BioImagingUK – an overview

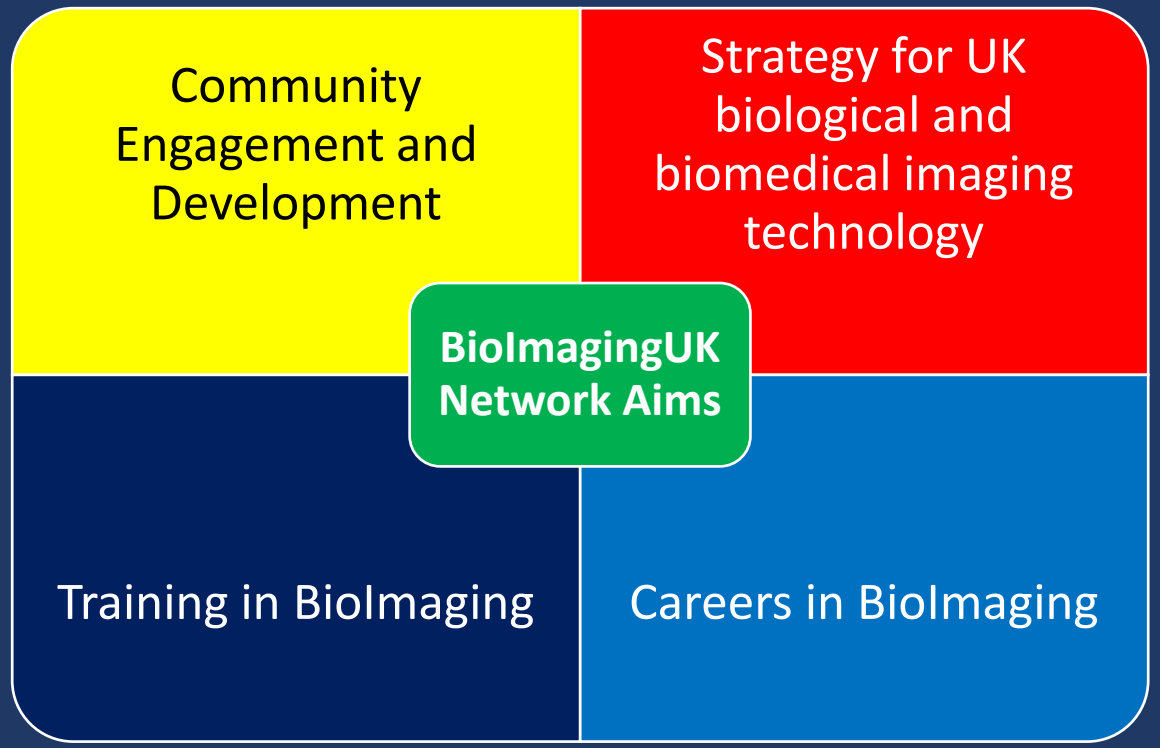
Georgina Fletcher, PhD

BioImagingUK Project Officer and UK Node Manager

An Overview of BioImagingUK

@BioImagingUK

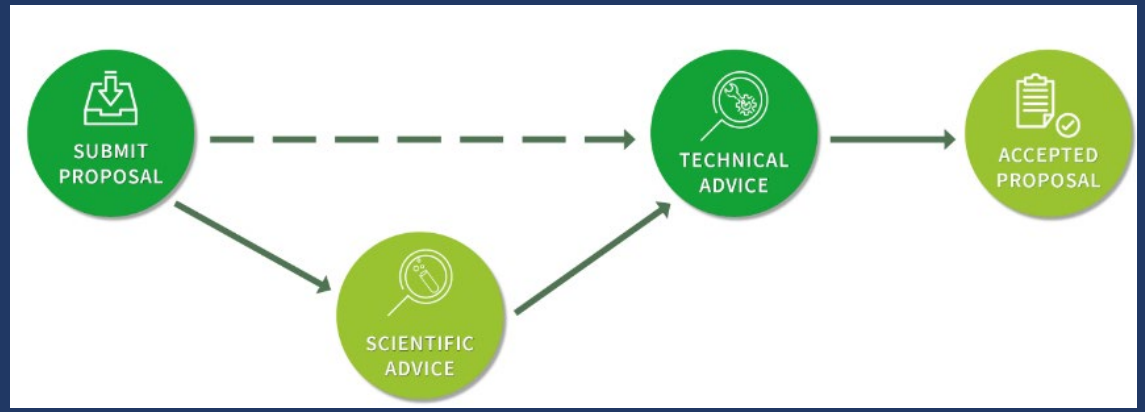
- BioImagingUK is an open network of UK-based scientists that develop, use, or administer imaging solutions for life sciences research
- Aim to improve collaboration, communication and training through engagement with researchers, institutions, funders and industry
- **Re-funded for 5 further years** (May 2019-Apr 2024) by MRC, BBSRC, EPSRC, Wellcome Trust in partnership with Royal Microscopical Society (RMS) and led by Prof. Maddy Parsons at King's



Medical Research Council
Biotechnology and Biological Sciences Research Council
Engineering and Physical Sciences Research Council
wellcome
RMS Royal Microscopical Society

UK Node for Euro-BioImaging

- UK Node is now open to Euro-Bioimaging users
- **Access to 25+ biological imaging techniques** covering correlative, multi-modal, high-content and super-resolution modalities
- **Apply** for access through the Euro-BioImaging web portal
- **Funding** opportunities are available, and visits to research infrastructures can be included on most grant applications



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Further info on EuBI: info@eurobioimaging.eu

Further info on the UK Node: georgina@rms.org.uk

Euro-BioImaging: The UK Node for biological imaging

7 sites, 14 facilities,
25+ technologies

ESRIC

SIM, STORM, STED, SRRF, TIRF/SMLM

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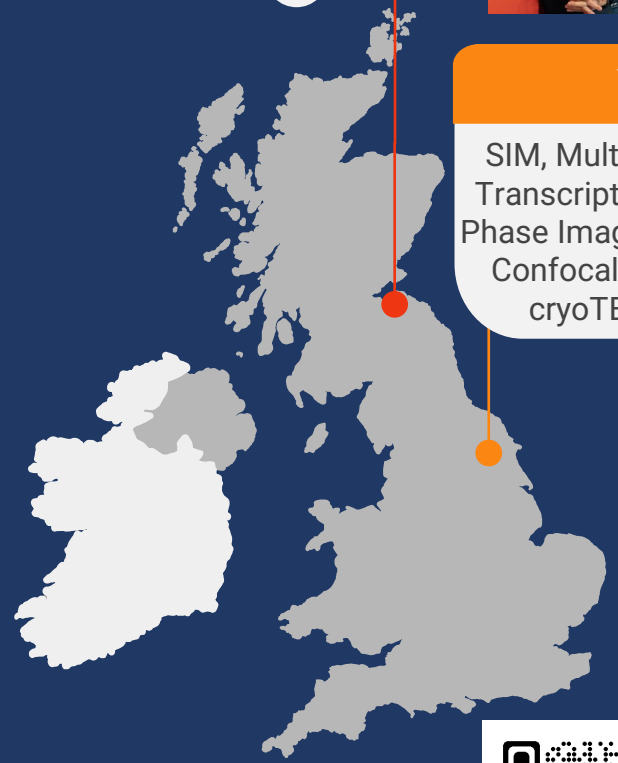

York

SIM, Multiphoton, Spatial Transcriptomics (GeoMX), Phase Imaging /Holography, Confocal, Slide Scanner, cryoTEM, cryoSEM

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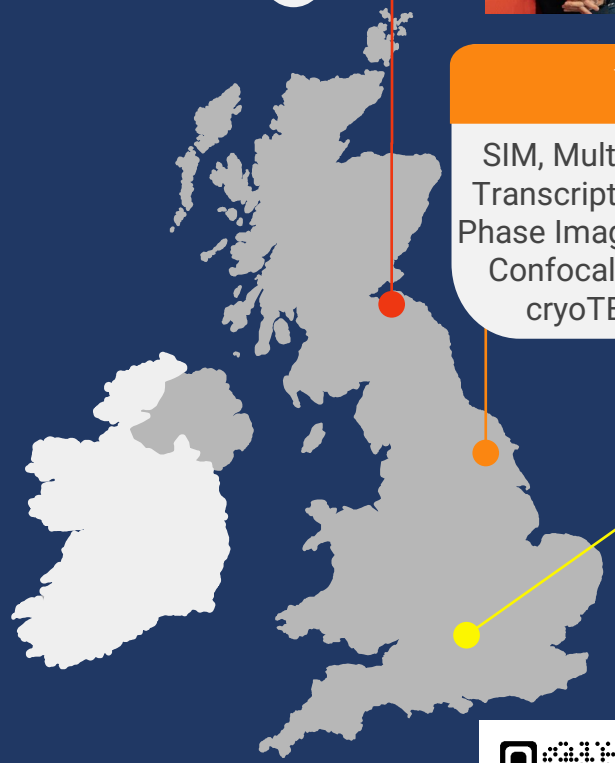

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Oxford Brookes

VolumeEM: SBF-SEM, TEM serial tomography, Array tomography, CLEM High Pressure Freezing-based workflows

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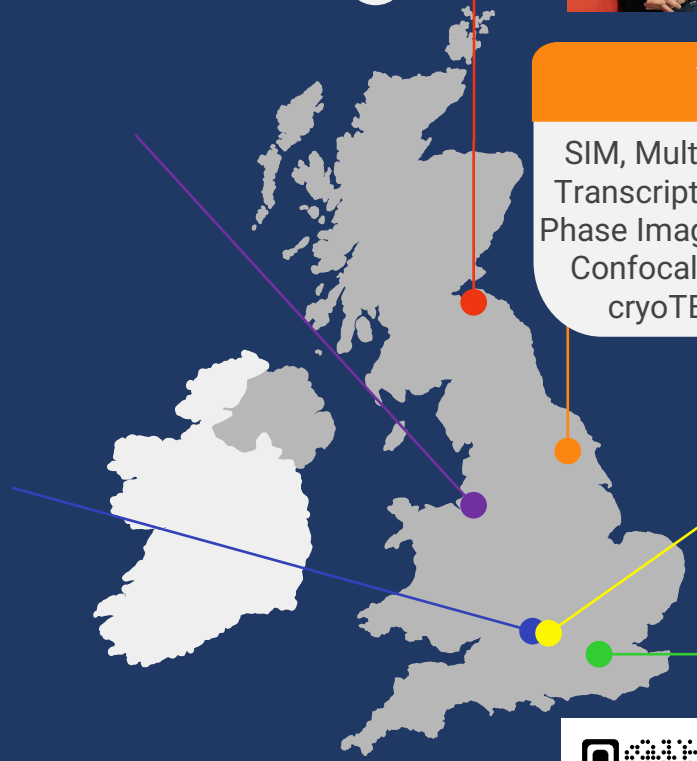

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King's *

STORM, SIM, Lightsheet, FLIM, CLEM, Volume EM, LA-ICP-MS, Raman

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Crick

Lightsheet, HREM, OPT

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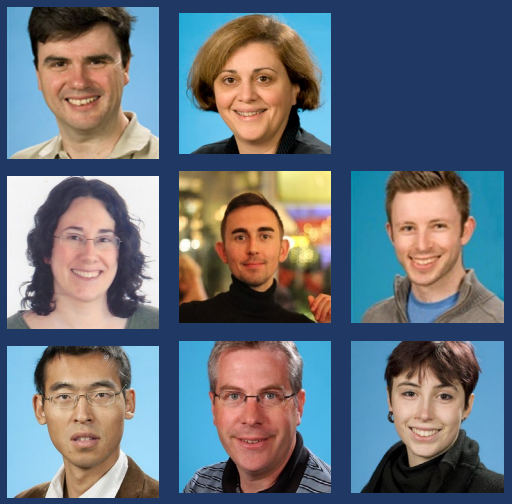

Octopus

MINFLUX, CLEM, super-res and cryoFIB-SEM, SIM,STORM/PALM, STED, Lightsheet, Multiphoton, FIB-SEM, FLIM/PLIM, Optical Trapping, TIRF, Raman, Single Molecule Tracking

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Lightsheet, HREM, OPT

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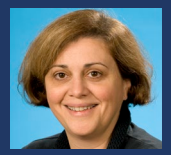
Liverpool

Automated Live Cell Imaging, STORM, PALM, Bio AFM-TIRF, SIM2, Lightsheet, Cytometry, volume EM, TEM, MicroCT, Photoacoustic

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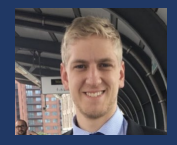
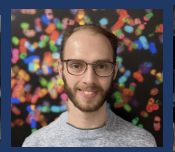
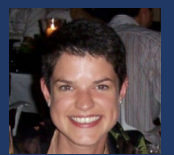
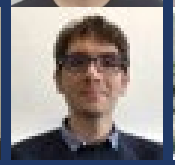
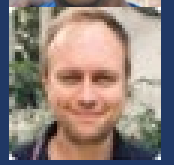
Lightsheet, HREM, OPT



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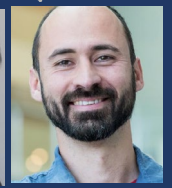

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UKRI-RMS-BioImagingUK Business Interaction Vouchers

2019-2020: 8 awards - £80K from UKRI and £186,600 in-kind from industry

2021-2022: 14 awards - £306K from UKRI and £308,249 in-kind from industry

Academic PI	Industrial Partner	Project Title
Heather Mortiboys	Nanna Therapeutics	Develop screening method for small molecule modulators of mitochondrial calcium uptake
Nicholas Anthony	Nano Clinical	Fluorescence Lifetime Resolved Single Molecule Localisation Microscopy
Kevin Webb	IntraCrop, Verdesian, Biolchim, TradeCorp	Imaging the sub-cellular biodistribution and physiological effects of phosphites in plant tissues with Stimulated Raman Scattering (SRS)
Stephen Rolfe	Syngenta	Detection of biotrophic plant pathogens in vivo using sinusoidally modulated chlorophyll fluorescence imaging

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UKRI-RMS-BioImagingUK Proof of Concept BIVs

Academic PI	Industrial Partner	Project Title
Rebecca Thompson	Labcorp	Evaluation of Mass Photometry methods to measure the empty:full capsid ratio of viruses for use in gene therapy
Paul French	Cairn Research	Development of modular, sustainable open-source optical bioimaging instrumentation
Patricia Murray	Stream Bio	Assessing the potential of near infrared conjugated polymer nanoparticles (CPNTM) for fluorescence and optoacoustic imaging
Chris Toseland	Refeyn	Development of a Label-free single molecule screening assay
Adam Packer	Scientifica	Adaptive optics for three-photon microscopy to increase the feasibility of imaging deep in thick specimens
Alex Laude	Visitech	Testing and benchmarking next generation live-cell super resolution imaging technology.
Jonathan Taylor	M Squared Life	Computational correction of motion artefacts in 3D microscopy
Susan Cox	Nikon	Enabling artifact-free high speed 3D localisation microscopy
Heba Sailem	Terasom	Phenotyping cellular organization and interactions in 3D co-culture models
Tim Hawkins	P&G	Develop imaging platform for melanosomes into a screening technology for industrially relevant bioactive compounds

BIVs are a key “stepping stone” to the next grant or paper

Tim Hawkins: “The award enabled us to employ a technical member of staff to specifically investigate compounds from the industrial partner and develop the platform, something we would have been unable to do otherwise. The research outcomes and business interactions from the project have directly led to the establishment of a PhD project with P&G to look at the fundamental mechanism of melanosome transfer and fate; extending a technology foundation into a full academic programme.”

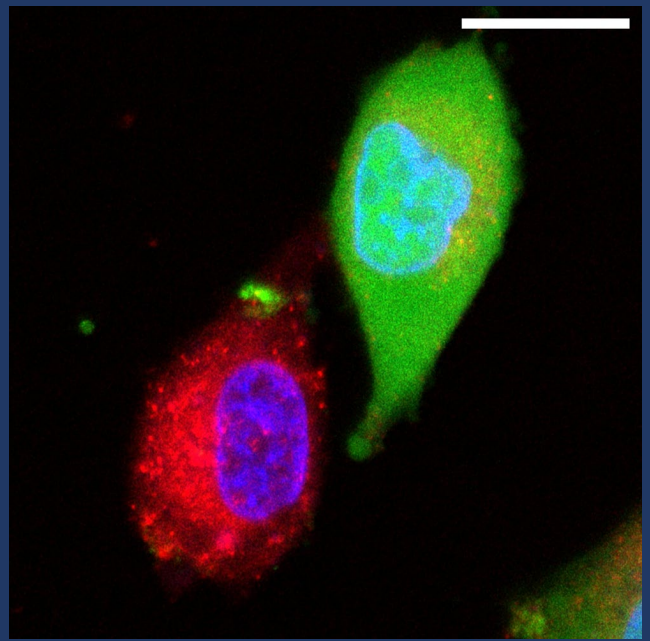

Image: Co-culture of a melanocyte (left, red) with melanosomes (bright green dots) ready to transfer to a keratinocyte (right, fuzzy green). The cell nuclei are shown in blue. Scale bar is 20 µm.

Credit: Dr Kleopatra Papa, University of Durham

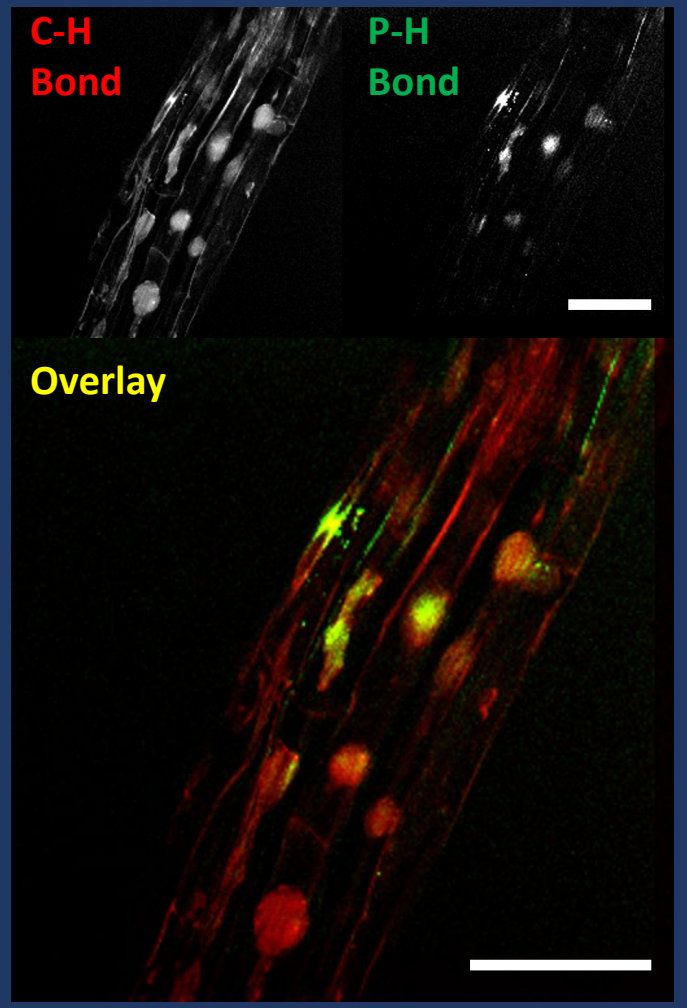

IMAGE: Phosphite localisation in roots using SRS. Overlay shows phosphite signal within vacuoloid structures inside root cells. Scale bars 50 µm.

CREDIT: Dr Kevin Webb, University of Nottingham

The Global R&D Agronomical Bionutrition Department of Tradecorp International remarked: “This new technology will provide us with a new way to understand the mechanisms of action from the phosphites as plant biostimulants. Using the imaging, together with other results from transcriptomics and phenotypical analysis will provide an overall and certain positioning for this great biostimulant tool in the agronomic market.”

RMS Application Coaching and Mentoring Scheme

The Royal Microscopical Society

Application Coaching & Personal Mentoring Schemes

www.rms.org.uk/mentoring

@RoyalMicroSoc

Call for Applicants

We are very pleased to announce the extension of the pilot RMS Application Coaching and Personal Mentoring Schemes

Two tracks of the scheme will run for up to 12 months:

- **Application Coaching**
  Pair up with an expert in the technique or software you are learning
- **Personal Mentoring**
  Pair up with a mentor offering input into microscopy, imaging and flow cytometry career development.

Both tracks are aimed at supporting the career of all RMS members.

Applications for both mentees and mentors are open from now to 31 August 2023 and can be made via the RMS website at www.rms.org.uk/mentoring

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"It's been great so far. I am very luck to have a mentor that is passionate about helping me. They are a brilliant listener and give me advice that I don't get from academic supervisors. The insight into industry has been super."

"Just thanks! It's being very good so far."

Scott Dillon, Georgina Fletcher, Joelle Goulding, Alex Sossick and Paul Verkade

The Royal Microscopical Society

Technical Specialist Job Shadowing Pilot

www.rms.org.uk/opportunities/job-shadowing

@RoyalMicroSoc

Call for Applicants

Funded by the Technician Commitment, the RMS and the Technical Specialist Network, this scheme aims to provide scientists on an academic track with the opportunity to visit imaging or flow core facilities

- Selected applicants will have the chance to shadow a technical specialist for up 5 days at a different institution's facility
- Get insights into the daily operations of the facility, including operating various imaging modalities and software tools, managing open user access, ensuring quality management, and handling image data storage and analysis.

Applications are now open until 31 August 2023 and can be made via the RMS website:
www.rms.org.uk/opportunities/job-shadowing

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The Festival of Hidden Ref: 21 Sept 2023, M Shed, Bristol

BioImagingUK

Do you want to help improve research assessment, recognition and celebration?

REGISTRATION JUST OPENED!

PLACES ARE LIMITED!!!

The Festival of Hidden REF will bring together people who work in non-traditional research roles alongside policymakers, publishers and others involved in the research assessment. You should attend this free event if you would like to raise recognition for your unrecognised role or practice. You will join a community that is fighting for a more effective and fairer system of evaluating success in research.

hidden-ref.org

@HiddenRef

Forward Look

- EuBI and the UK Node – come and see Johanna Bischof and I at booth 140!
- Consultations on digital and hardware national bioimaging infrastucture
- The VolumeEM Community Initiative goes from strength to strength - @VolumeEM1, www.volumeem.org
- Establishing a working group on establishing “Imaging guidelines in containment level facilities”
- MicroscopyDB = A place to upload all your resources, jobs and events for automatic wider dissemination – www.microscopydb.io

e: georgina@rms.org.uk

Ways to get involved in the Network:

1. **Contact me directly:** georgina@rms.org.uk
2. **JISC Mailing List** (UK-EUROBIOIMAGING-PROJECT):
3. **Visit our webpage on the RMS website:** www.rms.org.uk/bioimaginguk
4. **@BioImagingUK**
5. **BioImagingUK Network**
6. **Slack** (email me for invite)

Thanks for listening and to…

Maddy Parsons, Alex Sossick, Kurt Anderson, Michelle Peckham, Lucy Collinson, Paul Verkade, Phil Hubbard, Joelle Goulding, Jennifer Anderson, Jean-Marie Burel, Stefanie Weidtkamp-Peters, Matthew Hartley, Michael Grange, Jemima Burden, Gerard Kleywegt, Ken Ho, Martin Jones, Todd Fallesen, Rocco D'Antuono, Camille Charoy, Louise Howitt, Peter O'Toole, Jason Swedlow, Chas Nelson, Cheng Cheng, Marco Marcello, Violaine See, Jessica Valli, Beccy Saleeb, Nicola Lawrence, Liam Rooney, Dave Barry, Daniel Soong, Nandita deSousa, Leandro Lemgruber, Dale Moulding, Charlie Wood, Tim Self, Carina Monico, Nadia Halidi, Liz Duke, Simon Hettrick, Carlos Constantino Reyes, Stefania Marcotti, Dominic Waithe, Scott Dillon, Kevin Mackenzie, Alex Ball, Anwen Bullen, Pedro Machado, Patricia Goggin, Chris Peddie, Natasha Stephen, Nick Barry, Stefanie Reichelt, Kirti Prakash, Esperanza Agullo-Pascual, Alessandro Esposito, Mike Ball, Helen Zenner, Daniela Hensen, Rowan McKibbin, Johanna Bischof, Antje Keppler, Lee Beniston, Adam Staines, Susan Cox, Roland Fleck, Chris Toseland, Rebecca Thompson, Paul French, Jonathan Taylor, Tim Hawkins, Carles Bosch, Heather Burgess, Matt Russell, Louise Hughes, Pete Bankhead, Pippa Hawes, Nadine Randal, Emma McDermott, Gleb Grebnev, Maria Diaz de la Loza, Federica Paina, Alison North, Claire Brown, Vlad Ghukasyan, Nikki Bialy, Vanessa Orr, Leo Carlin, Rick Webb, Kedar Narayan, Ann Wheeler, Harish Poptani, Dave Clarke, Marisa Martin-Fernandez, Sue Vaughan, Michelle Darrow, Slidesgo and **all the RMS team ☺**

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