintenance-of optical microscopy equipment

OTHER APPOINTMENTS [since 2013]

Affiliate Group Leader at the Francis Crick Institute, Satellite Lab	2017-2020
Co-Director, Wellcome Trust-UCL Optical Biology PhD Programme	2020-
Wellcome Trust Multi-user Equipment Grants Committee Member	2020-2023
bioRχiv affiliate and advocate	2019-
Advisory board member of FocalPlane by Company of Biologists	2019-
MRC-LMCB Athena Swan Committee	2017-2018
UCL Advanced Microscopy Strategy Board	2017-2020
BBSRC Grants Committee, panel D and TRDF	2016-
Royal Microscopy Society Light Microscopy Committee	2014-2016
UCL Super-Resolution Microscopy Steering Board	2013-2020
MRC-LMCB Microscopy Committee	2013-2020
MRC-LMCB IT Committee	2013-2020

Academic Editor for: Scientific Reports (editorial board), Journal of Physics D [1] (guest)
Reviewer for: Nature Biotech, Nature Methods, Nature Communication, Nature Protocols, PNAS, Scientific Reports, PloS One, Journal of Microscopy, Optics Express, Traffic, Journal of Biophotonics, Light: Science & Application, Methods, Bioinformatics, Nanoscale
Grant reviewer for: ANR, BBSRC, CRUK, EPSRC, ERC, FCT, la Caixa Foundation, Leverhulm Trust, MRC, Netherlands Org. Sci. Res., Royal Society, Wellcome Trust

PRIZES, AWARDS AND HONOURS

ERC CoG and EMBO IA awards highlighted by *Publico* (Portuguese news) [1][2]	2021
Research highlighted by *Nature News* ("Deep learning takes on tumours") [1]	2020
Research highlighted by *MRC* (UK's Medical Research Council) [1]	2019
Research highlighted by *Clubic* (French Technology Magasine) [1]	2019
Made Fellow of the Royal Microscopy Society	2018
Research highlighted by *The Times* [1]	2018
Research highlighted by *The Scientist* twice [1][2]	2018
Research highlighted by *This Week in Virology (TWiV)* [1]	2018
Spirit of SLMS award for Scientific Excellence, Nils Gustafsson (PhD student)	2018
Ref. case study for UCL-Consultancy, "UCL pioneers algorithm in microscopy"	2017
Cirklo Prize Best Concept for Scientific Facilities, Pedro Almada (PhD student)	2015
Pasteur Roux Post-doctoral Fellowship	2013
FCT Doctoral Research Fellowship	2010

COLLABORATIONS

P = Joint Authorship; G = Joint Funding; R = Joint Researchers

Andela Šarić, UCL, UK [1P,1G]; **Ann-Christin Lindas**, Stockholm Univ., Sweden [2P,1G]; **Ashley Cadby**, Univ. Sheffield, UK; **Buzz Baum**, UCL, UK [5P,2G,3R]; **Christophe Leterrier**, Aix University, France [3P]; **Christophe Zimmer**, Pasteur, France [5P,1G]; **Dylan Owen**, KCL, UK [1P]; **Ed Cohen**, Imperial College, UK [1P]; **Ethan Garner**, Harvard Univ., USA [1G]; **Eva Frickel**, Crick Institute, UK [1P]; **Ewa Paluch**, Cambridge Univ., UK [1R]; **Fabrice Agou**, Pasteur, France [1P]; **Florian Jug**, MPI-CBG, Germany [2P]; **Gabriel Martins**, IGC, Portugal; **Giuseppe Battaglia**, UCL, UK; **Guillaume Charras**, UCL, UK [1P,1R]; **Guillaume Jacquemet**, Åbo Akademi University, Finland [2P]; **Jake Baum**, Imperial College, UK; **Jan Löwe**, LMB, UK [1G]; **Jason Mercer**, UCL, UK [5P,1G,3R]; **Joe Grove**, Royal Free, UK [1P]; **Johanna Ivaska**, University of Turku, Finland [1P]; **Jonas Ries**, EMBL, Germany [2P]; **Jost Enninga**, Pasteur, France [1P]; **Loïc Royer**, CZ-Biohub, USA [2P]; **Maria Carmo-Fonseca**, IMM, Portugal [1P]; **Mary Collins**, Okinawa IST, Japan [1P]; **Maria Mota**, IMM, Portugal [1P]; **Mariana Pinho**, ITQB, Portugal [1G,1R]; **Mark Marsh**, UCL, UK [2P,2R]; **Maximiliano Gutierrez**, Crick Institute, UK [1R]; **Mike Heilemann**, Goethe University Frankfurt, DE [1P,1R]; **Mohan Balasubramanian**, Warwick Univ., UK [1G]; **Musa Mhlanga**, UCT, South Africa [7P,2G]; **Nick Robinson**, Lancaster University, UK [1P]; **Nuno Moreno**, IGC, Portugal [1G]; **Pavel Tomancak**, MPI-CBG, Germany [1P]; **Ralf Jungmann**, MPI Biochemistry, Germany; **Serge Mostowy**, Imperial College, UK [2P]; **Seamus Holden**, Newcastle Univ., UK [2P]; **Steven Lee**, Cambridge Univ., UK [1P]; **Simon Foster**, Univ. Sheffield, UK [1P]; **Thijs Ettema**, Univ. of Uppsala, Sweden [1G];

GRANTS AND FUNDING [since 2013, ≈13M/8yr]

22. **EMBO** Installation Grant, "Unveiling live-cell viral replication at the nanoscale", £150K (PI, 01/21 - 01/24).

21. **ERC** Consolidator, "Enabling Live-Cell 4D Super-Resolution Microscopy Guided by Artificial Intelligence", £2M (PI, 09/21 - 09/26).

20. **BBSRC** ALERT, "Benchtop, turnkey super-resolution microscopy for biology, biophysics and biotechnology", £200K (Co-PI, 05/20 - 04/21).

19. **Wellcome Trust** 4-year PhD Programme in Science, "Optical Biology", £6M (Co-Director, 08/21 - 08/25).

18. **Wellcome Trust**, "Understanding cellular organisation: from archaea to eukaryotes", £1.1M out of £4M (Co-PI, 12/16 - 12/21).

17. **Royal Society** International Exchanges 2019 (UK-Ireland), "An international joint collaboration to develop and democratise high-accessible open-source AI controlled microfluidics to enable unprecedented nanoscale cell biology research", £12K (Henriques and Reynaud labs partnership, 08/19 - 08/21).

16. **UCL-Osaka** Strategic Partner Fund, "Establishing collaborative research between UCL and Osaka University", £10K (Henriques and Nagai labs partnership, 08/19-08/20).

15. **UCL** Cities Partnership Programme & **EMBO** Short-Term Fellowship, "Establishing collaborative research between UCL and Institut Curie", £7K (Application by Dr. Romain Laine - PDRA, 06/19).

14. **UCL** Capital Equipment Call (CEF3), "4D Super-Resolution Proteomics: Establishing a unique Super-Resolution Microscope capable of automatically mapping a theoretically unlimited number of proteins in space-and-time", £150K (PI, 06/19 - 07/20).

13. **MRC** Skills Development Fellowship (Sponsor), "Dr. Romain Laine", £288K (PI, 01/20 - 01/23).

12. **BBSRC** iCASE Studentship, "Content Aware AI Driven Driven Super Resolution Microscopy", £107K (PI, 10/18 - 09/22).

11. **BBSRC** TRDF, "Democratising Live-Cell Adaptive Super-Resolution Microscopy based on SRRF", £151K (PI, 01/19 - 02/20).

10. **BBSRC** TRDF, "An accessible framework to achieve multi-dimensional live-cell super-resolution high-content screening", £151K (PI, 12/17 - 12/18).

9. **BBSRC** ALERT, "Enabling Live-Cell Super Resolution Imaging Through Lattice Light Sheet Microscopy", £513K (Co-PI - main writer, 01/17 - 05/18).

8. **BBSRC** NIRG, "Super-Beacons and Beacon-STORM: a new generation of small tunable photoswitching probes and Super-Resolution approaches.", £364K (PI, 01/16 - 12/18).

7. **MRC** Next Generation Optical Microscopy Initiative, "Super Resolution Imaging for Cell Biology and Neuroscience at UCL", £220K out of £1.1M (not named PI but main contributor to grant impact and outcomes, 02/13 - 11/18).

6. **FCT** Research and Development Projects, "Imaging the structure and dynamics of molecules and complexes in living organisms", £500K (Co-PI, 01/13 - 01/16).

5. Industrial R&D Collaboration with **3i**, "Adapting of SRRF to light-sheet", £300K (PI, 09/16 - 12/19).

4. **NVidia** GPU Grant Programme, "Developing AI for Microscopy", £5K (PI, 12/18).

3. **Marie-Curie** Postdoctoral Fellowship (Sponsor), "Dr David Albrecht", £150K (Co-PI, 05/17 - 05/19).

2. Sir Henry **Wellcome** Postdoctoral Fellowship (Sponsor), "Dr Theo Sanderson", £250K (Co-PI, 06/17 - 05/21).

1. **UK-SA Commonwealth** PhD Studentship (Sponsor), "Caron Jacobs", £112K (PI, 09/14 - 03/18).

RECENT INVITED TALKS [showing selected out of 49]

Annually Invited: Advanced Imaging Course, EMBL Heidelberg, Germany	2012-
Annually Invited: ESRIC Super-Resolution Summer School, Edinburg, UK	2017-
Keynote: SPAOM, Valencia, Spain	2020
Keynote: Lifetime Unconference 2, Montpellier, France	2019
Keynote: Microscopy Society of Ireland Symposium, Dublin, UK	2019
Keynote: RMS Frontiers in BioImaging, Glasgow, UK	2018
Keynote: Single Mol. Approaches in Imaging, Ghent, Belgium (declined)	2018
Keynote: Scott. Microscopy Group Annual Symposium, Glasgow, UK	2017
Keynote: Spanish-Portug. Meeting Advanced Optical Microscopy, Bilbao, Spain	2016
Webinar: EuroBioImaging Virtual Pub [1]	2021
Webinar: Abbelight Academia Webinar [1], Paris, France	2020
Webinar: Labroots Cell and developmental Biology Webinar [1]	2020
Webinar: Invited speaker for Science/AAAS Technology Webinar Series [1]	2018
Invited: Living Systems Institute, University of Exeter, UK	2021

Invited: From Images to Knowledge with ImageJ & Friends, Janelia Farm, US 2020
Invited: University of Oxford, Oxford, UK 2020
Invited: 3D Single-Mol. Localization Workshop, The Francis Crick Institute, UK 2020
Invited: Data Science in Cell Imaging Workshop, Company of Biologists, UK 2020
Invited: Quantitative Methods in Biology, Imperial College, UK 2019
Invited: Vlaams Instituut voor Biotechnologie, Ghent, Belgium 2019
Invited: MRC Weatherall Institute of Molecular Medicine, Oxford, UK 2019
Invited: University of Birmingham, Birmingham, UK 2019
Invited: University of Oxford, Oxford, UK 2019
Invited: University of Cambridge, Cambridge, UK 2019
Invited: UZH and ETH Advanced Microscopy Winter School, Zurich, Switzerland 2019
Invited: The Institute of Cancer Research 2018
Invited: MiFoBio - Functional Microscopy in Biology, Seignosse, France 2018
Invited: 84th Harden Conference: Single-Molecule Bacteriology, Oxford, UK 2018
Invited: First UK/Japan Super-resolution Bioimaging Meeting 2018
Invited: EMBO Course 3D Developmental Imaging, IGC, Portugal 2018
Invited: Focus on Microscopy international meeting, Singapore 2018
Invited: Biochem. Society Harden Conf. Single Mol. Bacteriology, Oxford, UK 2018
Invited: University of Bern, Bern, Switzerland 2018
Invited: University of Cambridge, Cambridge, UK 2018
Invited: Institut Pasteur, Paris, France 2018
Invited: 7th Single Molecule Localization Microscopy Symposium, London, UK 2017
Invited: ICFO, Barcelona, Spain 2017
Invited: Queen's College London, UK 2017
Invited: University of Liverpool, UK 2017
Invited: UK Membrane-Trafficking Meeting, London, UK 2016
Invited: Pharmac. Summer Course, Univer. Menéndez Pelayo, Santander, Spain 2016
Invited: Summer School on Molecular-Scale Engineering, Sheffield, UK 2016
Invited: University of Edinburgh, UK 2016
Invited: University of Sussex, UK 2016
Invited: Royal Society UK–SA Imaging in Host-Path. Interact., South Africa 2014
PI position interview: University of Oxford (offered), UK 2019
PI position interview: University of Birmingham (offered), UK 2019
PI position interview: Crick satellite programme (offered), UK 2016
PI position interview: MRC-LMCB at UCL (offered), UK 2013
PI position interview: MRC-LMB (offered), UK 2013

INDUSTRIAL PARTNERSHIPS

R&D with Andor Technology: developed the SRRF-Stream technology 2016-2019
R&D with 3i: host lab of UKs eng. team, developed SRRF for Lattice Light-Sheet 2016-
R&D with Abbelight: implementation of microfluidics in super-resolution 2018-
Reference lab for Cairn Research: test of prototype equipment 2017-
Reference lab for Mizar Imaging: test of prototype equipment 2018-

SCIENTIFIC MEETINGS ORGANISED [since 2013]

Bi-monthly London Super-Resolution Group Meetings, London, UK 2013-
EMBO Practical Course "3D development(all) imaging", Oeiras, Portugal 2020
ASCB Workshop "Optogenetics Imaging Techniques", Washington DC, USA 2020

7th Single Molecule Localization Microscopy Symposium, London, UK	2017
Super-Res. Microscopy in Infection and Immunity Symposium, IGC, Portugal	2015
UCL Super-Resolution Symposium, London, UK	2015
Royal Society UK–SA Imaging in Host-Path. Interactions, South Africa	2014

THESES SUPERVISED

5. Robert Gray – PhD (PI, 2015-18) - "Understanding vaccinia virus entry by super-resolution and particle averaging." *Now computational biologist at Sixfold Bioscience.*

4. Jerzy Samolej – PhD (Co-PI, 2015-18) - "Identification of anti-poxviral agents by high-throughput image-based screening." *Short-term postdoc finishing publications with us.*

3. Caron Jacobs – PhD (PI, 2014-18) - "The nanoscale organisation of HIV cell surface receptors CD4 and CCR5." *Now postdoc at University of Cape Town, South Africa.*

2. Pedro Bento Almada – PhD (PI, 2014-17) - "Developing highly multiplexed technology for high-throughput Super-resolution Fluorescence Microscopy." *Now scientific consultant for Almada Scientific Services, UK.*

1. Nils Gustafsson – PhD (PI, 2014-17) - "Enabling live-cell super-resolution microscopy by computational analysis and fluorescent probe design." *Now postdoc at Ludwig-Maximilians-Universität, Germany.*

PhD examinations: 1) Garth Burn - Andrew Cope and Dylan Own Lab, KCL, UK [2014]; 2) Frederico Leon - Achillefs Kapanidis Lab, Univ. Oxford, UK [2015]; 3) Timothée Verdier - Martin Castelnovo, ENS - Lyon, France [2015]; 4) Adela Staszowska - Susan Cox Lab, KCL, UK [2016]; 5) Samuel Barnett - Neil Hunter and Ashley Cadby Lab, Univ. Sheffield, UK [2017]; 6) Pedro Silva - Jorge Carneiro Lab, IGC, Portugal [2017]; 7) Anna Bove - Guillaume Charras and Alan Lowe Lab, UCL, UK [2018]; 8) Jennifer Francis - Raphaël Levy Lab, Univ. Liverpool, UK [2018]; 9) Teodor Viktorov Boyadzhiev - Simon Ameer-Beg, KCL, UK [2019]; 10) Marco Fantham - Clemens Kaminsky Lab, University of Cambridge, UK [2019]; 11) Sohaib Abdul Rehman - Kevin O'Holleran Lab, University of Cambridge, UK [2019]; 12) Dimitrios Kiagias - Miguel Juarez Lab, University of Sheffield, UK [2019]; 13) Yiangos Psaras - Matthew Daniels Lab, University of Oxford, UK [2020]; 14) Krystian Ubych - Robert Neely Lab, University of Birmingham, UK [2020];

PUBLIC ENGAGEMENT AND OUTREACH

Public engagement and outreach is a major focus of our research laboratory. We particularly engage projects tackling gender equality and helping students from disadvantaged backgrounds. We are also extremely present in social media, using platforms such as Twitter (∼6K followers) and Public Press [1][2][3] to promote our scientific research and engage a global audience. **Projects and Actions**:

- 2013: Co-founder of AGRAFr - Association des Diplômés Portugais en France - created by a group of Portuguese researchers in Paris, AGRAFr aims to develop multidisciplinary synergy covering all areas of knowledge and to foster exchange of experiences and contacts between Portugal and France.

- 2013: Joined the MRC-LMCB public engagement programme: *School visits* - annual programme where students are given background information on cell biology research, exposed to a range of lab-based activities and provided with a careers Q&A; *Back to school*

- visit schools to promote knowledge in our research and science as a career; *Labathon* - open activities showcasing essential manual skills required to carry out science (e.g. pipetting, cell counting, measuring solutions by eye), which highlights the fun element of producing science to young members of the public; *Science Festivals* – science open days that include activities and workshops focused around disseminating knowledge of cell biology.

- 2015: Recurring Speaker in Pint of Science [1][2] - a science festival that brings researchers to local pubs to present their scientific discoveries.
- 2017: Joined MRC-LMCB Athena SWAN committee (Gold Award) - an initiative to foster gender equality, role models, career events, skills exchange and staff well-being.
- 2017: Joined In2ScienceUK as host lab (3 students) - an award winning initiative which empowers students from disadvantaged backgrounds to achieve their potential and progress to STEM and research careers through high quality work placements and careers guidance.

TEACHING [Since 2013]

Beyond local teaching at UCL, our group participates in some of the most highly recognise international courses in advanced and super-resolution microscopy. We particularly target to train multidisciplinary researchers in quantitative advanced imaging and critical thinking in microscopy, including its limitations.

Selected UCL teaching:

- Advanced Molecular Cell Biology (previously CELL3050, now CELL0016);
- Analysis of Biological Complexity (CoMPLEX PhD Programme)
- Mammalian Physiology (PHOL1001);
- MRes Modelling Biological Complexity;
- MSci in Biological Physics;
- MSci Cell Biology (CELLM102);
- Personal Tutor BioMedical Sciences (5 students per year);
- Principles of Biology (BBSRC LIDo PhD Programme);
- Super-Resolution Microscopy and Image Analysis (IPLS PhD Programme);
- Super-Resolution Microscopy and Image Analysis (MRC-LMCB PhD Programme);
- SysMIC course (BBSRC LiDO PhD Programme);

Selected international teaching:

- Edinburgh Super-Resolution Imaging Consortium Summer School, UK (Week-long Course) [2017, 2018, 2019];
- EMBO 3D Developmental Imaging, Portugal (Week-long Course) [2018];
- EMBL Advanced Fluorescence Imaging Techniques (Week-long Course) [2013, 2014, 2015, 2016, 2017, 2018, 2019];
- PhD Programme Lecture - Instituto de Medicina Molecular, Portugal [2015];

- PhD Programme Lecture - Instituto Gulbenkian de Ciência, Portugal [2017];
- SRRF Workshop MPI-CBG, Germany (Two-day Course) [2018];
- SRRF Workshop University of Bern, Switzerland (Two-day Course) [2018];
- Focus on Microscopy Tutorial, Singapore (Invited Lecture) [2018];

SOFTWARE DEVELOPMENT

6. NanoJ - GNU GPL (PI - 2018): Laine et al., J. Phys. D, 2019 - *High-performance open-source super-resolution microscopy toolbox, capable of GPU acceleration.*
5. NanoJ-Fluidics - MIT License (PI - 2018): Almada et al., Nat. Comm., 2019 - *Automating multimodal microscopy through inexpensive LEGO based syringe pumps.*
4. NanoJ-SQUIRREL - GNU GPL (PI - 2018): Culley et al., Nat. Meth., 2018 - *Quantitative mapping and minimization of super-resolution artifacts. Commercially adapted by Abbelight.*
3. NanoJ-SRRF - GNU GPL (PI - 2016): Gustafsson et al., Nat. Comm., 2016 - *New analytical super-resolution approach, led to the first super-resolution cameras by Andor Technology.*
2. NanoJ-VirusMapper - GNU GPL (PI - 2016): Gray et al., Sci. Rep., 2016 - *First open-source algorithm for Single-Particle Analysis in super-resolution microscopy.*
1. QuickPALM - GNU GPL (PI - 2010): Henriques et al., Nat. Meth., 2010 - *First open-source software for super-resolution analysis (PALM and STORM), one of the most used analytical packages in the Super-Resolution field.*

PUBLICATIONS [Google Scholar]

* co-corresponding author; ± equal contribution;

50. Guillaume Jacquemet*, Alexandre F. Carisey*, Hellyeh Hamidi, Ricardo Henriques*, Christophe Leterrier*, "The cell biologist's guide to super-resolution microscopy", *Journal of Cell Science* (2020).
49. Andre Arashiro Pulschen, Delyan R Mutavchiev, Siân Culley, Kim Nadine Sebastian, Jacques Roubinet, Marc Roubinet, Gabriel Tarrason Risa, Marleen van Wolferen, Chantal Roubinet, Uwe Schmidt, Gautam Dey, Sonja-Verena Albers, Ricardo Henriques, Buzz Baum, "Live Imaging of a Hyperthermophilic Archaeon Reveals Distinct Roles for Two ESCRT-III Homologs in Ensuring a Robust and Symmetric Division", *Current Biology* (2020).
48. Lucas von Chamier, Johanna Jukkala, Christoph Spahn, Martina Lerche, Sara Hernández-pérez, Pieta Mattila, Eleni Karinou, Seamus Holden, Ahmet Can Solak, Alexander Krull, Tim-Oliver Buchholz, Florian Jug, Loïc Alain Royer, Mike Heilemann, Romain F. Laine, Guillaume Jacquemet, Ricardo Henriques*, "ZeroCostDL4Mic: an open platform to simplify access and use of Deep-Learning in Microscopy", *bioRχiv, in review* (2020).
47. Alexander Spark, Alexandre Kitching, Daniel Esteban-Ferrer, Anoushka Handa, Alexander R. Carr, Lisa-Maria Needham, Aleks Ponjavic, Mafalda Da Cunha Santos, James McColl, Christophe Leterrier, Simon J. Davis, Ricardo Henriques, Steven F. Lee, "vLUME: 3D Virtual Reality for Single-molecule Localization Microscopy", *bioRχiv, in review* (2020).

46. Gabriel Tarrason Risa, Fredrik Hurtig, Sian Bray, Anne E Hafner, Lena Harker-Kirschneck, Peter Faull, Colin Davis, Dimitra Papatziamou, Delyan R Mutavchiev, Catherine Fan, Leticia Meneguello, Andre Arashiro Pulschen, Gautam Dey, Siân Culley, Mairi Kilkenny, Luca Pellegrini, Robertus AM de Bruin, Ricardo Henriques, Ambrosius P Snijders, Anđela Šarić, Ann-Christin Lindås, Nick Robinson, Buzz Baum, "Proteasome-mediated protein degradation resets the cell division cycle and triggers ESCRT-III-mediated cytokinesis in an archaeon", *bioRχiv, in review* (2019).

45. Gautam Dey, Siân Culley, Scott Curran, Ricardo Henriques, Wanda Kukulski, Buzz Baum, "Closed mitosis requires local disassembly of the nuclear envelope", *bioRχiv, in review* (2019).

44. Pedro M. Pereira, Nils Gustafsson, Mark Marsh, Musa M. Mhlanga, Ricardo Henriques*, "Super-Beacons: Open-Source Probes With Spontaneous Tuneable Blinking Compatible With Live-Cell Super-Resolution Microscopy", *Traffic* (2020). ***Key publication.***

43. Aki Stubb, Romain F Laine, Camilo Guzmán, Ricardo Henriques, Guillaume Jacquemet, Johanna Ivaska, "Fluctuation-Based Super-Resolution Traction Force Microscopy", *Nano Letters* (2020).

42. Kalina L Tosheva, Yue Yuan, Pedro M Pereira, Siân Culley*, Ricardo Henriques*, "Between Life and Death: strategies to reduce phototoxicity in super-resolution microscopy", *J. Phys. D* (2020).

41. Robert Gray, David Albrecht, Corina Beerli, Gary Cohen, Ricardo Henriques*, Jason Mercer*, "Nanoscale Polarization of the Vaccinia Virus Entry Fusion Complex Drives Efficient Fusion", *Nat. Microbiology* (2019). ***Key publication.***

40. Pedro Almada, Pedro Pereira, Siân Culley, Ghislaine Caillol, Fanny Boroni-Rueda, Christina L Dix, Romain F Laine, Guillaume Charras, Buzz Baum, Christophe Leterrier*, Ricardo Henriques*, "Automating multimodal microscopy with NanoJ-Fluidics", *Nat. Communications* (2019). ***Key publication.***

39. Jervis Vermal Thevathasan, Maurice Kahnwald, Konstanty Cieslinski, Philipp Hoess, Sudheer Kumar Peneti, Manuel Reitberger, Daniel Heid, Krishna Chaitanya Kasuba, Sarah Janice Hoerner, Yiming Li, Yu-Le Wu, Markus Mund, Ulf Matti, Pedro Matos Pereira, Ricardo Henriques, Bianca Nijmeijer-Winter, Moritz Kueblbeck, Vilma Jimenez Sabinina, Jan Ellenberg, Jonas Ries, "Nuclear pores as versatile reference standards for quantitative superresolution microscopy", *Nat. Methods* (2019).

38. Daniel Sage, Thanh-An Pham, Hazen Babcock, Tomas Lukes, Thomas Pengo, Ramraj Velmurugan, Alex Herbert, Anurag Agrawal, Silvia Colabrese, Ann Wheeler, Anna Archetti, Bernd Rieger, Raimund Ober, Guy M. Hagen, Jean-Baptiste Sibarita, Jonas Ries, Ricardo Henriques, Michael Unser, Seamus Holden, "Super-resolution fight club: A broad assessment of 2D & 3D single-molecule localization microscopy software", *Nat. Methods* (2019).

37. Romain F. Laine, Kalina L. Tosheva, Nils Gustafsson, Robert D. M. Gray, Pedro Almada, David Albrecht, Gabriel T. Risa, Fredrik Hurtig, Ann-Christin Lindås, Buzz Baum, Jason Mercer, Christophe Leterrier, Pedro M. Pereira*, Siân Culley*, Ricardo Henriques*, "NanoJ: a high-performance open-source super-resolution microscopy toolbox", *J. Phys. D* (2019). ***Key publication.***

36. Pedro M. Pereira*, David Albrecht*, Siân Culley, Caron Jacobs, Mark Marsh, Jason Mercer, Ricardo Henriques*, "Fix your membrane receptor imaging: Actin cytoskeleton and CD4

membrane organization disruption by chemical fixation", *Frontiers in Immunology* (2019). ***Key publication.***

35. Lucas von Chamier, Romain F Laine, Ricardo Henriques*, "Artificial Intelligence for Microscopy: What You Should Know", *Biochem. Soc. Transactions* (2019). ***Key publication.***

34. Lekha Patel, Nils Gustafsson, Yu Lin, Raimund Ober, Ricardo Henriques, Edward Cohen, "A hidden Markov model approach to characterizing the photo-switching behavior of fluorophores", *Annals of Applied Statistics* (2019).

33. Christopher Bricogne, Michael Fine, Pedro M Pereira, Youxue Wang, Julia Sung, Maha Tijani, Ricardo Henriques, Mary K Collins, Donald Hilgemann, "TMEM16F activation by Ca2+ triggers plasmalemma expansion and directs PD-1 trafficking", *Sci. Rep.* (2019).

32. Justin Cooper, Mark Browne, Hugh Gribben, Martin Catney, Colin Coates, Alan Mullan, Geraint Wilde, Ricardo Henriques, "Real time multi-modal super-resolution microscopy through Super-Resolution Radial Fluctuations (SRRF-Stream)", *Single Molecule Spectroscopy and Superresolution Imaging XII* (2019).

31. Siân Culley, David Albrecht, Caron Jacobs, Pedro Matos Pereira, Christophe Leterrier*, Jason Mercer*, Ricardo Henriques*, "Quantitative mapping and minimization of super-resolution optical imaging artifacts", *Nat. Methods* (2018). ***Key publication.***

30. Martin Weigert, Uwe Schmidt, Tobias Boothe, M Andreas, Alexander Dibrov, Akanksha Jain, Benjamin Wilhelm, Deborah Schmidt, Coleman Broaddus, Siân Culley, Maurício Rocha-Martins, Fabián Segovia-Miranda, Caren Norden, Ricardo Henriques, Marino Zerial, Michele Solimena, Jochen Rink, Pavel Tomancak, Loic Royer, Florian Jug, Eugene W Myers, "Content-Aware Image Restoration: Pushing the Limits of Fluorescence Microscopy", *Nat. Methods* (2018).

29. Sina Krokowski, Damián Lobato-Márquez, Arnaud Chastanet, Pedro Matos Pereira, Dimitrios Angelis, Dieter Galea1, Gerald Larrouy-Maumus, Ricardo Henriques, Elias T. Spiliotis, Rut Carballido-López, Serge Mostowy, "Septins Recognise Bacterial Cell Division for Host Defence", *Cell Host & Microbe* (2018).

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