

Open Tender Notification for the procurement of “Fully Motorized Fluorescence Microscope for Live Cell Imaging” at the Indian Institute of Science, Bangalore

(Last date of submission of tenders: 12-April-2021)

GTE APPROVAL NO: IISc-GTE-2021-012

Date: 26.03.2021

Dear Madam / Sir:

Please send your quotation valid for 90 days for the supply of equipment described below. Your quotation should clearly indicate the terms and conditions of the quotations, delivery, delivery schedule, entry tax, payment terms, warranty coverage etc. The tender should be submitted in two separate sealed envelopes – one containing the “Technical bid” and other containing the “Commercial bid”, both of which should be duly signed and must reach the undersigned on or before 17:00 hours 12-April-2021.

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Fully Motorized Fluorescence Microscope for Live Cell Imaging

Specifications:

A. Microscope body

1. Inverted motorized microscope with scanning (X, Y, and Z) and automated axial drift correction (hardware) with intermediate magnification changer of 1x/1.5x or 2x built in the base of the microscope itself.
2. XY motorized stage (Encoder based for better precision and repeatability) with multiple holders to adapt slides, Petri dish with glass bottom cover slips, multi well plates, Flasks etc.
3. Double-deck motorized filter turret. Should be possible to accommodate two cameras to two output ports.
4. The system should have a dedicated vibration free external TFT/LCD/TAB touch screen capable of controlling all motorized functions of microscope.
5. Motorized Ergonomic Stand with inbuilt Z-focus drive with minimum step resolution of 10-15 nm or better.
6. The system should have an IR based Laser/Led focus drift control module for long term in focus time lapse imaging with a feedback frequency of 100Hz or better.
7. The frame should support future upgrades such as spinning disk & TIRF system.
8. The system should have an inbuilt free second deck/stratum structure with infinity port as apart of the system for additional custom laser introduction.
9. Bright LED transmitted Illumination for Phase and DIC with intensity control through touch panel and imaging software
10. Motorized Universal Condenser (suitable for all microscopy techniques such as Phase, DIC) with 6 to 7 slots. It should have Phase rings and DIC prisms and blank position for BF.
11. Six positions motorized revolving nosepiece with Slot for DIC Slider to accommodate objectives of different magnifications.
12. Tiltable binocular head with 10X F.O.V 22 or better eye pieces-2 nos.
13. High performance, Objectives suitable for Brightfield/Phase Contrast Fluorescence Observation (plan apochromatic objectives) a) 60X Plan Apo 1.42 Oil Phase & DIC; b) 100X Plan Apo 1.45 or above Oil Phase & DIC. Comparable specifications with justification.
14. Linear encoded XY motorized scanning stage (Encoder based for better precision and repeatability) with stage inserts for on stage CO₂ incubator. The stage incubator should accommodate 96 well plate, 35 mm dish, 60 mm dish and chambered slide for multi well multipoint live cell imaging and automated stitching in XYZt and multichannel mode.
15. Compact On Stage Incubator that works at 37 deg centigrade with complete temperature, Humidity and Co₂ Gas Flow to maintain 5% CO₂ should also be

provided as standard. Should also be included with suitable holders, for 35mm petri dish, 60mm petri dish, Labtek chambers, 96 well plate holders too. Incubator should also be controlled by the Image Analysis Software for better control of application parameters. Incubation system should be controlled by same imaging software for better control and coordination.

16. Motorized Epi-Fluorescence Attachment with Automated Fluorescence filter cubes (8 positions) along with Noise Terminator mechanism should be incorporated for high signal to noise ratio images. Motorised turret filter block with narrow bandpass notch filters for i) DAPI, ii) GFP, iii) RFP/DsRed, and iv) Cy5 v) polarizer cube for DIC. An additional quad band DM & Emission filter with independent single band pass excitation/clean up filter for DAPI, FITC/GFP, TRITC/Tx Red and Cy5 should be offered. Five more empty filter cubes should be included.
17. Stable long lasting LED/solid state light source with a guaranteed lifetime of minimum 20,000 Hrs. The light source should have independent LED for 365nm, 405nm, 445nm, 488nm, 514nm, 561nm, 594nm and 640nm, 660, 740 and 770. The light source should have built trigger board for fast switching with DAQ card. A remote touch pad to control all the individual line should be provided. The light source should be controlled by imaging software for fast sequential imaging with a real-time control board that triggers all the lines and the camera in parallel mode.
18. The microsecond precise real-time control board should be able to synchronize the camera exposure time with the precise and fast switching of the LED light to avoid bleaching and photo toxicity. The system should have Analog/Digital I/O ports to control the LED light source, camera and third party hardware such as perfusion system based experiments (controlled drug delivery).
19. All the cabling and controls required to integrate all the parts and operate from the controlling computer.
20. System should be upgradeable at a later date to Spinning Disc Confocal/ Point Scanning Laser Confocal or Super Resolution techniques with no major modifications.
21. Suitable Imported Active Anti Vibration Table of size 900 X 1800mm should be provided as standard for the systems.
22. An imported clinical binocular Microscope with 4X, 10X, 20X, 40X and 100X should also be included in the basic offer.

B. Detector

1. Back-illuminated scientific Grade CMOS Camera with 95% or above QE and with 6.5um pixel size with a maximum resolution of 2048 X2048 pixels.
2. The camera must have PCI EXPRESS cable Interface for 16 bit; 6.5x 6.5µm pixel area, 13.3x 13.3 mm sensor area, 18.8 mm diagonal, 45,000e- full well, 1.0e- Read Noise 60-70FPS at full resolution (2kx2K) and should be able to increase upto 120 FPS at 2048x1024 @11 bit ; 25,000:1 Dynamic Range, Embedded Signal Processing features: such as onboard de-noising modes, Multi-ROI.

3. The camera should have built trigger inputs and a frame rate of 60-100FPS.
4. The camera should be controlled by the same imaging software fast multi-dimensional imaging applications.
5. The cooling should be through forced Air Cooling -20°C Cooling with selectable fan speed to avoid vibration during imaging and should also have the liquid cooling upto -30°C cooling for noise free imaging during high speed live imaging.
6. The camera should be able to support multiple ROI imaging to achieve faster imaging speed.

C. System control and application software

1. Software for fully automated acquisition and device control. The imaging software have/could be adapted for advanced multidimensional acquisition, camera control and controlling all function of motorized/coded functions of microscope. Time lapse recording functions, video recording functions, automated 6 dimensional imaging, automated multi-channel fluorescence capturing and merging, fluorescence unmixing, co-localization, wide-field real time Deconvolution software module and High Dynamic range imaging. Software upgradation for at least 3 years.
2. The software should also have real time acquisition and analysis features for FRET, Ratio imaging and Ca imaging. Dynamic ROI, Kymograph, real-time Deconvolution, automated counting, and measurement features. Should have built in drivers/modules to control third party hardware such as spinning disc confocal units, TIRF Units, super resolution modules.
3. Ability to control all parts of the integrated system comprising the microscope body, LED module, and sCMOS detector.
4. Post-acquisition image processing capability. An additional offline license for analysis.

D. Computer Workstation

1. Minimum specifications – Xeon core processor, 32 GB RAM or better; 4 TB HDD, 0.5 TB SSD; 64-bit OS; high resolution 24-inch display; 4GB NVIDIA GPU card. One online computer integrated with the microscope and one offline computer of the same configuration for image processing.
2. 5kVA UPS for all components of the microscope and controlling computer.
3. System should also be capable of integrating the laser/laser combiner onto the software quoted and all necessary components or hardware should also be included in the offer as standard

E. Training and Warranty

1. On-site installation and training
2. 5 years complete system warranty

3. The above-mentioned technical specifications are highly desirable. However, lower technical specifications may be considered if the above-mentioned specifications are found to be unsuitable in financial terms. The Institute reserves the right to go for lower specifications taking into considerations its financial constraints and technical preferences.

Terms and Conditions:

1. The quotations should be submitted in two bids system; i.e., Technical bid, and Commercial bid.

a. The technical bid must include all details of technical specifications of the instrument along with commercial terms and conditions masking only the price component. Bill of materials, brochures, technical datasheets, and any other document may be enclosed to help the evaluation of the technical bid. Please also include warranty terms and any other information on upgradation terms in the technical bid.

b. The commercial bid must include the price of the instrument in Indian/Foreign currency indicating break up of:

F. For goods:

i. Price (CIF, Bangalore). Applicable Custom Duty will be borne by the Institute.

ii. Installation, commissioning and training charges, including any incidental expenses, if any

iii. Agency commission charges, if any

iv. Provide certificates for country origin of manufacturing for each line item

II. Price of every line item in the commercial bid should be quoted along with the total quoted price for the instrument to be operational (fixed and ready to use) in our facility

c. Both the Technical and Commercial bid should be put in separate sealed envelopes, and put together in another cover stating, "Fully Motorized Fluorescence Microscope for Live Cell Imaging" and should reach us on or before 17:00 hours 12-April-2021.

2. The vendor should have a good track record of having previously supplied "Fully Motorized Fluorescence Microscope for Live Cell Imaging" in India or abroad (please furnish details).

3. The vendor should have qualified technical service personnel based in Bangalore capable of servicing the equipment.
4. The payment will be through a letter of credit.
5. The lead time for the delivery of the equipment should not be more than three months from the date of receipt of purchase order or two months from the date of receipt of Letter of Credit details (whichever is earlier).
6. The validity period of the quotation should be 90 days.
7. Import code of the items should be indicated.
8. If the goods are found to be defective, they have to be replaced or rectified at the cost of the supplier within 30 days from the date of receipt of written communication from us. If there is any delay in replacement or rectification, the warranty period should be correspondingly extended.
9. The purchaser reserves the right to accept or reject any bid and to annul the bidding process and reject all bids at any time period to award of construct without thereby incurring any liability of the affected bidder or bidders.