Generation & Interpretation of HREM data deduced from normal & mutant E14.5 mouse embryos from the DMDD program

High resolution episcopic microscopy (HREM) is the key screening technique for large scale phenotyping of genetically modified E14.5 mouse embryos produced in the DMDD program.

In lectures, demonstrations and hands on sessions the workshop will introduce the HREM technology and discuss its value for producing digital volume data that allow scoring the morphological phenotype of genetically altered E14.5 mouse embryos in a systematic and standardized approach. The HREM procedure will be described and specimen preparation and data generation will be demonstrated. The normal anatomy of E14.5 mouse embryos and the morphology, topology and tissue architecture of their organs, as they present themselves in HREM data will be explained with a special focus resting on developmental peculiarities and norm variations. A protocol for scoring abnormalities will be demonstrated and in hands on sessions used for phenotyping HREM data sets of embryos. The process for scoring mutants will then be demonstrated in selected mutants produced in the DMDD project. Finally each participant will be supervised in scoring such data.

Administrative Information:

Schedule:
October 20th, 21st and 22nd; daily from 9.30 - 12.30 & 13.30 – 17.30

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

Fee: Euro 300.- (payable after receiving an invoice from MedUni Wien)
　　　includes: Coffee Break, Lunch at all three days, Dinner on Friday
　　　　　　Lunch will be sponsored by Indigo Scientific
　　　Number of Attendees limited to 8

Location:
all events will take place in Waehringerstr. 13, A-1090 Vienna

Lectures - in the seminar room
Demonstrations - in the HREM Lab & section room of the Division of Anatomy
Hands on sessions - in groups of 2 in the HREM Lab. Each pair will have access to:
　　　a high end Mac workstation operating a customized version of Osirix software
　　　a high end PC workstation operating Amira software

Hotels near the Institution
　　　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)

CENTER FOR ANATOMY AND CELL BIOLOGY
MEDICAL UNIVERSITY OF VIENNA
Division of Anatomy

Correlated Multimodal Imaging
Austrian Bioimaging Node Initiative

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DMDD
Deciphering the Mechanisms
of Developmental Disorders

Program

October 20th
1) DMDD - Deciphering the Mechanisms of Developmental Disorders Program

Background & Workflow
      Lecture
Data collection & Homepage
      Lecture & demonstration

2) High resolution episcopic microscopy (HREM)

      HREM workflow, specimen harvesting & preparation
            Lectures & demonstration
      HREM data generation & data quality
            Lecture & demonstration & hands on
      HREM - Data management & Data analysis
            Lecture & demonstration & hands on
      HREM - Limitations & Artifacts
            Lecture & Demonstration

October 21st
3) Phenotyping – Volume rendering

Producing & interpreting 3D volume models deduced from HREM data
            Lecture & demonstration
      Staging 3D models of E14.5 embryos
            Lecture & demonstration
Using 3D volume models for scoring the external phenotype of embryos
            Lecture & hands on
Morphometry of 3D volume models of embryos
            Lecture & hands on

4) Phenotyping – HREM resections

MP-terms & Osirix – Annotation
      Lecture & Demonstrations
      Phenotyping protocol
            Lecture & demonstration & hands on
Stage dependent peculiarities
      Lecture, demonstration & hands on

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October 22nd

5) Phenotyping – Examples & Pitfalls

Norm Variations
      Lecture & demonstration
    Artifacts
      Lecture & demonstration
    Supervised phenotyping of genetically normal embryos
      hands on

6) Phenotyping mutants

Supervised phenotyping of mutants
    hands on

7) Feedback / Questions

Faculty

WJ Weninger, LH Reissig, B Maurer Gesek, J Rose, SH Geyer
    Division of Anatomy, Medical University of Vienna
TJ Mohun
    The Francis Crick Institute, London