(1) **Carl Zeiss LSM 710 (34 channels)**

Microscope overview

The Carl Zeiss LSM 710 is a confocal point-scanning microscope able to generate high-resolution three-dimensional images of thick specimens with high sensitivity and low photodamage. It is based on Axio-Observer Z1 inverted microscope body, with motorized XY stage, and has live cell imaging facilities (stage insert for temperature and CO_2 control). Applications include for example timelapse imaging, photobleaching experiments, colocalization studies, spectral detection and 3D imaging.
The LSM 710 scanning unit has a spectral recycling loop, and a QUASAR detection unit (34 PMTs). The QUASAR multichannel photomultiplier detection technology is based on a filter-free system that guides the desired wavelength range to the target detector using adjustable optical wedges and slider light stops. The QUASAR detector allow spectral scanning of fluorescence and emission "fingerprinting" as well as linear unmixing of signals from fluorophores with overlapping emission profiles.

Charge Rates (€/hour – with IVA)

	CNC Goups	External Academic Groups	Commercial Use
Self-Use	11	22	44

- The charge for CNC users corresponds to consumables and 50% of service contracts/ parts replacement.
- Extensive time laps studies (>4 hrs) are encouraged to be performed overnight (20:00 – 08:00) or at weekends at a reduced cost of 30%.
- Imaging acquisition by MICC technician will be charged 3€ per hour (excluding training and technical support).
- Reservations can be cancelled up to 12h prior to booked starting time.
- Unused reservations will be charged at full rate.

Laser Set

Laser Unit	Wavelength	Maximum Power
Diode 405-30	405 nm	30 mW
Argon/2	458, 488, 514 nm	25 mW
DPSS 561-10	561 nm	20 mW
HeNe633	633 nm	5 mW

Objectives

Objective	Magnification	Numerical Aperture	Medium	Observation
EC-PlanNeofluar	10x	0,3	air	Ph1, M27
Plan-Apochromat	20x	0,8	air	
Plan-Apochromat	40x	1,4	oil	DIC, M27
Plan-Apochromat	63x	1,4	oil	DIC, M27

Filter Sets (LOCATE Mode)

Filter Set	Excitation	Beam Splitter	Emission	Possible Dyes
Set 49	G 365	FT 395	BP 445/50	DAPI, Hoechst
Set 38 (HE)	BP 470/40	FT 495	BP 525/50	FITC, Alexa 488, GFP
Set 43	BP 545/25	FT 570	BP 605/70	Alexa 555, dTomato, PI

Software:
Image acquisition and analysis is performed using the Zen Black 2012 software that includes the following modules:

-z Stack
-Time series
-Tiles and multi-position
-Autofocus
-Extended focus
-Physiology

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(2) **Carl Zeiss Cell Observer Spinning Disk**

Microscope overview

Spinning disk microscopy is an established imaging technique of choice for imaging both dynamic and light-sensitive processes in living cells.
Therefore, the Cell Observer Spinning Disk (SD) is a live cell imaging platform for high-speed confocal imaging using the CSU-X1M spinning disc technology from Yokogawa and one highly sensitive electron multiplying camera (EM-CCD Evolve Delta). This system is based on a motorized Carl Zeiss Axio Observer Z1 inverted scope with Definite Focus, multi-channel acquisition, piezo x/y/z stage, DirectFRAP unit, and a full environmental chamber for temperature and atmosphere control. The Definite Focus system allows for long-term time-lapse experiments without any focus drifts. In addition, the DirectFRAP is the ideal solution for any type of laser manipulation in the living cell – FRAP, FLIP, photoactivation or conversion.
Almost the entire microscope, from filter wheels to sample incubation parameters, are computer-controlled via the Zen Blue 2012 software.

Charge Rates (€/hour – with IVA)

	CNC Goups	External Academic Groups	Commercial Use
Self-Use	10	20	40

- The charge for CNC users corresponds to consumables and 50% of service contracts / parts replacement.
- Extensive time laps studies (>4 hrs) are encouraged to be performed overnight (20:00 – 08:00) or at weekends at a reduced cost of 30%.
- Imaging acquisition by MICC technician will be charged 3€ per hour (excluding training and technical support).
- Reservations can be cancelled up to 12h prior to booked starting time.
- Unused reservations will be charged at full rate.

Laser Set

Laser Unit	Wavelength	Maximum Power
Solid state laser 405	405 nm	50 mW
Solid state laser 488	488 nm	100 mW
Solid state laser 561	561 nm	50 mW

Objectives

Objective	Magnification	Numerical Aperture	Medium	Observation
Plan-Apochromat	20x	0,8	air	M27

LCI PlanNeofluar	63x	1,3	water or glycerol	DIC, M27
Alpha Plan-Apochromat	100x	1,46	oil	DIC, M27

Filter Sets

Filter Set	Excitation	Beam Splitter	Emission	Possible Dyes
Set 49	G 365	FT 395	BP 445/50	DAPI, Hoechst
Set 38 (HE)	BP 470/40	FT 495	BP 525/50	FITC, Alexa 488, GFP
Set 31	BP 565/30	FT 585	BP 620/60	Alexa 568, mCherry, mRFP

Software:
Image acquisition and analysis is performed using the Zen Blue 2012 software that includes the following modules:

-z Stack
-Time series
-Tiles and multi-position
-Autofocus
-Extended focus
-Physiology

(3) **Carl Zeiss Axio Observer Z1**

Microscope overview

The Axio Observer Z1 system is a fully motorized inverted widefield microscope, which is ideal for live imaging experiments. It is equipped with a large stage incubator for temperature and humidity control and a stage CO_2 incubator.
The system is equipped with a CCD digital camera (Axiocam HRm) and a digital CMOS camera (ORCA Flash 4.0)
The ZEN Blue software allows to fully control the microscope and the cameras, allowing the acquisition of multidimensional images (multi-channel, time series, z-stack, tiles or multi-positions).

Charge Rates (€/hour – with IVA)

	Illumination	CNC Goups	External Academic Groups	Commercial Use
Self-Use	Fluorescence	2	4	8
	Transmission	1,5	3	6

- The charge for CNC users corresponds to consumables and 50% of service contracts / parts replacement.
- Imaging acquisition by MICC technician will be charged 3€ per hour (excluding training and technical support).
- Reservations can be cancelled up to 12h prior to booked starting time.
- Unused reservations will be charged at full rate.

Filter Sets

Filter Set	Excitation	Beam Splitter	Emission	Possible Dyes
Set 49	G 365	FT 395	BP 445/50	DAPI, Hoechst
Set 38 (HE)	BP 470/40	FT 495	BP 525/50	FITC, Alexa 488
Set 31	BP 565/30	FT 585	BP 620/60	Alexa 568, mCherry
Set 50	BP 640/30	FT 660	BP 690/50	Alexa 667, Cy5

Objectives

Objective	Magnification	Numerical Aperture	Medium	Observation
EC Plan-Neofluar	10x	0,30	air	
Plan-Apochromat	20x	0,8	air	
Plan-Apochromat	20x	0,8	air	Ph2
Plan-Apochromat	40x	0,95	air	Correction Ring (Korr) (Coverglass thickness 0.13-0.21mm)
EC Plan-Neofluar	40x	1,3	oil	
Plan-Apochromat	63x	1,4	oil	DIC

Software

The acquisition and analysis of images is performed on the Zen Blue software 2012.

The software has the following modules:

- Multichannel
- Time series
- Tiles and multi-position
- z-Stack
- 3D VisArt
- Extended Focus
- Software Autofocus
- Experiment Manager
- Measurements
- Advance Processing

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(4) **Carl Zeiss Axio Imager Z2**

Microscope overview

The Axio Imager Z2 system is a fully motorized upright widefield microscope, which is ideal for quantitative analysis. Moreover, the system can perform structured illumination acquisition by means of ApoTome2.
The system is equipped with a CCD monochromatic digital camera (Axiocam HRm) and a CCD color digital camera (Axiocam HRc).
Stereological studies are also possible using StereoInvestigator software.
The ZEN Blue 2012 software fully controls the microscope and the cameras, allowing the acquisition of multidimensional images (multi-channel, time series, z-stack, tiles or multi-positions).

Charge Rates (€/hour – with IVA)

	Illumination	CNC Goups	External Academic Groups	Commercial Use
Self-Use	Fluorescence	1,5	3	6
	Transmission	1	2	4
EXTRA	ApoTome2	1	2	4

- The charge for CNC users corresponds to consumables and 50% of service contracts / parts replacement.
- Imaging acquisition by MICC technician will be charged 3€ per hour (excluding training and technical support).
- Reservations can be cancelled up to 12h prior to booked starting time.
- Unused reservations will be charged at full rate.

Filter Sets

Filter Set	Excitation	Beam Splitter	Emission	Possible Dyes
Set 49	G 365	FT 395	BP 445/50	DAPI, Hoechst
Set 38 (HE)	BP 470/40	FT 495	BP 525/50	FITC, Alexa 488
Set 31	BP 565/30	FT 585	BP 620/60	Alexa 568, mCherry
Set 50	BP 640/30	FT 660	BP 690/50	Alexa 667, Cy5

Objectives

Objective	Magnification	Numerical Aperture	Medium Observation
EC Plan Neofluar	5x	0,16	air
EC Plan Neofluor	10x	0.3	air
Plan-Apochromat	20x	0,8	air
Plan-Apochromat	40x	1,3	oil

Plan-Apochromat	63x	1,4	oil	DIC (motorized)
Plan-Apochromat	100x	1,4	oil	Ph3

Software (the system contains two different software, which CANNOT be operated simultaneously):
The acquisition and analysis of images is performed on the Zen Blue software 2012.
The software has the following modules:

-z Stack
-Tiles and multi-position
-Autofocus
-ApoTome
-Experiment Designer

For stereology analysis, the system has the StereoInvestigator software.
The software has the following modules:

-Stack

(5) **Carl Zeiss Axio Scan Z1**

Microscope overview

The Zeiss Axio Scan.Z1 slide scanner for brightfield and fluorescence provides outstanding image quality for the most demanding virtual microscopy. Digitize your specimens and create high-quality virtual slides the reliable, reproducible way. The Zeiss Axio Scan.Z1 slide scanner is highly automated and simple to operate. The software module ZEN slidescan is designed specifically for the workflow of capturing virtual slides, while ZEN image analysis tools prepare your data accurately.

Charge Rates (€/hour – with IVA)

	CNC Goups	External Academic Groups	Commercial Use
Self-Use	2	4 (price upon request)	4 (price upon request)

- The charge for CNC users corresponds to consumables and 50% of service contracts / parts replacement.
- Imaging acquisition by MICC technician will be charged 3€ per hour (excluding training and technical support).
- Reservations can be cancelled up to 12h prior to booked starting time.
- Unused reservations will be charged at full rate.

System Specifications:

- **Fluorescence Illuminator Colibri 7**:

Far Red (735nm): excitation of Cy7 and similar markers

Red (630nm): excitation of Cy5, Alexa 631, TOTO-3 and similar markers

Yellow (590nm): excitation of mCherry, Alexa 568, mPlum and similar markers

Green (555nm): excitation of Cy3, TRITC, DsRed and similar markers

Blue (475nm): excitation of eGFP, Fluo4, FITC and similar markers

Violet (430nm): excitation of eCFP, Lucifer Yellow, Alexa 430 and similar markers

UV (385nm): excitation of DAPI, Alexa 405, Hoechst 33258 and similar markers

- **Filter Cubes**:

Filter Set	Excitation	Dichroic	Emission
Set 90 (Quadricolor Filter)	QBP 425/30+514/30+ 592/25+709/100	QBS 405+493+575+653	BP 385/30 BP 469/38 BP 555/30 BP 631/33
Set 91 (Triple Filter)	430, 511 e 590 nm	TBS 450 + 538 + 610	TBP 467/24 + 555/25 + 687/145
Set 49 (Single Filter)	G 365	FT 395	BP 445/50
Set 38 (Single Filter)	BP470/40	FT 495	BP 525/50
Set 63 (Single Filter)	BP 572/25	FT 590	BP 629/62

Filter Set	Excitation	Dichroic	Emission	
Set 90 (Quadricolor Filter)	QBP 425/30+514/30+ 592/25+709/100	QBS 405+493+575+653	BP 385/30 BP 469/38 BP 555/30 BP 631/33	H
Set 91 (Triple Filter)	430, 511 e 590 nm	TBS 450 + 538 + 610	TBP 467/24 + 555/25 + 687/145	H L
Set 49 (Single Filter)	G 365	FT 395	BP 445/50	D
Set 38 (Single Filter)	BP470/40	FT 495	BP 525/50	H e
Set 63 (Single Filter)	BP 572/25	FT 590	BP 629/62	H m

Objective	Magnification	Numerical Aperture	Medium	Working Distance
Fluar	5x	0.25	air	12.5 mm
Plan Apochromat	10x	0.45	air	2 mm
Plan Apochromat	20x	0.8	air	0.55 mm

- ***Cameras***:

  Camera with 3 CCD for AxioScan (colour camera)
  Orca Flash 4.0 V 3 (monochromatic CMOS camera)

Software
The acquisition and analysis of images is performed on the Zen Blue software.
(6) **Carl Zeiss Axioskop 2 plus**

Microscope overview

Up-right microscope for brightfield and epi-fluorescence microscopy. The microscope is equipped with phase contrast objectives and a color camera for brightfield/fluorescence imaging.

Charge Rates (€/hour – with IVA)

	Illumination	CNC Goups	External Academic Groups	Commercial Use
Self-Use	Fluorescence	0,75	1,5	3
	Transmission	0,5	1	2

- The charge for CNC users corresponds to consumables and 50% of service contracts / parts replacement.
- Imaging acquisition by MICC technician will be charged 3€ per hour (excluding training and technical support).
- Reservations can be cancelled up to 12h prior to booked starting time.
- Unused reservations will be charged at full rate.

Filter Sets

Filter Set	Excitation	Beam Splitter	Emission	Possible Dyes
Set 49	G 365	FT 395	BP 445/50	DAPI, Hoechst
Set 15	BP 546/12	FT 580	LP 590	Rhodamina
Set 10	BP 450-490	FT 510	BP 515-565	FITC, Alexa 488
Set 25	TBP 400 + 495 + 570	TFT 410 + 505 + 600	TBP 460 + 530 + 625	

Objectives

Objective	Magnification	Numerical Aperture	Medium	Observation
PlanNeofluar	1,5x	0,005	air	
PlanNeofluar	5x	0,15	air	Pol
PlanNeofluar	20x	0,5	air	Ph2
PlanNeofluar	40x	0,75	air	Ph2

PlanNeofluar	63x	1,25	oil	DIC
PlanNeofluar	100x	1,30	oil	DIC

Software

The acquisition and analysis of images is performed in the Axiovision software.
The software has the following modules:
-Multichannel Fluorescence

(7) **Functional Microscope: Carl Zeiss Axiovert 200 with perfusion system**

Microscope overview

Inverted widefield microscope designed for single cell calcium measurements. It is equipped with a Lambda-DG4 xenon lamp, allowing fast wavelength switching. Additionally, its sensitive cooled CCD camera (Roper Scientific CoolSnap EQ CCD) allows you to capture weak fluorescent signals and minimize photobleaching/ photodamage in light sensitive samples. The MetaFluor Imaging Software is designed for dual-wavelength intracellular ion measurements. The software allows simultaneous display of the raw data; ratio image; graphs of intensities, ratios, and ion concentration. Two different indicators can be imaged and measured simultaneously to provide greater insight to ion exchange and intracellular function regardless of dye loading concentrations, conditions, or emission intensities.

Charge Rates (€/hour – with IVA)

	CNC Goups	External Academic Groups	Commercial Use
Self-Use	1,40	2	4

- The charge for CNC users corresponds to consumables and 50% of service contracts / parts replacement.
- Imaging acquisition by MICC technician will be charged 3€ per hour (excluding training and technical support).
- Reservations can be cancelled up to 12h prior to booked starting time.
- Unused reservations will be charged at full rate.

Filter Sets (Microscope)

Filter Set	Excitation	Beam Splitter	Emission	Possible Dyes
Set 10	BP 470/20	FT 510	BP 540/50	FITC, Alexa 48
Set 15	BP 546/12	FT 580	LP 590	Rhodamina
Fura 2	--------	BS 400	BP 510/30	Fura 2
Fura + Rhod	--------	BS 430/60, 500/60, 570	BP 510/30 BP600/60	Fura 2+TMRM

Set 02	G365	FT 395	LP 420	DAPI

Filter Sets (Lambda-DG4 lamp house)

Filter Set	Excitation	Possible Dyes
340	BP 340/20	Fura 2
380	BP 380/20	Fura 2
548	BP 548/20	TMRM

Objectives

Objective	Magnification	Numerical Aperture	Medium	Observation
PlanNeofluar	5x	0,15		Ph1
PlanNeofluar	20x	0,5		Ph2
Fluar	40x	1,30	oil	DIC
Fluar	100x	1,30	oil	DIC

Software

The acquisition and analysis of images is performed in the Metafluarn software.

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(8) **Zeiss/P.A.L.M. Laser Dissecting Microscope**

Microscope overview

PALM MicroBeam employs the LMPC method (Laser Microdissection and Pressure Catapulting) to extract biological material of interest out of a tissue specimen. The Zeiss P.A.L.M. system employs a UV laser pulsed microbeam to cut the desired material and the isolated tissue is then recovered by laser pressure catapult into a microfuge tube cap. Cutting accuracy of less than 1 µm can be achieved.
The source material can be placed on a normal objective glass slide or on a membrane slide, depending on the way of approaching. The system can be used with frozen or paraffin-embedded tissue samples, single cells, and even single chromosomes.
Fluorescence optic is available for work with cells tagged with green fluorescent protein or other fluorescent markers.

For more information:
http://microscopy.zeiss.com/microscopy/en_de/products/laser-microdissection/microbeam.html

Webinars:
http://www.zeiss.com/microscopy/en_de/products/laser-microdissection/microbeam.html - webinars

Charge Rates (€/hour – with IVA)

	Illumination	CNC Goups	External Academic Groups	Commercial Use
Self-Use	Fluorescence	1	2	4
	Transmission	0,75	1,5	3
	Microdissection	5	10	20

- The charge for CNC users corresponds to consumables and 50% of service contracts / parts replacement.
- Imaging acquisition by MICC technician will be charged 3€ per hour (excluding training and technical support).
- Reservations can be cancelled up to 12h prior to booked starting time.
- Unused reservations will be charged at full rate.

Filter Sets

Filter Set	Excitation	Beam Splitter	Emission	Possible Dyes
Set 49	G 365	FT 395	BP 445/50	DAPI, Hoechst
Set 38 (HE)	BP 470/40	FT 495	BP 525/50	FITC, Alexa 488, GFP
Set 43	BP 545/25	FT 570	BP 605/70	Alexa 555, dTomato, PI
Set 26	BP 600/50	FT 645	BP 685/50	Alexa 667, Cy5

Objectives

Objective	Magnification	Numerical Aperture	Medium	Observation
Fluar	5x	0,25	air	For microdissection
LD-PlanNeofluar	20x	0,4	air	For microdissection; Correction Ring (Coverglass thickness 0-1,5mm)
LD-PlanNeofluar	40x	0,6	air	For microdissection; Correction Ring (Coverglass thickness 0-1,5mm)
Plan-Apochromat	63x	1,4	oil	DIC
PlanNeofluar	100x	1,3	oil	

Software (the system contains two different software, which CANNOT be operated simultaneously):

Axiovision Software (for Imaging Analysis)
-Modules:
-Multichannel
-z Stack
-mosaiX
-time lapse
-Extended Focus
-Automeasure Plus
-Commander

PALM Robot Software (for Microdissection)
-Modules:
-Autofocus
-LMPC- Module
-Extended Focus
-Multichannel Fluorescence