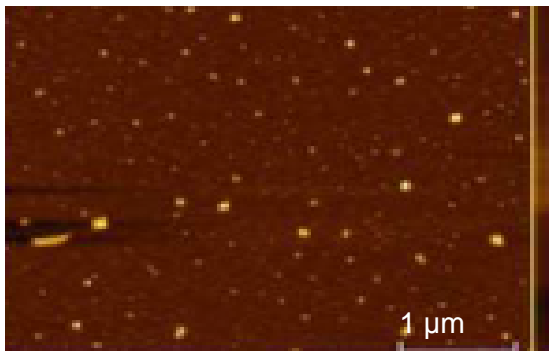
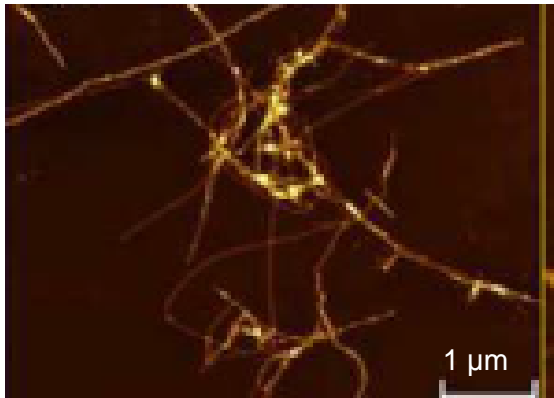


## Atomic force microscopy

**Veeco di Innova, Bruker AXS**

Visualization of biomacromolecular, supramolecular and cellular structures, measurement of intramolecular or interaction forces of biological molecules



AFM Modes:

- contact
- tapping



Sample size: 45mm x 45mm x 18mm

Motorized Z stage - Z travel: 18mm, with pitch and tilt capability

Closed-Loop, Large Area Scanner: XY > 90μm, Z > 7.5μm

Open-Loop, Small Area Scanner: XY > 5μm, Z > 1.5μm

Noise Floor, Z - 50 pm RMS, typical imaging bandwidth

Closed-loop XY noise :1.2 nm RMS, typical imaging bandwidth

Z-Linearizer noise: 200 pm RMS, typical imaging bandwidth

System Software - Integrated SW configurable signal access and routing

zodpovedná osoba: **Z. Gažová** [gazova@saske.sk](mailto:gazova@saske.sk)

## Stopped flow

### **SX 20 Applied Photophysics**

Spectroscopic technique allows to study fast reaction mechanisms in solution over timescales of about 1ms up to 100's – kinetic study of fast reactions (enzymatic and redox reactions), protein folding, fluorescent resonance energy transfer

- light source: 150W xenon lamp
- fluorescent and absorption detector
- dead time: 1.1/0.5 ms pre 20  $\mu$ l/5  $\mu$ l
- sample volume: 20  $\mu$ l/5  $\mu$ l
- programmable monochromator
- mixing ratios: 1:1 a 25:1
- dead volume: 28  $\mu$ l

contact person: M. Antalík antalik@saske.sk



## Surface tension and contact angle measurement

### **Theta Lite 101**

Measurement of surface energy, adsorption, surface/interphase tension and contact angle by pendant or sessile drop methods

- fully automated measurement with digital camera
- automated dispensing liquid, min. volume 10  $\mu$ l
- back LED-light
- accurate vertical adjustment of sample
- accurate horizontal adjustment of syringe
- temperature range: 25 °C – 250 °C
- accuracy: min 0.1 mN/m

contact person: Z. Gažová gazova@saske.sk



## Ultracentrifuge

### **Thermoscientific Sorvall MX 120**

Purification of proteins, nucleic acids and biomacromolecular complexes

- max. speed: 120 000 rpm
- max. RCF: 1 048 680xG depending on rotor
- control speed accuracy:  $\pm 50$  rpm
- temperature range: 0 – 40 °C
- max. rotor capacity: 6 x 30mL (180ml) (rotor S50A ) or 4 x 7mL (28ml) (rotor S50-ST)
- noise level: <45dBA

contact person: Z. Gažová [gazova@saske.sk](mailto:gazova@saske.sk)



## High-performance liquid chromatography - HPLC

### **Agilent Technologies 1200 Infinity Series**

Separation, identification and quantification of components in mixture, molecular weight determination, purification of multidomain protein complexes, etc.

- pressure range: 200 – 600 bar
- flow rate: 5 -10 ml/min
- UV detection speed: 80 Hz

contact person: A. Musatov [musatov@saske.sk](mailto:musatov@saske.sk)



## Complex infrastructure for working with cell cultures

Measurement of cell viability and cytotoxicity of various compounds – nanoparticles, small molecules, protein aggregates

- laminar box
- CO<sub>2</sub> incubator
- centrifuges
- autoclave
- thermal bath
- thermomixer
- cell counter

## Microbalance

**Mettler Toledo XS3DU**

High accuracy weighting of small amount

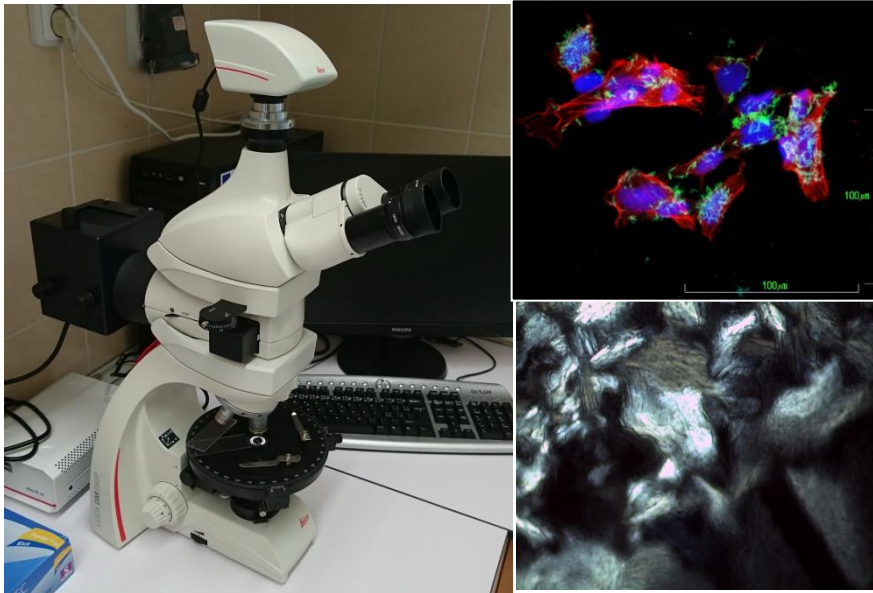
- maximum capacity: 3.1 g/800 mg
- minimum weight: 0.001 g
- readability (to 3.1 g): 10 µg
- readability (0-800mg): 1 µg



## Fluorescence/Polarization microscope

Leica DM 750P

Visualization of biological samples under polarized light – birefringence. Detection a visualization of fluorescent compounds



- light source: LED
- magnification: 4x – 100x
- CCD camera
- polarizer: rotation
- 360°/180° analyzer rotation

## Inverted microscope

Leica DM IL LED

Micromanipulation and experiments with cell and tissue cultures



- contrast methods: bright field, phase contrast
- CCD camera