

BioImagingUK – an update

Georgina Fletcher

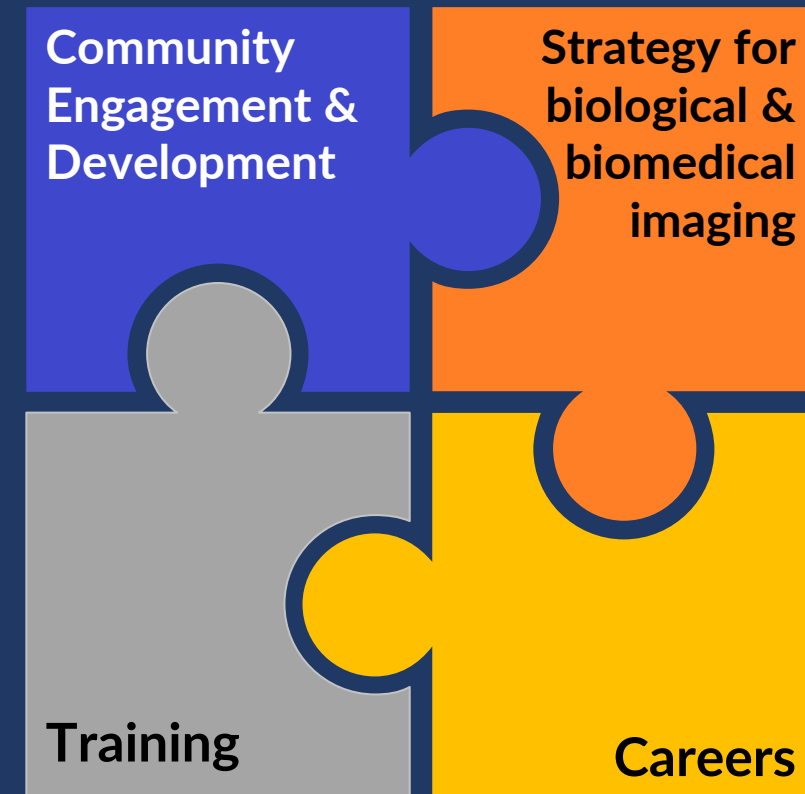
BioImagingUK Project Officer and EuBI UK Node Manager

Annual BioImagingUK Meeting, Sept 30th 2024, @ The Crick

An Overview of 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
- Funded until April 2027 by UKRI-BBSRC, -MRC, -EPSRC, in partnership with the 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



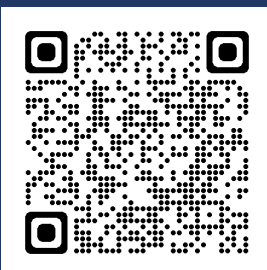
Royal Microscopical Society

Strategy:



1. UK Node of Euro-Bioimaging is open to users!
2. UK-Imaging Across Scales (UK-IMAS) Proposal:
 - *a unique infrastructure to understand biology in context*

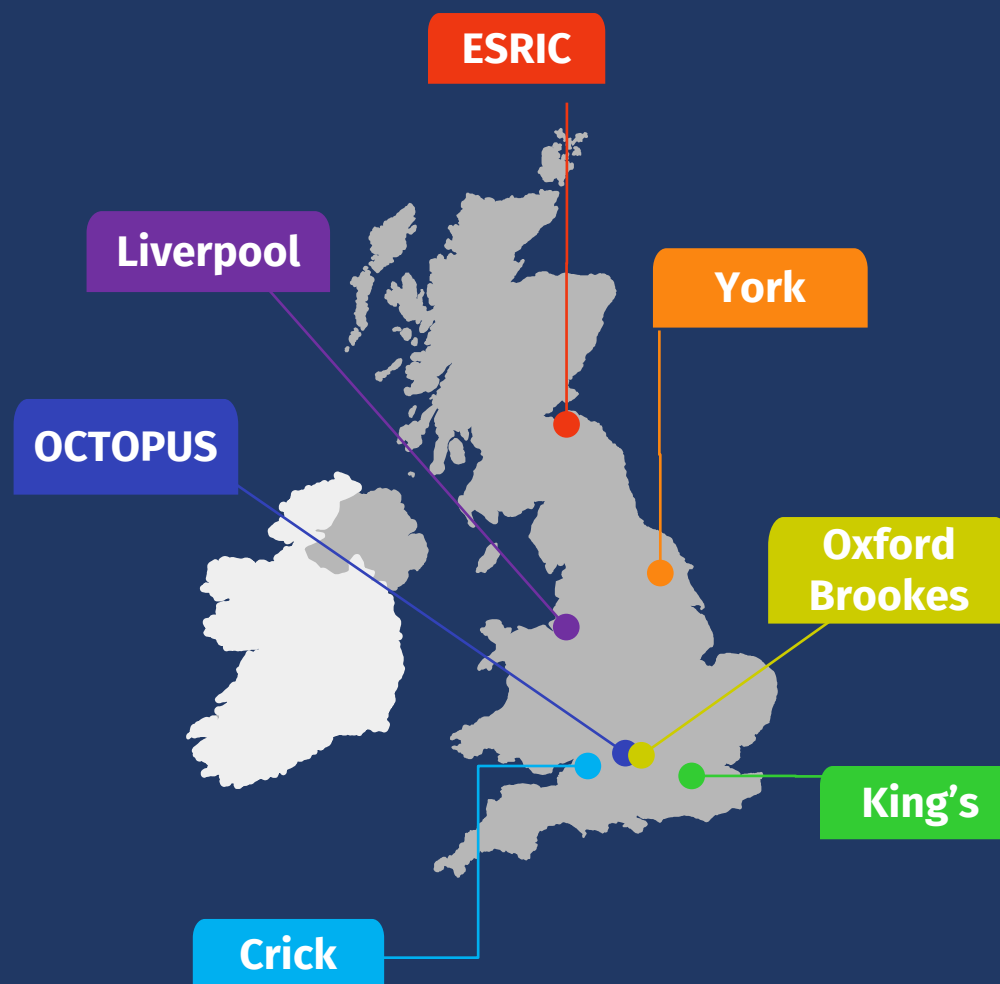
Euro-Biolmaging: The UK Node for biological imaging in 2023



Access to 25+ biological imaging techniques covering correlative, multi-modal, high-content and super-resolution modalities across 7 UK sites

Apply for access through the Euro-Biolmaging web portal

Funding opportunities are available, and visits to research infrastructures can be included on most grant applications



Adding Image Data Services later this year

UNITED KINGDOM

The UK Node

Node contact: Georgina Fletcher

Website: eurobioimaging.eu/Nodes/uk-Node

FACILITIES

 **14**

EXTERNAL USERS

 **202**

USER PUBLICATIONS

 **134**

REMOTE USERS

 **9**

TRAINING COURSES ORGANIZED

 **5**

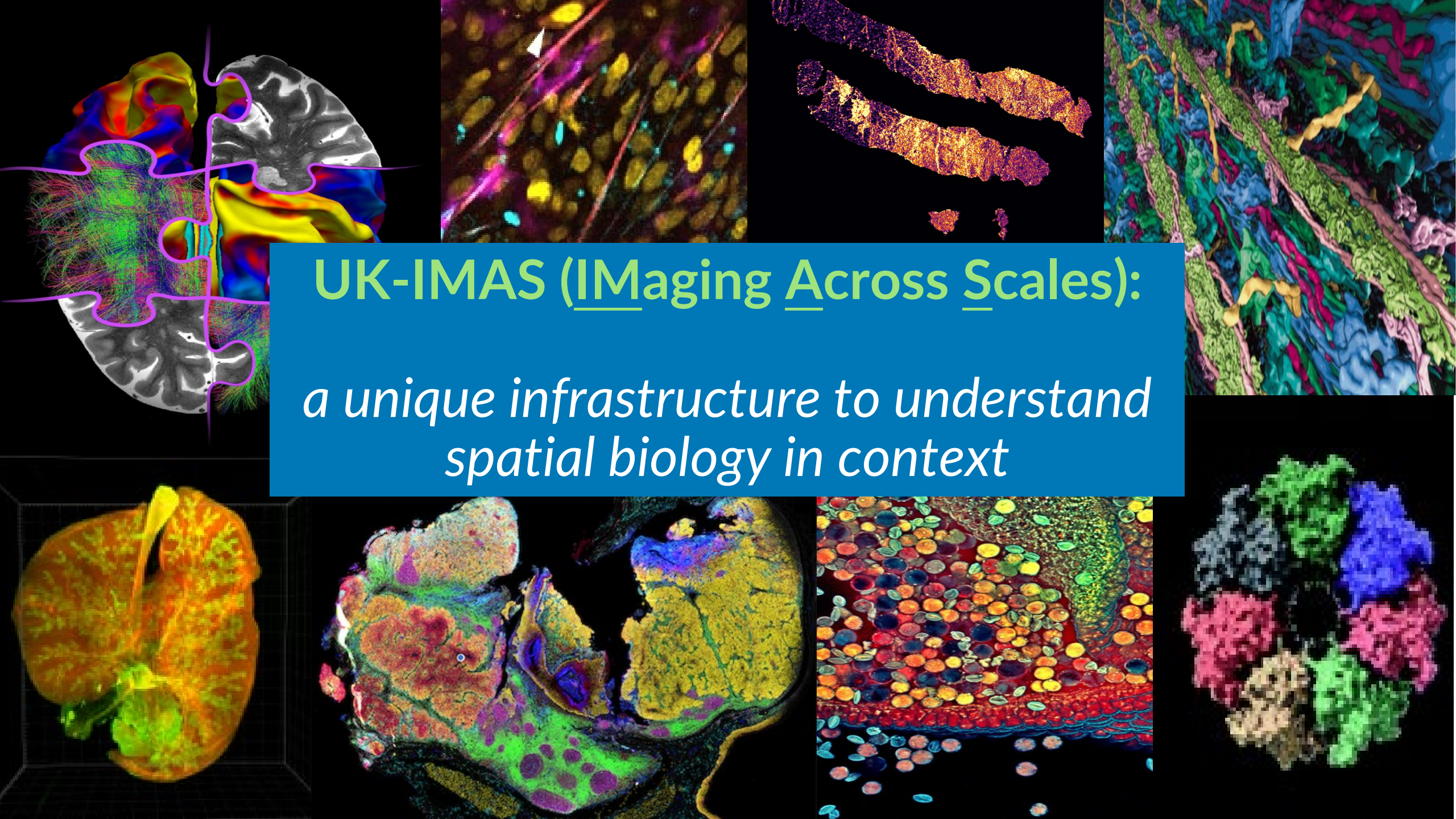
STAFF INVOLVED

 **47.6**

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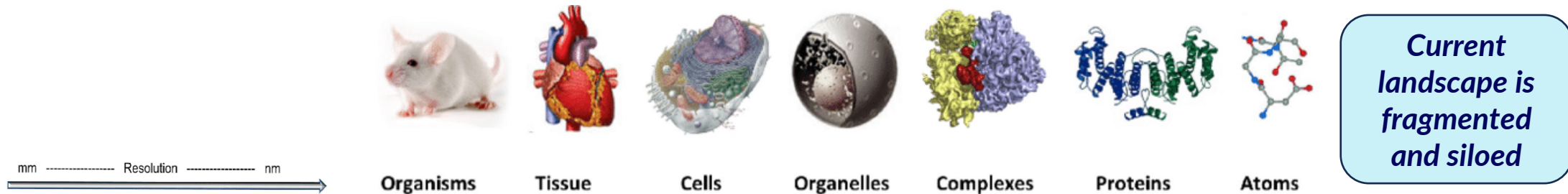
UK-IMAS (IMaging Across Scales):

*a unique infrastructure to understand
spatial biology in context*

UK-IMAS: why is it important?



Biology exists at different length scales and timescales



Integrating biological scales delivers understanding of complex biological systems:

- Molecular structure relationships with biochemical and physical environment
- Transcriptional relationships with protein expression/location and metabolic state
- Dynamics of molecules in situ and relationship to cell structure, neighbourhoods and environment
- Cell/tissue functions relating to cell state characteristics
- Relationships between organism function, phenotype and genotype

An infrastructure to tackle global research challenges:

Rapid response to **future pandemic threats** by identifying structures, interactions, and pathology across scales

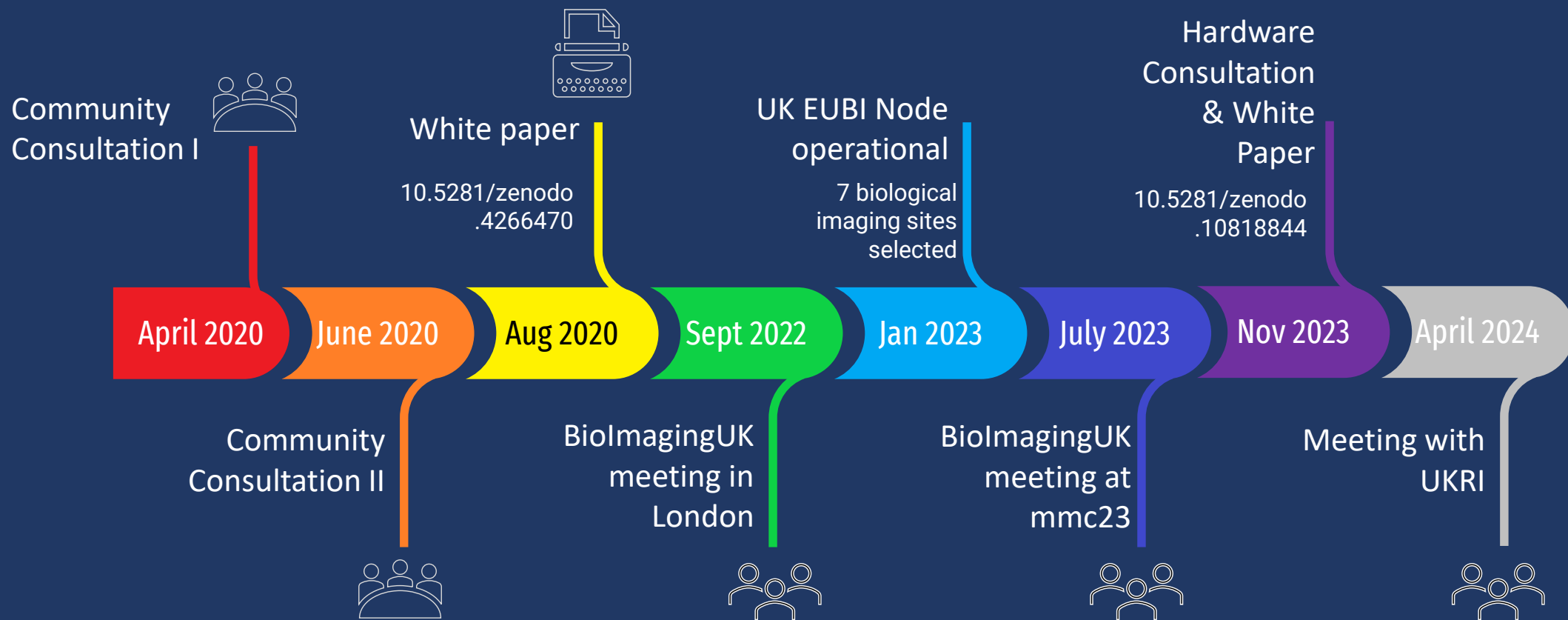
Precision healthcare to accelerate identification of patient-specific **neuro-pathology** across scales

Solutions to **food security threats** by mechanistically linking **environmental triggers to plant health**, across contrasting environmental conditions

Towards UK-IMAS - a National Bioimaging Infrastructure

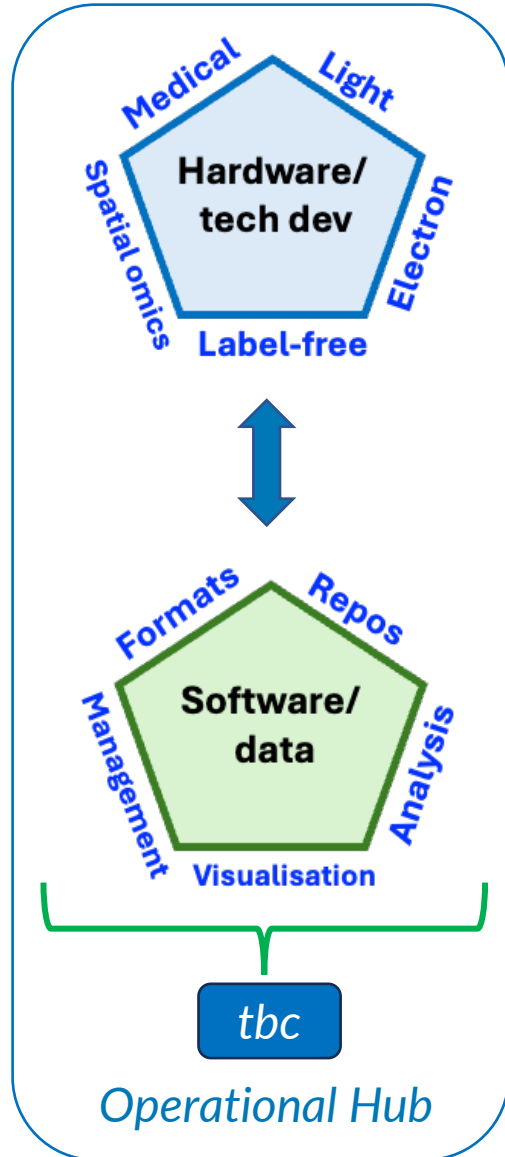


Journey so far:



UK-IMAS: distributed infrastructure

8 Centres of Excellence & Operational Hub

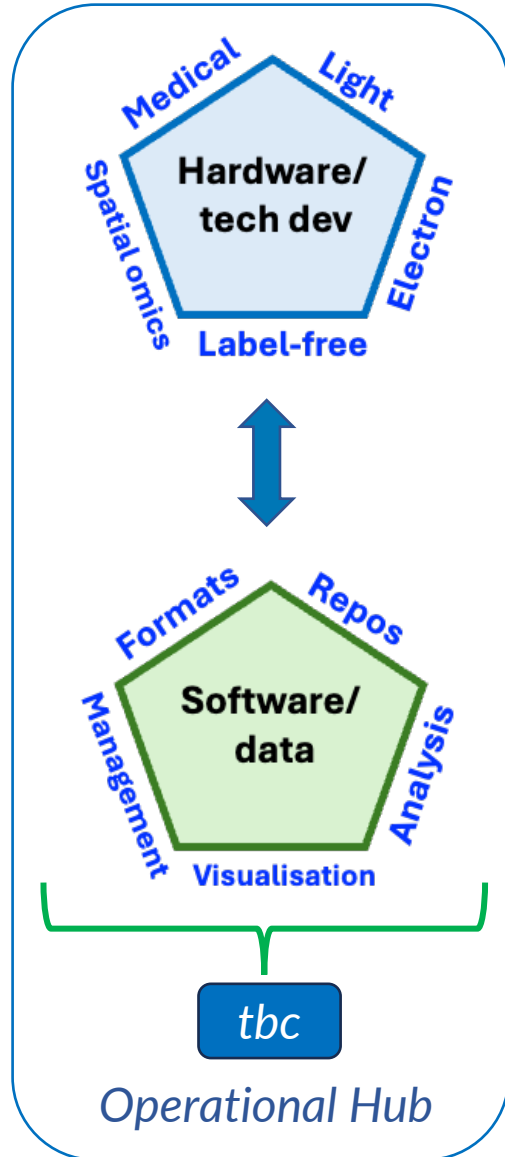


AIMS:

- Establish 8, coordinated CoEs in cross-scale bioimaging technology domains
- Develop a data infrastructure for seamless sharing and integration of multiscale imaging data
- Create standardised workflows and tools for FAIR quantitative multiscale imaging and analysis
- Provide open access to cutting-edge imaging capabilities for the UK life sciences community

UK-IMAS: distributed infrastructure

8 Centres of Excellence & Operational Hub



tbc

Optical > label-free > spatial 'omics

Light > in situ structural

*Highres MRI
AI-based IQT*



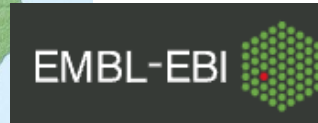
University of Dundee

*Nextgen file formats,
cloud-based workflows*



University of Nottingham
UK | CHINA | MALAYSIA

Plant science: optical > chemical > 'omics



EMBL-EBI

Analysis tools, data sharing, repos



Optical > label-free > spatial 'omics

HiP-CT > cryoEM

Training & Career Development:



1. **BioImagingUK and PoLNET co-awarded BBSRC funding for enhancing Equality, Diversity and Inclusion in our networks**
2. Technical Specialist Job Shadowing Scheme
3. RMS Mentoring and Application Coaching Scheme
4. RMS Training Survey

Equity and Inclusion of Women, Low-Income Classes and Carers



Common
priority
areas:



Gender
disparity in
oral abstracts



Low-income
backgrounds



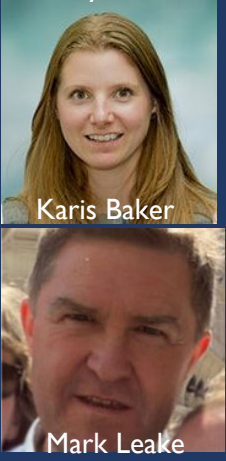
Parents and
Carers



Lack of EDI
Network Data



Equity and Inclusion of Women, Low-Income Classes and Carers



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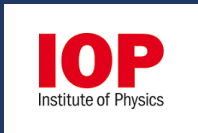
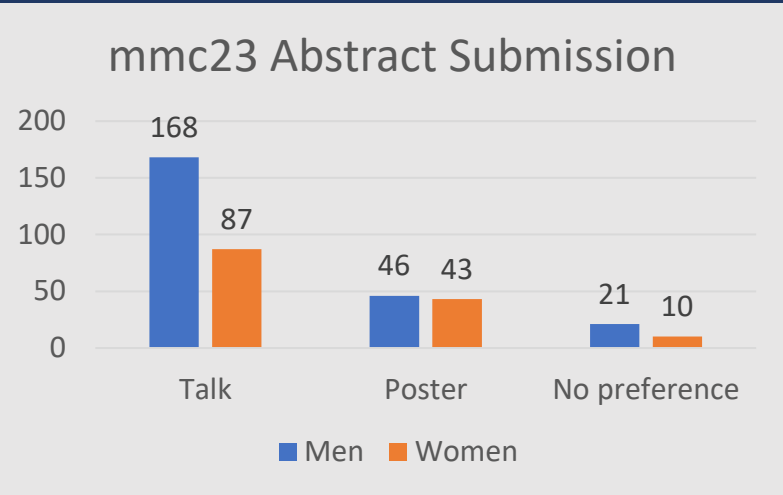
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Equity and Inclusion of Women, Low-Income Classes and Carers



Common
priority
areas:

Proposed
solutions:

Expected
outcomes:



Gender
disparity in
oral abstracts

Low-income
backgrounds

Parents and
Carers

Lack of EDI
Network Data

Women's
Presentation
Skills Training

Summer
Studentships
for Undergrads

Bursary to
attend
meetings

EDI Data
Collection,
Analysis

Expected outcomes: increased confidence and participation of identified groups in network activities, and data-driven insights to guide future EDI initiatives and support



Training & Career Development:



1. BioImagingUK and PoLNET co-awarded BBSRC funding for enhancing Equality, Diversity and Inclusion in our networks
2. **Technical Specialist Job Shadowing Scheme**
 - 6 successful applications following a 2023 pilot funded by the Technician Commitment
 - Opens again in Summer 2025
3. RMS Mentoring and Application Coaching Scheme
4. RMS Training Survey

The Royal Microscopical Society

Technical Specialist Job Shadowing Pilot

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



Funded by the Technician Commitment, and in partnership with the Technical Specialist Network

This scheme aimed to provide scientists on an academic track with the opportunity to visit an imaging or flow core facility for up to 5 days



*Thomas Dunnett
Surrey Uni → Brunel*



*Jess Parker
Northumbria Uni →
Beatson*



*Stefania Marcotti
King's → Crick*

The Royal Microscopical Society

Technical Specialist Job Shadowing Pilot

“The link between our respective universities has clearly been strengthened and we hope to build on this with some collaborative proposals and grant applications.”

“Encouraging more PhD students to seek training and future career opportunities in technical specialist roles where the number of experienced applicants is currently limited.”

[www.rms.org.uk/opportunities
/job-shadowing](http://www.rms.org.uk/opportunities/job-shadowing)



@RoyalMicroSoc

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2. Technical Specialist Job Shadowing Scheme
3. **RMS Mentoring and Application Coaching Scheme**
www.rms.org.uk/mentoring
Inviting mentors and mentees for the next round!
Closes 31 Jan and 31 July each year!
4. RMS Training Survey



Training & Career Development:

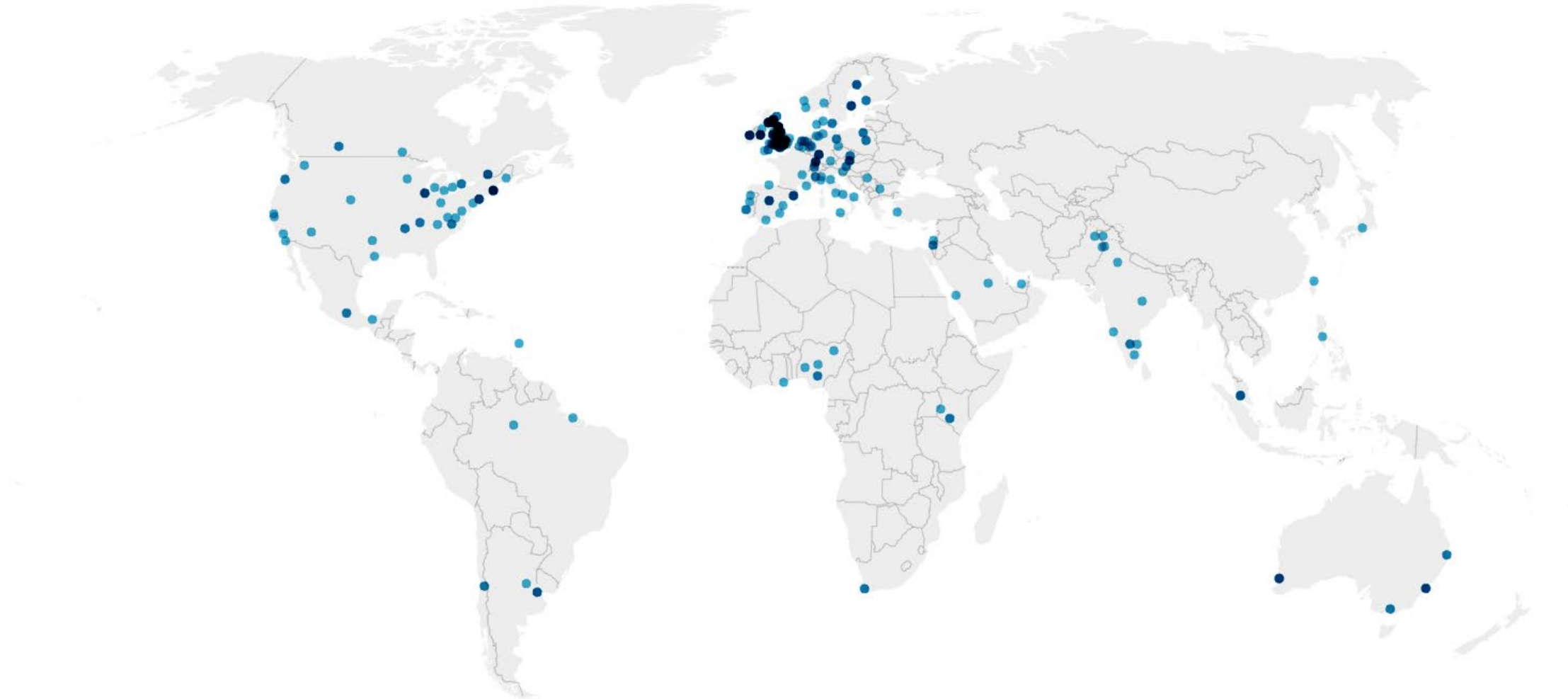


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4. **RMS Training Survey**

RMS Training Survey: >500 responses from >40 countries



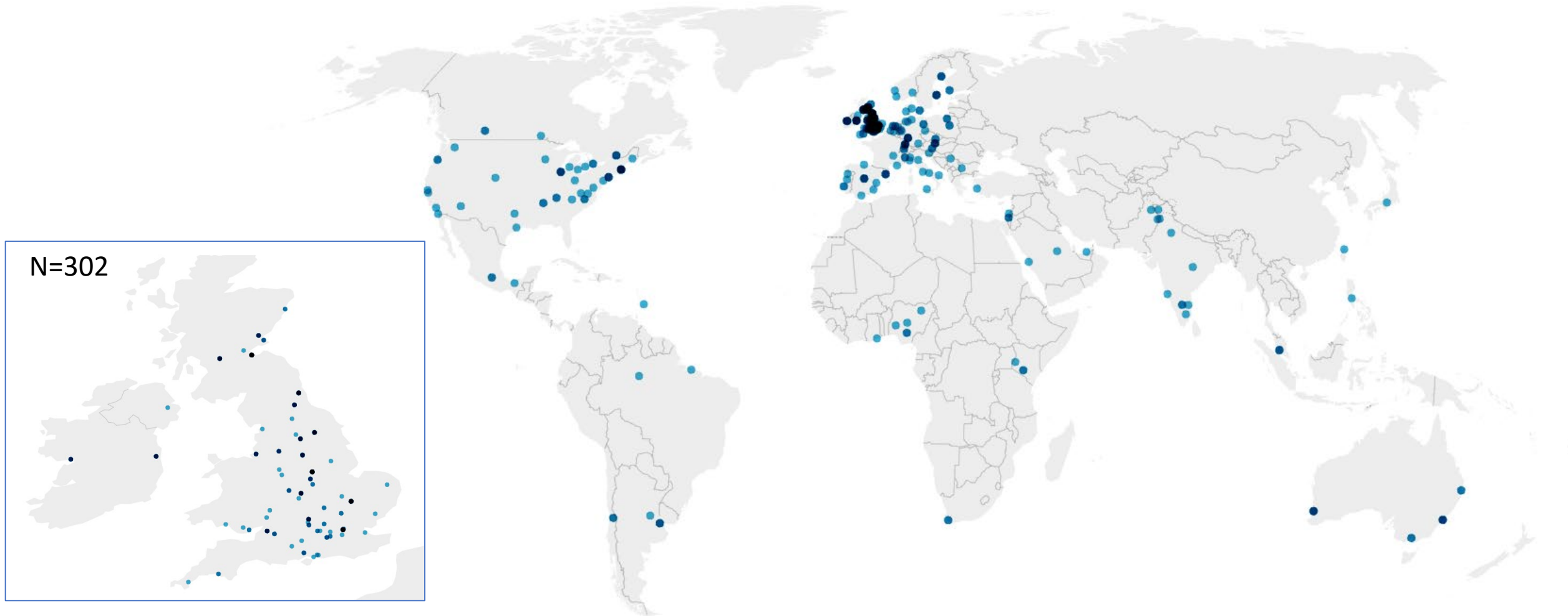
Distribution of respondents to survey by nation / country



RMS Training Survey: >500 responses from >40 countries



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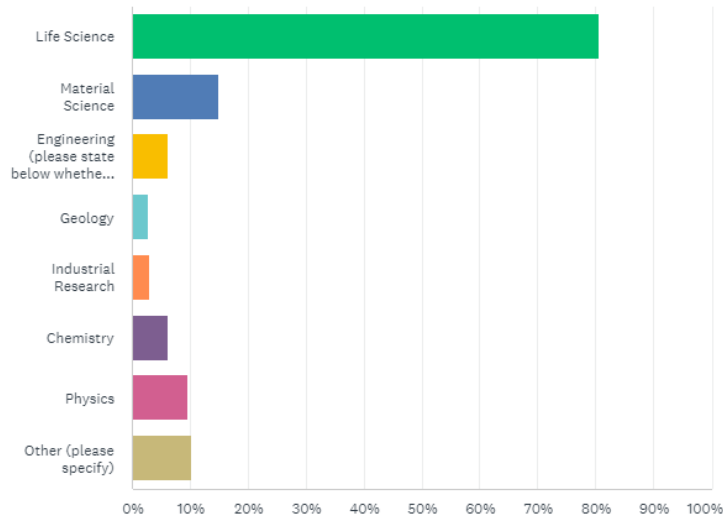
Thanks to Ann Wheeler, and sub-group of RMS PTD-FIG (Alex Ball, Laude, Sossick and K.Thompson)

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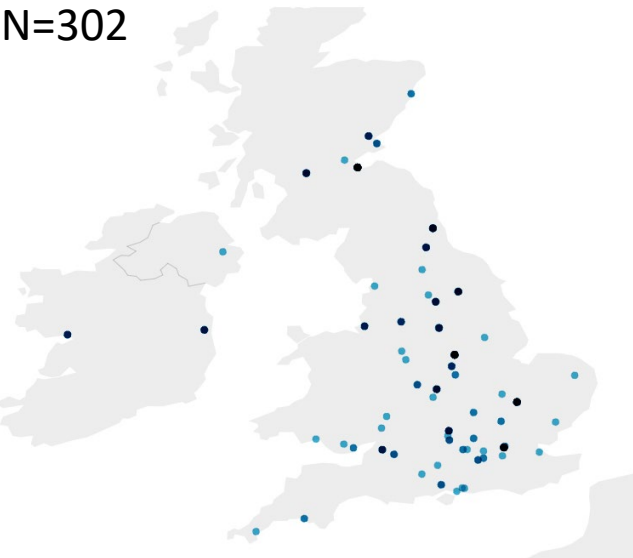
Which field of science are you in?

Answered: 513 Skipped: 0



ANSWER CHOICES	RESPONSES	
Life Science	80.70%	414
Material Science	15.01%	77
Engineering (please state below whether Mechanical, Civil, Chemical or Electrical)	6.24%	32
Geology	2.73%	14
Industrial Research	2.92%	15
Chemistry	6.24%	32
Physics	9.55%	49
Other (please specify)	10.33%	53
Total Respondents: 513		

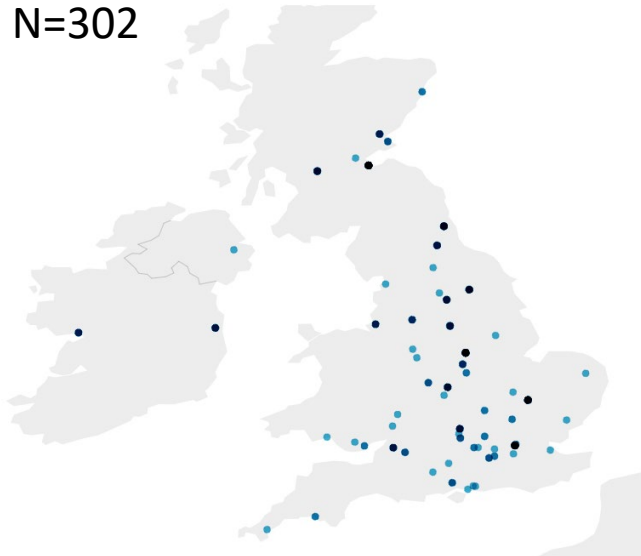
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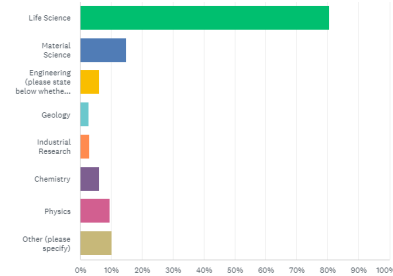


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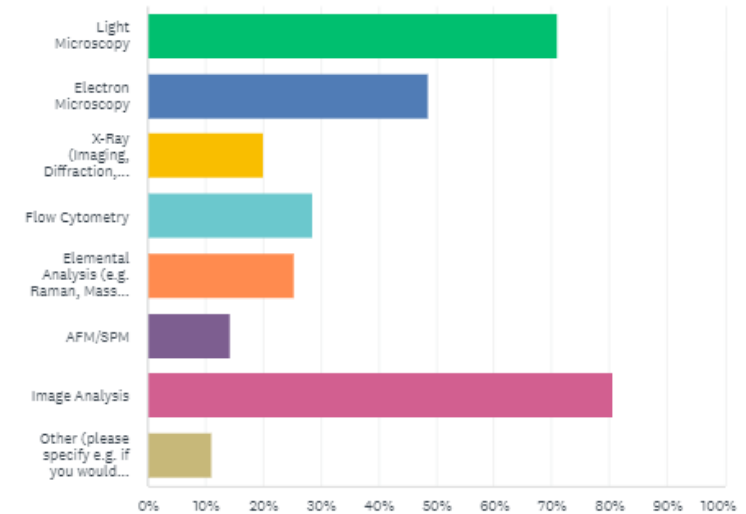
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Other (please specify)	10.33% 53
Total Respondents: 513	

Please tick all the modalities for which you are interested in training courses

Answered: 513 Skipped: 0



ANSWER CHOICES	RESPONSES
Light Microscopy	70.96% 364
Electron Microscopy	48.54% 249
X-Ray (Imaging, Diffraction, Spectroscopy, Tomography)	20.08% 103
Flow Cytometry	28.65% 147
Elemental Analysis (e.g. Raman, Mass Spec Imaging, EDX, EELS, etc)	25.34% 130
AFM/SPM	14.23% 73
Image Analysis	80.51% 413
Other (please specify e.g. if you would multimodal training please define the different modalities).	11.11% 57
Total Respondents: 513	

Community Engagement & Development:

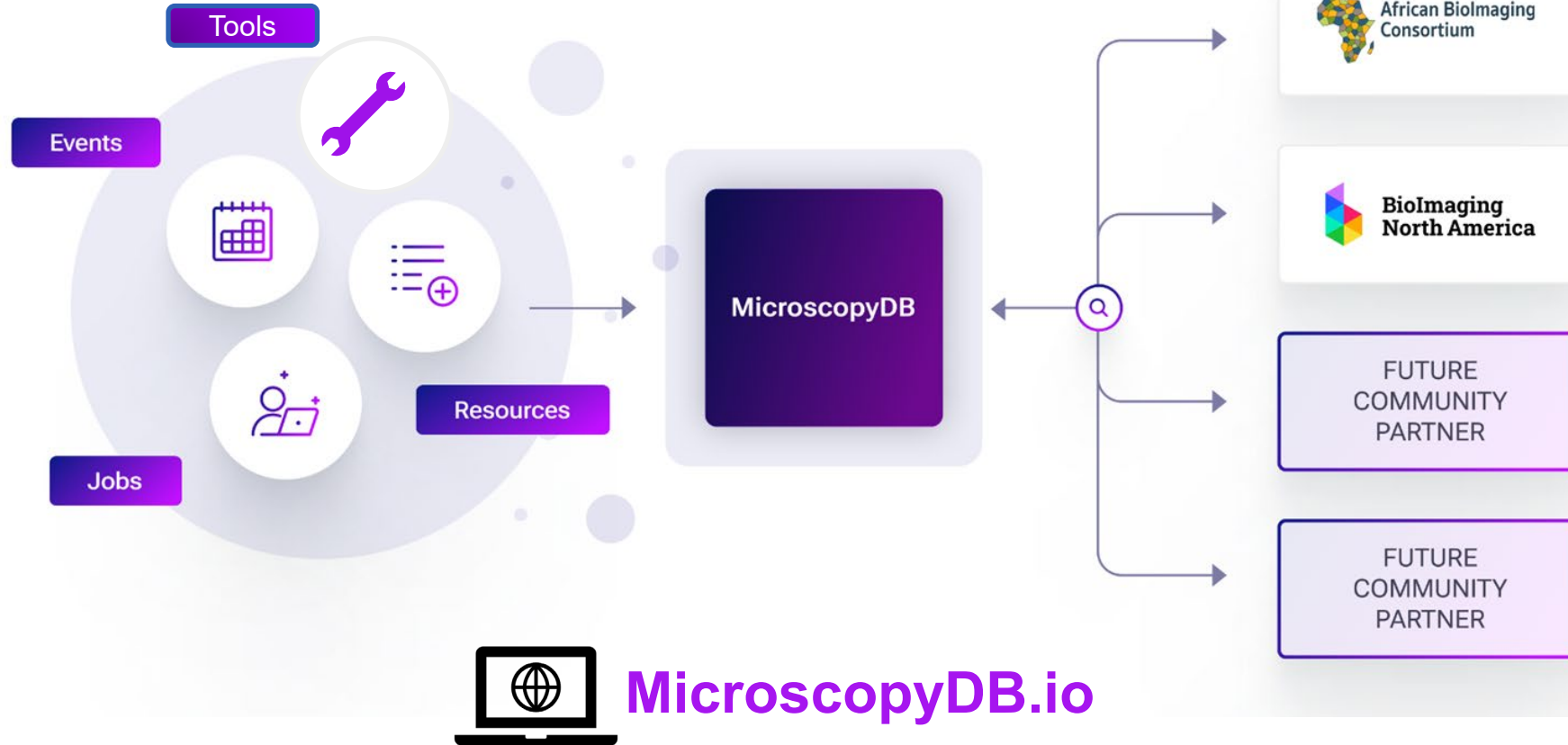


MicroscopyDB - www.microscopydb.io



A place to upload resources, jobs, events and tools for automatic wider dissemination

MicroscopyDB



MicroscopyDB.io



contact@microscopydb.io



[@MicroscopyDB](https://twitter.com/MicroscopyDB)



This pilot project has been made possible in part by a grant to BINA by the Chan Zuckerberg Initiative DAF, an advised fund of Silicon Valley Community Foundation.

Partners



...And continuing to grow!

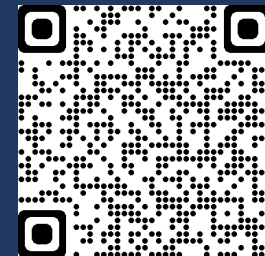
Forward Look



- Establish a working group on “Imaging guidelines in containment level facilities”
- Industry speed dating event at mmc25 in Manchester
- Roll out of EDI opportunities together with PoLNET and partners

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
6.  Slack (email me for invite)



Thanks to you and...



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