

NIPER-G/PUR/GLOBAL/2018/03

Technical Specifications for High Sensitive Confocal Workstation

The system should be of latest state of the art technology capable of high sensitive spectral confocal imaging of fixed & Live Biological samples. The system should include multichannel Fluorescence imaging with Z-stack, time-lapse including co localization, FRET, FRAP, photon counting. The system should be highly modular and upgradable for Super Resolution and other latest imaging techniques. This system is for pharmacological and toxicological studies performed in different cell lines, primary culture and tissue microsections imaging, live cell imaging.

The technical specifications for confocal microscope are given below: -

Specification as per the Tender Notification in Chapter 4	Amended Specifications as per the Pre Bid meeting held on 22-02-2018 in Chapter 4
A: Motorized Inverted Fluorescence Research Microscope 1. The Confocal microscope should be fully motorized inverted fluorescence research microscope for BF/DIC/FL with dedicated TFT/LCD display for full control of Microscope. Motorised XY stage should be provided with universal sample holders (slides, Petri dish and other live cell sample holders like 6 well plate, 96 well plate) for tile, mosaic and multipoint imaging.	No change
2. Automated or motorised 6 position DIC nosepiece, Universal Motorized Condenser NA 0.55 or better with modules for DIC, 6position fluorescence turrets for accommodating fluorescent filters for sample visualization and camera based imaging.	2. Automated or motorised 6 position DIC nosepiece, Universal Motorized Condenser NA 0.55 or better with modules for DIC, 6position fluorescence turrets for accommodating fluorescent filters for sample visualization and camera (CCD /sCMOS camera with QE @ 70% , Resolution of the camera should be 1920 x 1440 pixel, 4.54 μ m x 4.54 μ m pixel size and a typical full well capacity of 15.000 electrons) based imaging.

<p>3. High resolution confocal grade Plan apochromatic objectives corrected for both UV & VIS lines. 10x/0.45, 20x/0.80, 40x/0.8, 60/63x/1.40oil, along with DIC accessories for all objectives.</p>	<p>4. High resolution confocal grade Plan apochromatic objectives corrected for both UV & VIS lines. 10x/0.4 to 0.45, 20x/0.75 to 0.80, 40x/0.8, 60/63x/1.40oil, along with DIC accessories for all objectives.</p>
<p>5. Band pass fluorescent filters for DAPI, YFP, GFP, Cy3/DsRES and Cy5.</p>	<p>No change</p>
<p>6. High precision built in Z-focus drive with step resolution of 15 nm or better.</p>	<p>No change</p>
<p>7. Transmitted and Reflected Light illumination with 100W halogen/LED and 120W metal halide with control and long lifetime of 2000 hours.</p>	<p>7. Transmitted and Reflected Light illumination with 100W halogen/LED and Hg/Metal Halide with 120W & with 2000Hrs life span or more</p>
<p>8. The instrument should enable to carry out experimentation on live cells in a mini plate format (8 wells), with an Assay volume ~ 80-200µl/well, and should sample 10k-500 cells/well</p>	<p>No change</p>
<p>9. System should be quoted with onstage incubation system having facility to control humidity/temperature/CO2 etc. Incubation system should be operated by using confocal software.</p>	<p>No change</p>
<p>10. An active anti vibration table with compressed air damping, bread board table top with M6 threading for complete microscope system</p>	<p>No change</p>
<p>11. System should quote with automated shift free DiC accessories for all objectives</p>	<p>No change</p>
<p>B: Scanning and detection system 1. High transmission efficiency optics for confocal.</p>	<p>No change</p>

<p>2. Completely motorized Point scanning laser based confocal detection unit for four spectral channels, with built in high sensitive detectors: standard 3 numbers of PMT and 1 number GaAsP/HyD. All detectors should be built in spectral type and placed in scanner unit for better emission signal.</p> <p>3. Confocal with spectral detection, should include simultaneous imaging and separation of at least 4 fluorophores based on above detectors.</p>	<p>No change</p>
<p>4. PMT based transmitted light detector for DIC imaging</p>	<p>No change</p>
<p>5. Scanner should have real ROI with scan capability for fast scan with minimum resolution of 6K x 6k or above</p>	<p>No change</p>
<p>6. Scan speed should be 6 fps or higher with all of the spectral detectors @512x512 pixels. Real ROI scan and bleach with various ROI shapes should be possible for FRAP experiments.</p>	<p>Scan speed should be 6 fps or higher with all of the spectral detectors @512x512 pixels with full format with all channel. The speed should be real without line skipping, interlacing & interpolation. ROI shapes should be possible for FRAP experiments.</p>
<p>7. Maximum FOV should be 20 mm or more. The system should have fully corrected optics for multi-channel Co-localization in X,Y& Z axes with all objectives for 405 & 633 lasers combination</p>	<p>No change</p>

<p>8. Complete set of Gas/Solid state laser lines as mentioned below should be part of standard supply with the system as follows</p> <ul style="list-style-type: none"> a) Blue diode (UV) laser 405/408nm or equivalent b) Ar laser with 488 nm or equivalent with minimum of 35 mW power c) DPSS 561/ 552 nm or equivalent with minimum of 20 mW power d) HeNe 633nm or equivalent with minimum of 5 mW power <p>Each laser line must have a minimum of 10,000 h lifetime.</p>	<p>8. Complete set of Gas/Solid state laser lines as mentioned below should be part of standard supply with the system as follows</p> <ul style="list-style-type: none"> a) Blue diode (UV) laser 405/408nm or equivalent /Solid State laser of 40mw or more b) Ar laser with 488 nm or equivalent with minimum of 35 mW power /equivalent solid state laser minimum 20 mW or better c) DPSS 561/ 552 nm or equivalent with minimum of 20 mW power d) HeNe 633nm or equivalent with minimum of 5 mW power /Solid State laser with minimum 15mw <p>Each laser line must have a minimum of 10,000 h lifetime.</p>
<p>9. All laser lines should be controlled through 8 channels AOTF for fast laser switching and attenuation in pixel precise synchronisation with the laser scanner for real scan for FRAP, photo-activation or conversion experiments.</p>	<p style="text-align: center;">No change</p>
<p>C. Control computer, Monitor and software:</p> <ul style="list-style-type: none"> 1. Latest 64 bit control computer with Intel Xeon 6 Core processor, DDR RAM 8GB HDD: 1TB SATA, DVD, Graphics: AT Fire GL V5200 256MB DH DVI, Gigabit Ethernet, Win 7 ultimate 64 bit OS, USB 2.0, Fire Wire, Large LCD/TFT Monitor. 	<p style="text-align: center;">No change</p>

<p>D. System control and Imaging software</p> <p>1. Confocal system control software: It should be capable of controlling all motorized functions of microscope, scan head, LASERS, AOTF including imaging acquisition and processing. Standard confocal analysis software, 3D image construction system, online spectral imaging based on lambda stacking.</p>	No change
<p>2. Time series, FRAP/FRET imaging as well as quantitative data analysis capability.</p>	No change
<p>3. Imaging without bleed through and auto-fluorescence separation by online fingerprinting techniques.</p>	No change
<p>4. Advance 3D for volume rendering and reconstruction, co localization with histogram analysis, intensity profiles for quantification.</p>	No change
<p>5. Image editing, processing and analysis functions</p>	No change
<p>6. System should have capability for standard geometry measurements like area, angles etc including intensity measurements.</p>	No change
<p>7. System should have provision for up gradation of UV & IR port and super resolution imaging</p>	No change

Note:

1. Bidder should clearly specify the after sales/service application support capabilities
2. Warranty for completion system including the offered lasers for 3 years from the date of installation should be offered
3. Online UPS of minimum 10 KV capacity including lasers should be included in the supply
4. Detailed list of users of the system in India with contact details and recent PO for the quoted model to any central Govt. institutions/Universities to be provided
5. Application training for personnel at site should be made available
6. Dedicated resident engineer for a period of 3 years should be part of the main system offer
7. If the bidder is unable to show the proof for the technical compliance of specified points in the tender either in the brochure or technical data sheet or instruction manuals the specific point will be considered as does not complies the institutional specification.
8. Supplier should assure the shifting of the equipment to the new campus within the warranty period without any additional cost System should quote for 3 years of comprehensive warranty

3.Online UPS of minimum 5 KV capacity with 1 hr back up should be quoted

Remaining Specifications no change

Sd/-
Purchase officer