

BiolmagingUK meeting summary – Manchester Central - July 1st 2019

Maddy Parsons – announced re-funding of BiolmagingUK network by multiple stakeholders. Core goals of network are to promote and assist in bioimaging career development, develop UK-wide strategies for new imaging development, engage with the community and find better ways to work together. A BiolmagingUK Focussed Interest Group has already been established with a broad base of members, will meet 2- 3 times per year to discuss priorities, define future plans and help with writing community documents. BiolmagingUK will also hold regular UK wide and regional meetings, as well as launch surveys to determine training needs, development ideas.

BiolmagingUK Business Interaction Vouchers call coming in July 2019 - dedicated vouchers for interactions between academics and industry – reciprocal cash or in-kind contribution by industry. Max £10k per voucher. Call details in 3- 4 weeks on the website.

Antje Keppler Euro-Biolmaging

Introduced current status of EuroBioimaging. Outlined model whereby stakeholders can apply for training and access to imaging resources, full scope of bio and medical imaging, more than 30 imaging technologies, likely to increase quickly since 2016 web portal to access imaging facilities and EMBL. Provides access to the correct instrument or technology or the right imaging tools and services as well as encouraging open access data and co-ordinated user training and interfacing with industry. 15 countries and EMBL form ERIC launching in early autumn 2019. EuBI governance will then be established, with launch of website/access portal. 1st meeting of new partners will be held in Heidelberg in October. A call for new nodes expected in Dec2019. Application much include a Letter of Support from EuBI delegation. Applications will undergo independent evaluation to determine eligibility, excellence and technical criteria. Ratification of all nodes takes place by EuBI board. Germany not part of Euro- Biolmaging – Quick answer: No roadmap for German services at the moment (government related).

Continuous revisiting of the nodal points, depending on user needs through usage capture

More nodes can be submitted in future calls, there will be more of those.

Also introduced Global Biolmaging, a network for people to find global support, build an international network of imaging infrastructure, bring Imaging communities together. Open to everyone.

Jason Swedlow – BiolmagingUK and Euro-Bioimaging

First call for expression of interest for UK Nodes was put out in 2013 – several facilities came forward and 8 were selected for EuroBioImaging. Process went ahead without financial support as node expression of interest call initiated without approval from funders. BBSRC took lead on providing Letters of Support for UK EOI applications, which were highly rated and commended by Euro-Biolmaging IRB. No direct additional funding was provided.

UK has now submitted a letter of commitment and is in support of the EuBI application. UK has strong regular funding routes for technology development and provision (BBSRC: BBRM, TRDF, ALERT). UK also has world class technology and capabilities in areas including super resolution, photonics, Correlative LM/EM, Image informatics.

Simon Watkins - Biolmaging North America (BINA)

US fairly isolated, not collaborating as much as Europe. Biolmaging is rapidly evolving, putting pressure on the community responsible for its growth. In the US, imaging science is much more siloed. There is little resource sharing or institutional cooperation, need to build a cooperative, similar to those throughout Europe to train, build interactions and share resources. Goals of BINA are to provide open, non-partisan critical platform of quantitative light microscopy standards, integrate facilities, technologies jobs and testing now technologies.

Funding comes from industry as well as academic. Also a need to develop new microscopy meetings: currently often split between different disciplines, EM/Materials - M&M. No NEUBIAS in USA. Early

stages of developing BINA at the moment, anticipate more interactions with other countries in coming months.

Angus Kirkland - Rosalind Franklin Institute

Introduced RFI as a new independent research institute, with the goal of developing disruptive technology in the field of cryoEM. Has 10 university partners and Diamond light source. Aims are to drive convergence of physical, life and engineering sciences, optimise effectiveness of existing government investment, develop new techniques and instrumentations and exploit opportunities offered by emerging physical technologies. Operates a hub and spoke model: Hub funded by creator, spokes funded by Users. Features of RFI science: adventure, risk and payoff is significant if successful, engagement, novelty, utility. RFI will compliment, not compete with universities. Successful developments will be made accessible through national facilities. Building on Harwell campus expected to be completed in 2020.

Ian Wimpenny – Henry Royce Institute

Royce Institute is a UK national centre accelerating discovery and development, delivering an integrated research supply chain, working towards collaborations, partnered with 9 universities, also many industry partners and Catapults. Based around technical materials challenges, designed to be “Single front door” for advanced materials innovation, early stage innovation opportunities at sector level and national strategy. Research instruments available include automated confocal quantitative imaging, light Sheet Microscopy Zeiss Lightsheet Z.1, Leica SP8 Multi Photon Confocal 8 different wavelengths, automated immunostainer, Optical coherence tomography, adaptive optics for super resolution biofilm formation, ToF SIMS (Mass Spec) atomic and molecular depth profiling, label free detection, simultaneous topography analysis. Costs depend on funding sources but funds available for students on UKRI DTPs to access equipment.

Nigel Browning - Faraday Institute

Faraday is focused on battery technology; raw material, cell components, module pack, recycling. Made up of virtual institutions – many universities involved. New projects – funding is spent, unless more comes in. Need for cryo-EM for battery research (plunging under working conditions) Bacterial breakdown of batteries – imaging. Batteries are interactions between liquid and solid interphases – comparable biomembrane interactions. Faraday is seeking opportunities to develop a network for characterizing and developing batteries with input from imaging.

Ugis Sarkans – EMBL/EBI Bioimage data ecosystem

EMBL/EBI databases: EMPIAR (EM Public Image Archive), First EMDB entry only, then other sources, X-Ray and correlative data

EMBL- EBI- BioImage Archive, Advance in imaging technologies – opportunities for research and biomedical insights. Open sharing of reference image data will be important in future (as is done in genome community), there is a need for a central storage facility for this. Bioimage archive will house data related to publications, enable reuse, support integrity and provide reference images IDR Image Data Resource Vision, now launched, public Access database of reference datasets, complete datasets for study integration, to facilitate transparency and reproducibility. Challenges include data volumes, streamlining data, useful data delivery. EMBL/EBI are engaging with the community at a workshop in a few months time, to tackle the challenges mentioned.

Daniela Henson and Charlotte Inchley – BBSRC/MRC

Bioimaging in BBSRC represents a min 40% of the funded portfolio. Strategic review in Bioimaging in 2018 highlighted key gaps in knowledge and infrastructure. MRC has 25% focus on imaging, over half of funded proposals have an imaging component, use of imaging for neuroscience is a strategic priority, including recent NeuroNex next gen neuroscience networks call). Imaging biobanked tissues also requires more advanced imaging approaches.

BBBSRC UKRI conducting a new review in 2019 - Aims are to strengthen BBSRCs understanding of the research landscape, identify current issues and future needs within the UK research community and ensure BBSRC is well positioned to support future requirements. Information being accumulated through a community questionnaire and workshops. A recent UKRI review of AI aimed at understanding current support for AI research, identified opportunities and assessed gaps in provision which will enable recommendation of future support strategies. BBSRC also investigating funding for potential UK EuroBioimaging nodes. More information on this to be announced in coming months.