



Available Microscopy Techniques: *from Centi to Nano*

1cm 1mm 100μm 10μm 1μm 100nm 10nm 1nm

Mesoscopy

- OPT
(Optical Projection Tomography)
- Light Sheet Microscopy: Ultramicroscope/SPIM (Selective plane illumination microscopy)

Optical Microscopy

- Wide-field
 - Bright/Dark
 - Fluorescence
- Confocal
 - Laser Scanning
 - Spinning Disk
 - Two-/Multi Photon

Electron Microscopy

- Transmission EM
- Tomography TEM
- Scanning EM

Micro CT (X-ray)

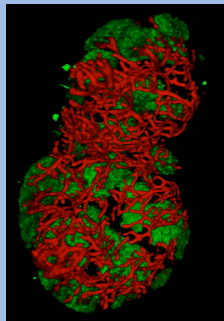
Atomic Force Microscopy

Correlative Microscopy

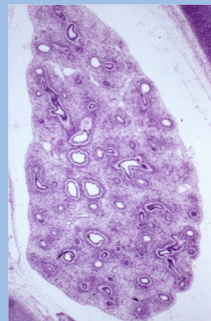
Organisms



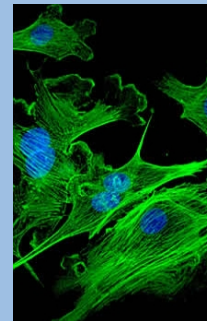
Organs



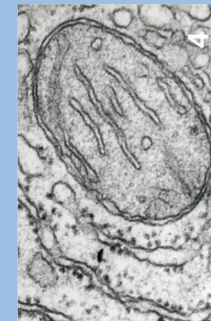
Tissue



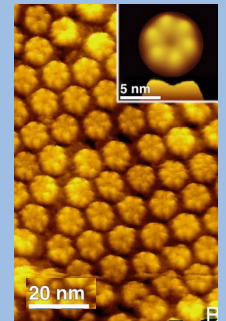
Cells



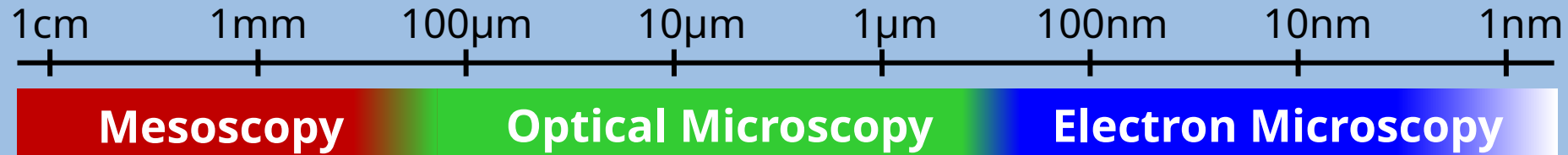
Organelles



Molecules



Introduction into Cutting Edge Microscopy



Physical basics of light optical imaging M. Frenz (IAP)

Wide-field fluorescence microscopy, F. Blank, DBMR

Confocal laser scanning microscopy, F. Blank, DBMR

Specific applications of fluorescence microscopy: CLSM & other specific applications, S. Yousefi (Pharmacology)

Live cell imaging: The time factor, R. Lyck (TKI)

Total internal reflection fluorescence microscopy (TIRF), Y. Belyaev (MIC)

Multiphoton-intravital microscopy, T. Nevian (Physiology)

Intravital microscopy, G. Enzmann, (TKI)

Calcium-imaging with CLSM E. Niggli (Physiology)

Super resolution imaging, T. Nevian (Physiology)

Light Sheet Microscopy N. Mercader, (Anatomy)

Atomic force microscopy, D. Fotiadis (IBMM)

Transmission electron microscopy Application, D. Vanhecke (Anatomy)

Cryo-electron microscopy, B. Zuber (Anatomy)

Scanning electron microscopy
M. Stoffel (Vet. Anatomy)

Serial Block Face SEM, B. Zuber (Anatomy)

Stereology, S. Tschanz (Anatomy)