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| Wellcome Trust Programme for Structural Biology |
| **Transmission Electron Microscopy In Structural Biology - Course** |
| **24th – 28th of November, 2014** |
| *Organiser: Prof Kay Grünewald (STRUBI/OPIC)* |
| Please report to the Wellcome Trust Centre for Human Genetics Reception, Old Road Campus, Headington.  All lectures in the Division of Structural Biology meeting room. |

**Day 1 – Monday, Nov 24th, 10:00-12:15 & 13:00-15:00**

Course introduction - Kay: 15 min

1.1 Introduction to TEM (Lecture) – Alistair Siebert: 50 min + 10 min Q&A

1.2 Sample preparation for TEM (Lecture) – Tzviya Zeev-Ben-Mordehai & Christoph Hagen:

25 min + 5 min Q&A each

---------------------------------------------- LUNCH AND Q&A (45 min) --------------------------------------------------

1.3 Sample preparation for TEM/Screening (Practical): 3x ~40 min (rotation)

1.3.1 ⅓ group 🡪 Negative stain of TMV and TEM basics – Alistair & Cornelia Cazey / T12

1.3.2 ⅓ group 🡪 Plunge freezing of particles/macromolecules –

Benjamin Vollmer &Pascale Schellenberger / Green Suite middle lab

1.3.3 ⅓ group 🡪 Prep of mammalian cells for cryoEM – Christiane Riedel & Christoph /

F30 prep room

**Day 2 – Tuesday, Nov 25th, 10:00-12:00 & 12:45-15:00**

2.1 Image formation in the TEM (Lecture) – Kyle Dent: 50 min + 10 min Q&A

2.2 Introduction to image processing in TEM (Lecture) – Juha Huiskonen: 50 min + 10 min Q&A

---------------------------------------------- LUNCH AND Q&A (45 min) --------------------------------------------------

2.3 Single particle and tomographic cryoEM data acquisition (Practical): 120 min (no rotation)

2.3.1 ⅓ group 🡪 TMV / SPA & tomography – Alistair & Cornelia / T12

2.3.2 ⅓ group 🡪 mammalian cells / tomography – Christiane & Pascale / F30

2.3.3 ⅓ group 🡪 [virus/particle sample] / SPA – Abhay Kotecha & Juha / Polara

**Day 3 – Wednesday, Nov 26th, 10:00-12:00 & 12:45-15:00**

3.1 Single particle averaging (Lecture) – Sai Li: 50 min + 10 min Q&A

3.2 Introduction to tomography (Lecture) – Kay: 50 min + 10 min Q&A

---------------------------------------------- LUNCH AND Q&A (45 min) --------------------------------------------------

3.3 Single particle averaging (Practical) – Juha/Thomas group: ~100 min / OPIC offices & STRUBI

3.4 Visualisation in Chimera (Demo) – Daven Vasishtan: ~30 min / STRUBI meeting room

**Day 4 – Thursday, Nov 27th, 10:30-12:30 & 13:30-16:00**

4.1 Subtomogram averaging (Lecture) – Daven: 50 min + 10 min Q&A

4.2 High-end cryoEM under biosafety conditions (Demo): 2x ~30 min (rotation)

4.2.1 ½ group 🡪 Polara and K2 Summit DED – Alistair & Kay

4.2.2 ½ group 🡪 Cryo-milling with FIB-SEM – Abhay & Christoph

---------------------------------------------- LUNCH AND Q&A (60 min) --------------------------------------------------

4.3 LabTalk at 13:30 (Lecture) – David Bitto: 30 min

4.4 Tomographic reconstruction (Practical) – Benjamin, Christiane, Christoph, Michael Grange,

Nayab Malik, Pascale, Tzviya: ~90 min (7 groups) / OPIC offices & STRUBI meeting room

4.5 Visualisation with Amira (Demo) – Tzviya: ~30 min / STRUBI meeting room

**Day 5 – Friday, Nov 28th, 10:00-13:00**

5.1 Correlative & integrative EM imaging (Lecture) – Christoph, Rainer Kaufmann:

25 min + 5 min Q&A each

5.2 OPEN SESSION – Projects/examples for PIs/postdocs/students to present:

Steinar Halldorsson, Max Renner, Abhay, Michael, Nayab, Benjamin

7 min + 3 min Q&A each

5.3 Conclusions and wrap-up (Q&A session): ~60 min