

Present: Professor Yvonne Jones (YJ- Chair) & Professor Simon Leedham (SL-Chair), Gillian Douglas (GD), Ellie Tzima (ET), Loic Carrique (LC), James Bancroft (JB), John Grimes (JG), & David Bartle (DB- Secretary)

Apologies: John Todd (JT), Cath Green (CG) & Jens Rittscher (JR)

Matters Arising/Actions:

| Agenda Item | Description | Owner |
|-------------|---|-------|
| 7. | JB to approach Andrew McAinsh for a seminar, Warwick Medical School. | JB |
| 7. | Continue to secure a seminar from Martin Walsh from Diamond | YJ |
| 6.7 | Approach Rob Esnouf as a guest to next meeting to discuss Data storage & processing demands/performance | DB |
| 8. | Rearrange next meeting for mid-April 2021 | DB |

1. Minutes and Apologies:

Minutes approved

2. Matters arising from the previous meeting:

2.1. Agenda update – completed.

2.2. Software – **JB** running an online demo of Arivis Vision 4D with Rachel Bashford-Rogers pathological data and Liz Tunbridge neurites data. Progress is being made on testing, decision to come whether we update 2013 version of Imaris or purchase Arivis. Arivis features machine learning/AI tools. **SL** suggested to talk to Eoghan Mulholland for new data sets.

2.3. Widefield Microscope – Demonstrated, purchased and now in place. Flat charge (~£150/year) as gateway to facility. Based in main Lab1.

2.4. Seminar speaker Sub-Cellular – **YJ** approached Martin Walsh to give a talk as an overview of Diamond, awaiting response. Hopeful to get him in before Easter.

3. New Facility rates for Cellular Imaging and FAC's (appendix.1)

New rates to come in on Feb 21. Increase in prices due to extra service cost and new posts in.

JB trying to attract users from other units and external industry contacts as they are financially lucrative and will help overall health of the facility.

ET important we don't over occupy with external user so centre members find it difficult to get access. **JB** given additional capacity this won't be a problem.

GD can we have a flat rate? Easier for grant applications. **YJ** not able to do this as previous rates (MICRON) due to WT Strategic grants which no longer exist and WT need breakdown of hourly access costs to facilities now.

4. Recruitment of New Cellular Imaging Core Head

SL need to understand more the direction of imaging in the centre and how that translates into recruitment of a new PI in WHG?

YJ we now have an established ourselves with the Cell surface, what other areas do we need to move into in the future?

JB Photo manipulation is key theme in the future, using microscopes to induce biological changes (e.g. deplete a protein). We will also need to work with and analyse ever increasing data sets. Beginning to address with software discussed earlier.

SL Spatial transcriptomics is also a future issue and need someone with more of analysis skill set who can work on the integration of various omics.

JG AI/machine learning is a key future capability we need to develop.

GD struggled with AI / machine learning as an analysis of bulk data sets and integrating with other data/omics.

ET how does a PI find the time to help the centre as well as running their own group.

YJ how do we create a critical mass of people in strategically important imaging fields in the centre.

Tuesday 2nd February at 13:00 via Teams

JB can we add a senior Post-doc who has an AI/bioinformatics skill set to add to the team, instead of a new Group head.

JG cryo-structure illumination is something that is needed in STRUBI.

5. Effect of COVID RTOSW Measures on imaging in the centre

JB Since Christmas user numbers have been lower so pressure on the core has been reduced. Booking system ensures occupancy limits are adhered to and robust COVID safety measures have allowed training in the Cellular Imaging Core to continue.

JG training is an issue across the centre.

6. Standing meeting items:

6.1. James – Cellular Imaging

New RA recruited Ed Drydale. Great skill set and should be a great asset. Start April 21.

New Systems delivered end of Feb to late March 21, both now have machine learning features incorporated in software. Olympus SoRa system incorporates high-content imaging with super-resolution.

6.2. – OPIC – n/a

6.3. Chryos EM – LC Working COVID samples. New cabinets ordered for H&S when placing samples in microscopes, but high demand so should be delivered in 3 months. Waiting for risk assessments to be approved.

Changing all old microscopes.

Looking for grants for updating capital equipment.

6.4. – Chromosome Dynamics – n/a

6.5. – Emerging Technologies & Software (Horizon scanning) – Spatial transcriptomics a key area going forwards and collaboration with BGI is very exciting, as session will happen soon to explain.

6.6. – Training & knowledge sharing – n/a

6.7. – Data storage & processing demands/performance – one off meeting next time with special focus on this issues, Rob Esnouf to be invited.

7. Imaging seminar speaker nominations

JB has an offer from Andrew McAinsh – Cellular imaging and mathematical modelling

YJ would like to get Mike Dustin in to do a talk or Stefan Balint mid-career who works with Mike.

8. Any Other Business

Move next meeting due to other commitments to mid-April 2021

Meetings will be held 1st Tuesday of alternate months at 1 pm

Date of next meeting: Tuesday 6th April 2021 (Bi-Monthly)

All meetings at 1pm via Teams

Members of the Molecular, Cellular and Tissue Imaging Group Committee are asked to declare any interest that could give rise to conflict in relation to any item on the agenda at the beginning of the item in question. All interests so disclosed will be recorded in the minutes of the Committee. If the chair of the meeting deems it appropriate, the member shall absent themselves from all or part of the Committee's discussion of the matter.

Appendix. 1 NEW FACILITY RATES FOR CELLULAR IMAGING AND FAC'S FOR 2021.

FAC's:

| | Sony | X20 | Fusion |
|------------------------|-------------|------------|---------------|
| Justified cost 2020 | £28.65 | £11.49 | £81.85 |
| Justified cost 2021 | £61 | £29.50 | £85 |
| % increase | 113% | 157% | 4% |
| EU/NIH 2020 | £25.83 | £10.03 | £32.84 |
| EU/NIH 2021 | £28 | £14 | £52 |
| % increase | 5% | 40% | 58% |
| WT 2020 | £23.93 | £8.66 | £25.82 |
| WT 2021 | £27.50 | £13.63 | £51.50 |
| % increase | 15% | 56% | 99% |

CELLULAR IMAGING:

| | Leica Confocals | Leica TIRF-WF | Zeiss ELYRA | Zeiss Fast SD Confocal | Zeiss Microbeam* | Zeiss Airyscan Super-res Confocal | Olympus SoRa Super-res Confocal |
|--------------------|-----------------|---------------|-------------|------------------------|------------------|-----------------------------------|---------------------------------|
| JC 2020 | £23.50 | £23.50 | £23.50 | £23.50 | £17.00 | n/a | n/a |
| JC 2021 | £31.00 | £31.00 | £31.00 | £28.00 | £30.00 | £31.00 | £31.00 |
| % increase | 30% | 30% | 30% | 20% | 43% | n/a | n/a |
| EU/NIH Grants 2020 | £10.30 | £10.30 | £9.00 | £9.00 | £6.00 | n/a | n/a |
| EU/NIH Grants 2021 | £17.50 | £17.32 | £20.75 | £18.50 | £20.07 | £18.24 | £18.24 |
| % increase | 40% | 40% | 120% | 100% | 230% | n/a | n/a |
| Wellcome 2020 | £10.30 | £10.30 | £9.00 | £9.00 | £6.00 | n/a | n/a |
| Wellcome 2021 | £17.50 | £17.32 | £20.75 | £18.52 | £20.09 | £18.24 | £18.24 |
| % increase | 40% | 40% | 120% | 100% | 230% | n/a | n/a |