

Table of technical parameters

„ High content confocal microscope III “

Device description:

Delivery and installation of new high content confocal microscope for high-throughput and fully automated microscopic analysis of cellular samples in microtiter plates or glass slides.

The supplier **accela s.r.o.** honestly declares that the subject of performance offered has the technical characteristics and meets the technical parameters specified in Annex 1 of the Purchase Contract and Annex no 1 of the Tender Documentation “**High content confocal microscope III**” when specifying below technical parameters of the subject of performance offered by him:

Manufacturer:	YOKOGAWA
Type:	CV8000

Table 1.1: Technical parameters for the High content confocal microscope:

Parameter description:	Parameter fulfilled:	Parameter value of the subject of performance offered by the participant:
Compatibility with target microplates (SBS compliant) of 96-, 384- and 1536-well formats and microscope slides.	YES	X
The microscope has four independent sCMOS cameras for simultaneous image acquisition in different channels.	YES	Number of sCMOS cameras: 4
The highest quantum efficiency of sCMOS cameras is at least 80%	YES	The highest quantum efficiency of sCMOS cameras is: 82%
The microscope is equipped with at least 4 independent lasers of following wavelengths: 400 nm \pm 25 nm, 480 \pm 25 nm, 560 \pm 25 nm and 640 \pm 25 nm	YES	Number of lasers and their wavelengths: 5 lasers - 405 nm, 445 nm, 488 nm, 561 nm, 640 nm.
The microscope has an additional independent laser for FRET applications of following wavelength: 450 \pm 25 nm.	YES	FRET laser wavelength: 445 nm
The microscope has a source of light for excitation in 350 - 370 nm for UV	YES	Wavelength of the excitation light for UV applications: 365 nm.

imaging applications.		
The microscope records images from four colour channels independently and simultaneously.	YES	X
The microscope supports a brightfield mode of image acquisition.	YES	X
The microscope supports a true phase contrast mode of image acquisition.	YES	X
The microscope provides digital phase contrast (DPC) mode by combining a set of brightfield images taken at differing Z-axis for any objective and magnification.	YES	X
The microscope supports a confocal image acquisition mode.	YES	X
The microscope supports an epifluorescent mode of image acquisition.	YES	X
The microscope records FRET signals.	YES	X
The microscope is equipped with a dual-pinhole, dual spinning disk with 25- and 50-micron pinhole widths to achieve the highest possible lateral and axial resolution at different magnifications.	YES	Spinning disk pinhole 1: 50 micron Spinning disk pinhole 2: 25 micron
The microscope automatically exchanges spinning disks without user intervention.	YES	X
The speed of image acquisition in the confocal mode using 4 channels must be equal to or less than 130 s for 96-well plate and 315 s for 384-well plate with a single field of view.	YES	Speed of image acquisition is: 96-well plate: 62 seconds 384-well plate: 244 seconds
Microscope has a fully incubated stage with CO ₂ , O ₂ and humidity control. The chamber achieves at least 85% of relative humidity and temperature control must be at least between 35 and 40°C.	YES	Highest relative humidity: 95% Temperature control range: 35-40 °C
The incubation chamber achieves ≤5% of oxygen for hypoxia experiments	YES	Lowest achievable O ₂ concentration: 1-2%
The microscope has autofocus functionality.	YES	X

The microscope has 2 barcode readers to read barcodes present on the short and long sides of microplates	YES	X
Objectives		
The instrument has 6 objectives installed and ready to use with the following specifications:	YES	X
Objective 1: 4x magnification, dry	YES	X
Objective 2: 10x magnification, dry	YES	X
Objective 3: 20x magnification, water immersion	YES	X
Objective 4: 40x magnification, water immersion	YES	X
Objective 5: 60x magnification, water immersion	YES	X
Objective 6: 20x magnification, long working distance (for spheroids and organoids).	YES	X
Emission filters:		
The instrument is equipped with at least 5 emission filters for general applications.	YES	Number of emission filters: 6
FRET emission filters for CFP/YFP	YES	FRET filters specifications: filter I: EM483/32 for CFP filter II: EM539/30 for YFP
Control software		
Software for accessing and controlling all available functions of the microscope.	YES	X
The software can be equipped with fast pre-scanning of plate to identify objects of interest and perform subsequently detailed acquisition of images	YES	X
The software supports fast pre-scanning of wells containing positive and negative controls for quality check (Z' factor) and eventually discard the plate if the required criteria were not met	YES	X
The software supports production of tiled images corresponding to the scan	YES	X

of the whole well or its subregion		
The software is compatible and works with widely used applications for HCS such as: Cell profiler, Image J, Matlab, KNIME. The software supports Python scripts.	YES	X
SW support and updates will be provided free of charge for the warranty period of instrument.	YES	X
High content image analysis software		
Software for High content image analysis allowing for multithreaded image analysis using CPUs and GPU in 2D and 3D.	YES	X
The software performs the analysis such as: Granularity, Neurite, Nuclear morphology, Nuclear translocation, Plasma membrane translocation and Label-free analysis	YES	X
The software performs live cell long term time lapse (Image a plate for 3+ days)	YES	X
The software tracks cell division and links mother cells to daughter cells. Tracks speed, distance moved, linearity of motion	YES	X
The software builds 3D models of cells, reports volume, surface area, and counts objects within spheroids, organoids, or PDX tumor models.	YES	X
The software analyzes in 3D or converts to maximum, minimum, average, or sum image projection	YES	X
The software uses machine learning and deep learning in the image analysis.	YES	X
2 licenses for image analysis software with deep learning module will be provided	YES	X
SW support and updates will be provided free of charge for the	YES	X

warranty period.		
Computer Workstation I		
Computer workstation for operating the microscope with following minimal specification:	YES	X
CPU with minimum 6 cores and 12 threads	YES	X
Minimum of 16 GB RAM	YES	X
Minimum of 2x 2TB drives for data storage:	YES	X
2x LCD monitors	YES	X
Computer Workstation II		
Computer workstation for performing high content image analysis with following minimal specification:	YES	X
CPU with minimum 32 cores and 64 threads	YES	X
Minimum of 256 GB RAM	YES	X
GPU for acceleration of deep learning calculations with minimum of 8 GB RAM	YES	X
SSD drive for operating system with minimal 1 TB.	YES	X
Minimum of 10 TB on drives connected in RAID 5.	YES	X
2x LCD 27" monitors with resolution at least 3840x2160 pixels.	YES	X
Wound healing assay tool for preparation of unified cytokinetic assays in 96-well format		
Robust and precise design ensuring generation of unified (max. var. 5%) scratches in all wells at once for purpose of comparative in-vitro analysis of migration dynamics in the area of disrupted tissue.	YES	X
The tool is fully compatible with microplates used in the high content confocal microscope.	YES	X
The tool is fully compatible with 96-	YES	X

well E-Plates for xCELLigence SP (Agilent) which is already available at CZ-OPENSREEN and which will be integrated in the robotic microscopic/label-free platform together with the confocal microscope.		
Installation and training		
Vendor must secure the installation of the microscope at customers' premises in Prague, Czech Republic.	YES	X
Training for the operation and maintenance of the system must be provided on-site by experienced and qualified experts in duration of at least 3 days.	YES	Duration of training: 3 days
Within the guarantee period, the Seller obliges to start rectifying the defect within maximum 24 hours after the Purchaser announced the defect, unless the Contractual Parties agree otherwise. The service engineer will be on site within 3 days from the day when the Purchaser announced the defect to the Seller unless the Contractual Parties agree otherwise.	YES	X

The Contracting Authority warns the Participants that in the event the offered subject of performance does not meet the above-mentioned technical characteristics and technical parameters (i.e. the Participant answers "NO" in the *Parameter fulfilled* column). Such offer does not meet the desired conditions and requirements of the contracting authority and will be excluded.

In Prague Day 12.10.2021	
	<hr/> RNDr. Petr Kvapil, jednatel