Bern, December 20, 2018

Practical Module in High Resolution Scanning Electron Microscopy

Goals
• Transfer of knowledge from theory to practice
• Development of basic lab skills
• Enabling participants to process and examine samples by scanning electron microscopy

Target audience
• young scientists aspiring to use SEM for their research

Content
Sample preparation
• Sample collection and handling
  − tissue blocks
  − single cells
  − particles
  − material may be supplied by participants or will be provided by the Division of Veterinary Anatomy
• Fixation
  − Chemical fixation with different fixatives
  − plunge freezing (optional)
• Labeling
  − Use of colloidal gold-labeled antibodies or lectins
• Dehydration
  − Critical point drying
  − Chemical drying
• Mounting of samples
• Metal coating
  − sputter coating
  − electron beam evaporation
• Artifacts
  − promoting the awareness of artifacts resulting from inadequate sample preparation
Handling of a high resolution field emission scanning electron microscope (Zeiss DSM982)

- Select adequate detector and working distance
- Optimize microscope settings as required for best imaging results
  - Select proper high voltage
  - Select appropriate detector
  - Adjust focus properly
  - Perform proper correction of astigmatism
  - Select adequate brightness and contrast settings
  - Avoid imaging artifacts
- Perform image acquisition and data transfer

**Duration**
- 2 days

**Number of participants**
- 1-2

**Mode of inscription**
- address applications to Dr. Ruth Lyck, Theodor-Kocher_Institut
  mailto:ruth.lyck@mic.unibe.ch
- the module will be carried out on demand as agreed upon

**Prerequisites**
- Completion of basic module and passed exam.

**Number of ECTS points**
- 1

**Contact info**
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