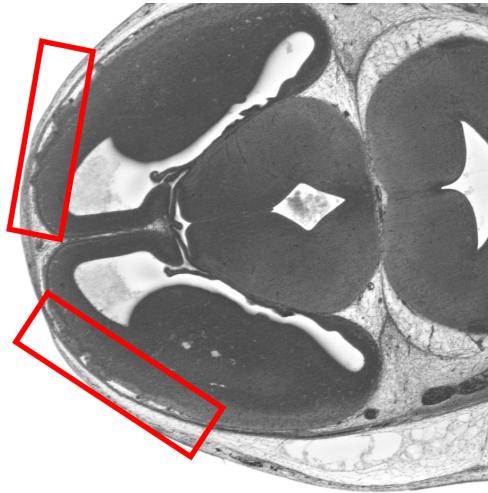


Generation and interpretation of HREM data from normal and mutant E14.5 mouse embryos in the DMDD programme



20 – 22 October 2017

The Medical University of Vienna

Deciphering the Mechanisms of Developmental Disorders (DMDD) is a large-scale imaging and phenotyping programme for genetically modified mouse embryos. For embryos at E14.5, the key imaging technique is High Resolution Episcopic Microscopy (HREM), and the resulting images are used to comprehensively phenotype the embryos using a systematic approach.

With a combination of lectures, demonstrations and hands-on sessions, this three-day workshop will introduce HREM technology and discuss the value of the resulting images when used to score morphological phenotypes. The HREM procedure will be described, while sample preparation and data generation will be demonstrated.

As an introduction to phenotyping, the workshop will cover the normal anatomy of E14.5 mouse embryos and the morphology, topology and tissue architecture of their organs as presented in HREM data. A special focus will be given to developmental peculiarities and norm variations in anatomy. A protocol for scoring abnormalities will be demonstrated, after which hands-on sessions will allow participants to practice scoring both wild-type and mutant embryos whilst receiving feedback.

Registration

<http://www.bioimaging-austria.at/web/pages/training/by-cmi-technology-units.php>

Early registration is recommended to secure a place, as this workshop is limited to 8 attendees.

The registration fee of Euro 300.- (payable by invoice) includes access to all workshop sessions, tea, coffee and lunch each day, and dinner on the first evening. Lunches are sponsored by Indigo Scientific.

Full programme

Friday 20 October

Session 1, The DMDD Programme

Background and workflow (*lecture*)

Data collection and the DMDD website (*lecture and demonstration*)

Session 2, High Resolution Episcopic Microscopy (HREM)

Workflow, specimen harvesting and preparation (*lecture and demonstration*)

Data generation and data quality (*lecture, demonstration and hands-on*)

Data management and analysis (*lecture, demonstration and hands-on*)

Limitations and artefacts (*lecture and demonstration*)

Saturday 21 October

Session 3, Phenotyping using 3D models from HREM data

Producing and interpreting 3D models using HREM data (*lecture and demonstration*)

Staging 3D models of E14.5 embryos (*lecture and demonstration*)

Using 3D models to score external embryo phenotypes (*lecture and hands-on*)

Morphometry of 3D embryo models (*lecture and hands-on*)

Session 4, Phenotyping using 2D HREM section images

Annotation using the Mammalian Phenotype ontology (*lecture and demonstration*)

Phenotyping protocol (*lecture, demonstration and hands-on*)

Stage-dependent peculiarities (*lecture, demonstration and hands-on*)

Sunday 22 October

Session 5, Phenotyping examples and pitfalls

Norm Variations (*lecture and demonstration*)

Artifacts (*lecture and demonstration*)

Supervised phenotyping of genetically normal embryos (*hands-on*)

Session 6, Phenotyping mutant embryos

Supervised phenotyping of mutant embryos (*hands-on*)

Session 7, Feedback and questions

General information

Workshop timings

Daily from 09.30 - 12.30 and 13.30 – 17.30

Location

Division of Anatomy, The Medical University of Vienna, Waehringerstr. 13, A-1090 Vienna

Facilities

Hands-on sessions will take place in groups of two. Each pair will have access to both a high-end Mac and PC operating the required software.

Faculty

WJ Weninger, LH Reissig, B Maurer Gesek, J Rose, SH Geyer (*Medical University of Vienna*)

TJ Mohun (*The Francis Crick Institute, London*)

Accommodation

Nearby hotels include:

Hotel Regina, Rooseveltplatz 15 (www.kremslehnerhotels.at/regina)

Hotel Boltzmann, Boltzmanngasse (www.hotelboltzmann.at)

Hotel Am Schottenpoint, Währinger Straße 22 (www.schottenpoint.at)

Hotel-Pension Bleckmann, Währinger Straße 15 (www.hotelbleckmann.at)

Hotel Atlanta, Währinger Straße 33-35 (www.hotelatlanta.at)

Pension Liechtenstein, Hörlgasse 9 (www.pensionliechtenstein.at)