UNIVERSITÄT BIELEFELD

Core Facility Microscopy and Imaging (pilot operation)

Contact Information:

Dr. (Nicole) Barbara Biermann

Mail to: nicole.biermann@uni-bielefeld.de

Phone: 86812

Dr. Thorsten Seidel

Mail to: thorsten.seidel@uni-bielefeld.de

Phone: 5588

List of Instruments

Instrument	Location
Confocal Microscopes	
Leica STELLARIS 8 FALCON with inverted stand. ***Specification***: Laserlines 405, 440 – 790 nm white light laser, 5 HyD-detectors (2x HyD S, 2x HyD X, 1 x HyD R). Equipped with air objective (10x), Multi-immersion objective (20x), water-immersion objectives (40x, 63x) and oil-immersion objective (100x). Modules for fluorescence correlation spectroscopy, FLIM, on stage incubation (temperature, humidity, CO_2-concentration). ***Level of Support:*** user instruction, support experimental design, imaging on request ***Contact:*** Thorsten Seidel	UHG-W0-226
Zeiss LSM900 with inverted stand Axio Observer 7. ***Specification***: Laserlines 405, 488, 561, 640 nm for "classical" immunostainings. Two GaAsp-detectors and one AiryScan-detector, the later allowing for super resolution up to 120 nm lateral. The microscope is equipped with four objectives: two air-objectives (5x/NA0.16, 20x/NA0.8), one water-, silicon-, glycerin immersion objective (40x/NA1.2) and one oil-immersion objective (63x/NA1.4). Incubation housing (temperature, humidity, CO_2-concentration). Colibri 5 - LED light source plus filters to observe DAPI, GFP/488 and Cy3/555 as well as brightfield to evaluate the probe through the eye pieces. Axiocam 305 mono (cMOS digital camera) and AI sample finder. ***Level of Support:*** user instruction, support experimental design ***Contact:*** Barbara Biermann	R.1 D.2.105A
Nikon/Crest X-light V3 Spinning Disc System with inverted stand. ***Specification:*** Laserlines 405 nm, 446 nm, 476 nm, 518 nm, 546 nm, 637 nm, 748 nm. Objectives: 10x, 20x and 40x air objectives, 40x water-immersion objective, 60 x oil immersion objective. Photometrics Kinetix CMOS-camera. Incubation housing (temperature, humidity, CO_2-concentration). ***Level of Support:*** user instruction, support experimental design ***Contact:*** Barbara Biermann	R.1 D.2.104

Zeiss LSM780 with inverted stand AxioObserver. ***Specification***: Laserlines 405, 458, 488, 514, 561, 594, 633 nm and 34-channel spectral detector (1 GaAsp for blue light, one 32-ch spectral array detector, one PMT for red light) and transmitted light detector. Equipped with air objective (10x), Multi-immersion objective (20x), oil-immersion objective (40x, 63x) and water-immersion objective (63x). Module for fluorescence correlation spectroscopy, on stage incubation (temperature, humidity, CO_2-concentration). ***Level of Support:*** user instruction, support experimental design, imaging on request ***Contact:*** Thorsten Seidel	UHG-W01-236
Zeiss LSM5 with inverted stand AxioObserver Z1. ***Specification***: Laserlines 458, 488, 514, 543, 633 nm and two photomultiplier detectors. Equipped with air-objectives (10x, 20x, 40x), one water-immersion objective (40x) and one oil-immersion objective (63x). Classical filter-dependent confocal-system which is in particular suitable for FRET-measurements between cyan and yellow fluorescent proteins. ***Level of Support:*** user instruction, support experimental design ***Contact:*** Thorsten Seidel	UHG-W01-236
Leica SP2/FLIM with upright stand Leica DMRE7. ***Specification***: Laserlines 458, 476, 488, 514, 543, 633 nm, three photomultiplier-detectors and one transmitted light detector. Equipped with water-dipping objectives (10x, 20x, 40x), multi-immersion-objective (25x) and oil-immersion objectives (40x and 63x). The system was supplemented by a Lambert Instrument FLIM-module: Frequency domain FLIM with two LED-sources for green and red fluorescent dyes. ***Level of Support****:* User instruction, support experimental design ***Contact***: Thorsten Seidel	UHG-W1-202
Leica SPE with upright stand Leica DM2500. ***Specification***: Laserlines 488, 532, 635 nm, two photomultiplier-detectors. Equipped with two dry PL Fluotar objectives (10x/0.30, 40x/0.75) ***Level of Support***: user instruction, support experimental design ***Contact***: Thorsten Seidel	UHG-W1-202

Fluorescence Widefield Microscopes	
Leica Thunder Imager Tissue, upright stand. ***Specification:*** Fully motorized, Filter sets for DAPI, GFP, Texas Red and Cy5. 10x, 20x, 40x air objectives and 63x oil immersion objective. Equipped with one grey scale camera for fluorescence microscopy (K5) and color camera (K3C) for histological samples. Software LAS X with Thunder module. ***Level of Support:*** user instruction, support experimental design ***Contact:*** Thorsten Seidel	UHG-W0-220
Keyence BZ-X810 with inverted stand. ***Specification:*** Fully motorized fluorescence microscope, mounted on a trolley. Filter sets for DAPI, GFP, RFP. Sample holder for slides, petri dishes, cell culture flasks and 96-well plates. The microscope is equipped with air-objectives and oil-immersion objectives. Software with de-convolution module. ***Level of Support:*** user instruction, support experimental design ***Contact:*** Thorsten Seidel	UHG-W01-230
Light Sheet Microscope	
Luxendo MuVi SPIM for cleared and living samples. ***Specification:*** Laserlines 405, 440, 488, 514, 561 nm and two CMOS cameras separated by beam splitter. Different Octagons for cleared and live samples, incubation for live samples. Two illumination objectives and one detection objective at each octagon. ***Level of Support:*** user instruction, support experimental design **Contact:** Thorsten Seidel	UHG-W0-220
Polarization Microscope	
Octax PolScope with inverted stand Nikon Eclipse TE2000-S. ***Specification:*** Heating device (37°C), specific objective, camera and software (Octax Eyeware). Designed for oocyte-diagnostic. ***Level of Support:*** *user instruction, support experimental design* ***Contact:*** Thorsten Seidel	UHG-W0-211
Micro-Manipulation Setup	
Zeiss Axiovert40CFL & Eppendorf Femtojet. ***Specification:*** Inverted stand with filter sets for CFP, YFP, CFP-YFP-FRET (others are available). CMOS-camera (Zeiss MRm) and Zeiss Axiovision Software. ***Level of Support:*** *user instruction, support experimental design* ***Contact:*** Thorsten Seidel	UHG-W01-250

Slide Scanner:	
Zeiss Axioscan 7. ***Specification:*** Widefield microscope / slide scanner with Colibri7-LED light source (385 nm, 430 nm, 475 nm, 555 nm, 590 nm, 630 nm, 735 nm) for brightfield and fluorescent recordings (filter "43 HE Cy3 shift free" for e.g. Cy3 with EX BP 550/25, BS FT 570, EM BP 605/70 and filter "112 HE LED" allowing bypass of e.g. DAPI, FITC, DsRed, Cy5 and Cy7 with beam splitter PFT 405 + 493 + 575 + 654 + 761 and emission filters PBP 425/30 + 514/31 + 592/25 + 681/45 + 785/38). Four air objectives (5x/0.25, 10x/0.45, 20x/0.8, 40x/0.95) and a CMOS-camera "Axiocam 705 color" for automatic scanning of up to 100 slides. ***Level of Support:*** user instruction, support experimental design ***Contact:*** Barbara Biermann	R.1 D.2.109
Plate reader with imaging function:	
Tecan Spark Cyto. ***Specification:*** Multimode plate reader with fusion optics (monochromator and filter-based optics) for absorption, polarization, fluorescence modes. Incubation with temperature control and CO_2/O_2-controller. 2 injectors are available. Microscopy unit with dry objectives (4x/0.13, 10x/0.30) and filter sets for DAPI, FITC, TRITC and Alexa Fluor 633. Predefined imaging protocols for cell confluency, kinetics, transfection efficiency, nuclei counting, cell vitality. ***Level of Support:*** user instruction, support experimental design ***Contact:*** Barbara Biermann	R.1 D.2.104
Cytometer (Biology)	
Sony Cell Sorter SH800 ***Specification:*** fluorescence-activated cell sorting using laser 405 nm, 488 nm or 638 nm, single-cell analysis, contamination-free by one-way microfluidic chips. Biosafety level S1. Under construction: biosafety cabinet S2 ***Level of Support:*** user instruction ***Contact:*** Barbara Biermann	R.1 D.2.103
Beckman Coulter Gallios ***Specification:*** Laser lines 405, 488, 638 nm and ten filters (525 BP/40, 550DC SP, 655 DC SP, 620 BP 30, 755 LP, 710 DC SP, 660 BP 20, 595 DC SP, 450 BP 40, 575 BP 30, 730 DC SP, 695 BP 30/675 BP 20, 725 BP20, 750 DC SP, 550 BP 40). ***Level of Support:*** user instruction ***Contact:*** Thorsten Seidel for further information	UHG-W0-218

Electron Microscopy	
Transmission Electron Microscope (TEM) Zeiss EM109 ***Specification:*** Point Electronic upgrade of the microscope with digital camera plus the relevant software. ***Level of Support:*** support experimental design, sample preparation, imaging (full service) ***Contact:*** Thorsten Seidel	UHG-W0-264
Additional Equipment	
Cellbox Flight 2.0 ***Specification:*** portable $C0_2$ incubator (5 %) with heating (28-37°C) for traveling with your living samples for up to 32 hours (train, car, plane) by dry ice sublimation. ***Level of Support:*** user instruction ***Contact:*** Barbara Biermann	R.1 D.2.103