राष्ट्रीय पादप जीनोम अनुसंधान संस्थान

(जैव प्रौद्योगिकी विभाग, विज्ञान एवं प्रौद्योगिकी मंत्रालय, भारत सरकार का स्वायत्त अनुसंधान संस्थान)

NATIONAL INSTITUTE OF PLANT GENOME RESEARCH

(An Autonomous Institution of the Department of Biotechnology, Ministry of Science and Technology, Government of India)

अरूणा आसफ अली मार्ग, पो. बाक्स नं. 10531, नई दिल्ली–110067

Aruna Asaf Ali Marg, Post Box Number 10531, New Delhi-110067

No. 8/2017-18/NIPGR/S&P

Dated: 31/01/2018

Corrigendum

This has reference to our tender no. 8/I/NIPGR/S&P/2017-18 dated 9/1/2018 regarding supply and installation of **01 No. of Confocal Microscope** at our Institute.

a) In this context, this is to mention that the dates for submission/opening of tenders have been extended upto **12/02/2018** (3.00 P.M/3.30 P.M respectively)

a) The revised Technical Specifications/compliance sheet are attached at Annexure-I.

This Corrigendum will form part of the Original Tender Document. All other terms and conditions of the above mentioned tender remain unchanged.

Purchase cum Stores Officer

दूरभाष (का.)/ Tel. (O): 91-11-26741612, 26741614, 26741617, फैक्स/ Fax : 91-11-26741658

Email : nipgr@nipgr.ac.in; Website : http://www.nipgr.ac.in

Specifications for State of Art Spectral Laser Scanning Confocal Microscope System

NIPGR, New Delhi is looking for state of art spectral laser scanning confocal Microscope to be used in modern cell biology research for highly sensitive, high resolution, high speed, spectral imaging of multi-fluorescence with both sequential and simultaneous scan. The system should be capable of performing but not limited to fixed as well as live cell imaging, Co-localization, Z-stack, FRAP, Fast-FRAP, BiFC, Bleaching and Ablation, FRET-SE, FRET-AB, Photo-activation, physiological and time lapse imaging, 3D and 4D (imaging and reconstruction), 3D deconvolution etc. The detection system should consist of efficient optical elements and detectors. The system should be up-gradable to FCS/FCCS/FLIM/FLCS and preferably also to a super-resolution imaging system.

1. **Microscope and accessories**

A. Fully Motorized & Automated Fluorescence Inverted Research Microscope for bright-field, differential interference contrast (DIC) and fluorescence with Nosepiece, filter turret, beam turret, XY stage, Z focus and condenser having dedicated display for full control including the followings:

a) **Objectives:** Confocal grade plan–apochromatics corrected for UV, Visible and IR lines. The objectives should be cover slip corrected wherever applicable.
approximately i) 4x/5x air/0.13NA (semi-plan apo or equivalent) ii)10X air/0.4NA; iii) 20X air /0.7NA or above; iv) 20x/0.7 (multi-immersion/silicon); v) 40X W/NA1.1 with WD approx.. 0.18 mm; vi) 60x/63X/1.4 oil; vii) 60x/63X water (W)/NA 1.2 with approximately WD 2 mm. The following objectives should be quoted as optional items: i) 40x air/0.8NA or above; ii) 60x air/0.7 NA (semi-plan apo or equivalent); iii) 60x/63X/1.3 glycerol/silicon; iv) 40X/1.3 oil and v) 100x oil/1.4 NA.

b) Motorised six position or higher filter turret with high efficiency narrow band pass fluorescence filter cubes for UV, blue, green, red range of dyes like DAPI, AMCA, Hoechest, FITC, GFP and its variants, Alexa 488, PI,
Rhodamine, TRITC, Alexa 633, Alexa 640, Alexa 594, Alexa 568, Texas red, m-Cherry, td-Tomato, mito-tracker red, Ds-Red, YPF and CFP, Cy3, Cy5, Cy7, Fluo3, chlorophyll a and chlorophyll b etc.

c) For fluorescence illumination 120 W Metal halide with PC control having minimum life of 2000 hrs with power supply.

d) For transmitted light 100 W LED/halogen with PC control.

e) Motorized DIC nosepiece, accessories for all above objectives with DIC prisms capable of doing simultaneous fluorescence and DIC imaging.

f) Motorized brightfield/phase/DIC condenser,

g) Motorized Polariser and Analyser

h) Motorised XY scanning stage for inverted Microscope with universal sample holders for slide, petridishes (35/60 mm), multi-well plate / chamber for fixed cell / time lapse live cell imaging.

i) High prescision built-in Z focus drive with Microscope Z-step size minimum of 25nm
or better along-with preferably hardware based LED/IR (750-850 nm) control of focus-drift management system like definite focus/perfect focus/adaptive stability manager or similar.

j) Piezo Stage/ Galvo stage for live XZ scanning

k) Transmitted light /bright field detector for both visible and IR range.

l) Sensitive motorized dichroic/AOBS system with low angle of incidence and high efficiency optics.

m) Continuous hardware scan zoom of 1x to 40x and optical scan rotation of 0-180^0 or better should be provided.

n) **To be optionally quoted**: Optical module for converting inverted microscope in a upright microscope along with a separate stage. Incubation chamber for live cell/on stage type incubation chamber with programmable active CO_2, N_2, temperature and humidity. CO2 incubator should be controlled through the confocal software. In addition, the chamber should be able to create and maintain hypoxia condition as and when require without affecting the other operations/parameters.

B. Cooled scientific CMOS camera for fast fluorescence image acquisition including the following features:

a) Four megapixel with an innate capacity of 50 fps or better (12 bit or more). The resolution should reach maximum up to 2k x 2k.

b) Pixel size 6.5 µM x 6.5 µM.

c) Peak quantum efficiency of more than 80%.
d) Camera should be controlled through the confocal software/separate software.
e) Include Camlink cable in addition to USB 3.0 or better/ Fireware connection for optimal performance.

2. Scan head with minimum of three ports for UV, visible and IR lasers with single/dual scanner(s) and compatible detectors comprising the followings:

a) Basic Scan head should have 2 or more tunable spectral detectors, PMT and GaAsP/HyD for fluorescence detection of at least 4 fluorochromes or more for simultaneous detection at the scanning speed of 4 fps or more at full frame of 512 x 512 using standard point/linear scanner. At least 4 fluorochromes or more simultaneously at the scanning speed of 12 fps or more at full frame of 512 x 512 for higher speed imaging.
b) The spectral dispersion should be based on either reflection grating with 32 array detection/transmission grating/with prism based dispersion with high spectral detection.
c) Must come with Scanner/(s) with compatible detectors.
   i) *Standard point/linear scanning @ 4 fps or more @ full frame of 512 x 512 at full FOV. Scan resolution should be 4k x 4k or preferably more.*
   ii) *High speed live scanning for Video rate live cell imaging @ 12 fps or more @ full frame of 512 x 512 and at imaging rate at least 400 fps or more@ frame of 512x16. Scan resolution should be 512 x 512 or preferably more. FOV should be 14mm or more.*
d) Minimum of two or more PMT detectors capable of spectral detections and conventional imaging.
e) Two HyD /GaAsP detectors for spectral imaging each with a peak Quantum Efficiency of 45% or equivalent system.
f) The main Dichroic /AOBS should allow available laser lines in visible range at highest efficiency and speed.
g) In case of Dichroic system, appropriate dichroics should be provided for UV, visible and IR range as applicable.
h) It should be possible to couple all the lasers from UV to visible to IR to the same scan head at the same time.
i) Preferably having built-in rotatable polarizer/analyzer before detector.
j) Online Spectral separation of the multiple dyes.
k) Computer controlled continuously variable confocal pinhole with software control. Scan resolution of 4k x 4k or better.
l) The system should be able to carry out four colours or more simultaneous detection. The point-scanning confocal unit should be completely motorised with built-in/integrated/separate high sensitivity spectral detectors (with GaAsP/Hyd based imaging for at least 2 channels in addition to the standard 2 channel or more spectral PMT). Detection with independent analog gain controls for all channels. The system should be capable of recording emission spectra with spectral resolution of <= 5nm or better.

3. **LASER modules including LASER controllers and relevant accessories:**

A) **Fixed lines Visible LASER details:** Visible LASER illumination system with AOTF control for the following laser lines:

I) Multi Argon gas laser (458nm, 488nm, 514nm) with minimum of 25 mW laser power or more or equivalent Solid State lasers of 445/448nm, 488 nm and 514nm with minimum of 20 mW laser power each to optimally excite CFP, Fura Red AM, IANBD-Amide, Rhodamine 5 GLD, super glow GFP, Alexa 488, GFP, FITC, Acridine orange, Rhodamine 110, Calcium, YFP, SYTO 22, etc.
II) DPSS 561 nm Laser with minimum of 20 mW laser power or more to optimally excite TRIC, Alexa 547, 594, Texas red, Cy3, Ds Red, Nile red, MitoTracker Red, etc.
III) Red HeNe 633 nm gas / 638 nm or 640 nm solid state Laser with minimum of 5 mW laser power or more to optimally excite Cy5, Alexa 633, TO-PRO3, etc.

B) **Fixed lines UV LASER details:** UV LASER illumination system with AOTF control for the following laser lines:

I) Solid state blue diode approximately 405 nm laser with minimum of 30 mW laser power or more for optimal excitation of DAPI, AMCA, Hoechst, Fura2 etc.
II) System should be upgradable to Solid state blue diode 405 nm pulse laser with minimum of 3 mW laser power or more for fluorescence life time imaging of unknown dyes/single molecule excitation/nanomaterial etc.
III) System should be upgradable to dedicated 355 nm UV laser for ablation.

4. **Improved resolution:** The system should be capable of providing improved resolution of approximately 140nm or better at XY and approximately 350 nm or better at Z for minimum of two or more fluorescence channels simultaneously for high resolution imaging of smaller structures like cell organelles, nanoparticles and live imaging of the same. It should be done either by automatically changing/enhancing the system parameters with high sensitive/QE detectors or alternate technology. The improved resolution images should retain the image metadata and image acquisition parameters and should be fully analyzable in the off line softwares asked for. The acquisition speed in the improved resolution mode should be same as in the confocal mode.

5. **Hydraulic breadboard Optical / Anti-vibration active table with compressor** should be supplied by the microscope manufacturer with proper alignment of the lasers. The said table should be manufactured by internationally recognized firms.

6. **Workstation**

   i. System acquisition online workstation having highest possible configuration at the time of delivery with at least 64 bit computing with intel 10c xeon processor or better, DDR3 or better, 2 TB or more of storage with compatible SSD or equivalent. RAM 64 GB or better, SuperMulti SATA +R/RW, slim super multi DVD writer, DVD combo drive, 2xUSB 2.0, 8xUSB 3.0, Gigabit Ethernet, Firewire port, Large 1x31" LED monitors or better with best resolution available not less than 4k, graphics card with minimum 2 GB RAM, 4 GB high performance GPU and ports for DVI and HDMI, 64 bit Windows 7 OS or latest compatible, keyboard, mouse. A sturdy housing system for laser modules, monitors etc. from the microscope manufacturer should be provided after consultations with the user.

   ii. Offline workstation with similar above configuration as online system having 1x31" LED monitor or better.

7. **System control and imaging software**

Upgradable software capable of controlling Motorized functions of microscope, digital camera, scan head control, laser control including AOTF and Image acquisition & processing. One user license for the followings should be included in the main specification. One more identical license of all the items should be mentioned as optional with price frozen for warranty period.

i) Software module or facility to image extended dynamic range while acquiring like HDR/BrightR/or equivalent with GaAsP/ HyD.
ii) Saving of all system parameters with the image for repeatable/reproducible imaging.
iii) Line, frame, Z-stack, Time series imaging capabilities.
iv) 2D automated image analysis, measurements and object tracking.
v) Standard geometry Measurements like length, areas, angles etc. including intensity measurements.
vi) Advanced 3D image reconstruction from a Z-stack image series software.
vii) Dedicated FRET AB, FRET SE, FRAP, FAST FRAP, Photoactivation, BiFC application softwares.
viii) 3-D Deconvolution Software.
ix) Editing and movie generation.
x) Co-localization and histogram analysis with individual parameters.
xi) Physiology software.
xii) Spectral un-mixing and emission fingerprinting or equivalent with separation of overlapping emission spectra of fluorophores.
xiii) 3D volumetric analysis and measurement software.
xiv) Complete Imaris software suite/SVI Huygens with all available modules along-with individual prices for image processing should be quoted in optional.

8. **Online UPS** to support the complete system including microscope, lasers, confocal system, workstations etc for minimum of 30 min back up. An individual offline UPS system with at least 15 minute back up.

Please note:

- Please provide individual prices of each item in your quotation in the same order as per the tender document in the price bid.
- Bidder providing misleading or wrong information will be disqualified.
- Bidder will support all the claims by product number/part number along-with manufacturer catalogue. Same should be available in the public website of the manufacturer.

- The complete confocal system including lasers, laser housing system and optical table should come from the microscope manufacturer factory after quality testing.
- Please attach the compliance sheet with details of each items as per above specifications in the same order in the prescribed tabular form.
- Onsite training for NIPGR research personnel during the system installation as a lecture module. Further, provision of on-site training of a specified number of NIPGR staffs and students at regular intervals as and when required as decided by NIPGR.
- Performance warranty for complete system to be added for three years from the date of installation.
- Warranty should be provided for at least 7000 working hours for all lasers.
- AMC for additional 5 years post warranty should be optionally quoted year wise.
- All specification must be supported by the official brochures from the company.
- Instruments must be attended within 48 hr in case of any breakdown. The uptime for the facility should be 95% per year or more. Vendor should assure the availability of the spares for next 10 years from the date of installation.
- Vendor must have good service and application support in India to support the Institute as and when required.
- Only those bids/offers with the complete specifications mentioned above will be considered.
- All pre-installation requirements after survey of installation site should be communicated in writing to the Institution immediately after acceptance of the order.
- Credibility: the vendor should be internationally renowned and have a successful history of installing the same or similar systems worldwide in similar laboratories. A comprehensive list of customers in India should be provided. Customer testimonials from India (minimum three) and order copies of recent orders should be produced in support of the bid.

Tender Compliance Sheet

SL No	Item Description	Please mention, if quoted: Yes/No	Please provide the technical details of the items like NA, LP, FR etc.	If yes, please write pg. no. and location of items in the offer and technical brochure/manufacturer website
	The spectral laser scanning confocal microscope to be used in modern cell biology research for highly sensitive, high resolution, high speed, spectral imaging of multi-fluorescence with both sequential and simultaneous scan. The system should be capable of performing the following:			
	i) Fixed as well as live cell imaging			
	ii) Co-localization			
	iii) Z-stack			
	iv) FRAP, Fast FRAP, BiFC, bleaching and ablation			
	v) FRET-SE, FRET-AB			
	vi) Photo-activation			
	vii) Physiological and time lapse imaging			
	viii) 3D and 4D (imaging and reconstruction)			
	ix) 3D deconvolution			
	The detection system should consists of			
	i) Efficient optical elements			
	ii) Detectors			
	The system should be upgradable to the following:			
	i) FCS/FCCS			
	ii) FLIM			
	iii) FLCS			
	iv) Super-resolution imaging system			
1	**Microscope and accessories**			
A.	**Fully Motorized & Automated Fluorescence Inverted Research Microscope for bright-field, differential interference contrast (DIC) and fluorescence with**			

	Nosepiece, filter turret, beam turret, XY stage, Z focus and condenser having dedicated display for full control including the followings:			
	Whether the following are having motorised function.			
	Nosepiece			
	filter turret			
	beam turret			
	Polariser			
	Analyser			
	DIC Prism Objective			
	DIC Prism Condenser			
	XY stage,			
	Z focus (Please also mention step size)			
	Condenser			
	Brightfield/phase/DIC condenser			
a)	**Objective** Confocal grade plan–apochromatics corrected for UV, Visible and IR lines. The objectives should be cover slip corrected wherever applicable. approximately i) 4x/5x air/0.13NA (semi-plan apo or equivalent) ii)10X air/0.4NA; iii) 20X air /0.7NA or above; iv) 20x/0.7 (multi-immersion/silicon); v) 40X W/NA1.1 with WD approx.. 0.18 mm; vi) 60x/63X/1.4 oil; vii) 60x/63X water (W)/NA 1.2 with approximately WD 2 mm.			
b)	Motorised six position or higher filter turret with high efficiency narrow band pass fluorescence filter cubes for UV, blue, green, red range of dyes like DAPI, AMCA, Hoechest, FITC, GFP and its variants, Alexa 488, PI, Rhodamine, TRITC, Alexa 633, Alexa 640, Alexa 594, Alexa 568, Texas red, m-Cherry, td-Tomato, mito-tracker red, Ds-Red, YPF and CFP, Cy3, Cy5, Cy7, Fluo3, chlorophyll a and chlorophyll b etc.			
c)	For fluorescence illumination 120 W Metal halide with PC control having minimum life of 2000 hrs with power supply.			
d)	For transmitted light 100 W LED/halogen with PC control.			
e)	Motorized DIC nose piece, accessories for all above objectives with DIC prisms capable of doing simultaneous fluorescence and DIC imaging			
f)	Motorized bright field/phase/DIC condenser			
g)	Motorized polariser and analyser			
h)	Motorised XY scanning stage for inverted Microscope with universal sample holders for slide, petridishes (35/60 mm), multi-well plate / chamber for fixed cell / time lapse live cell imaging.			

i)	High precision built-in Z focus drive with Microscope Z-step size minimum of 25nm or better along-with preferably hardware based LED/IR (750-850 nm) control of focus-drift management system like definite focus/perfect focus/adaptive stability manager or similar			
j)	Piezo Stage/ Galvo stage for live XZ scanning			
k)	Transmitted light /bright field detector for both visible and IR range			
l)	Sensitive motorized dichroic/AOBS system with low angle of incidence and high efficiency optics			
m)	Continuous hardware scan zoom of 1x to 40x and optical scan rotation of 0-180 degree or better should be provided			
B.	**Cooled scientific CMOS camera for fast fluorescence image acquisition including the following features:**			
a)	Four megapixel with an innate capacity of 50 fps or better (12 bit or more). The resolution should reach maximum up to 2k x 2k.			
b)	Pixel size 6.5 µM x 6.5 µM.			
c)	Peak quantum efficiency of more than 80%.			
d)	Camera should be controlled through the confocal software/separate software.			
e)	Include Camlink cable in addition to USB 3.0/ Fireware connection for optimal performance			
2	**Scan head with minimum of three ports for UV, visible and IR lasers with single/dual scanner(s) and compatible detectors comprising the followings**			
a)	Basic Scan head should have 2 or more tunable spectral detectors, PMT and GaAsP/HyD for fluorescence detection of at least 4 fluorochromes or more for simultaneous detection at the scanning speed of 4 fps or more at full frame of 512 x 512 using standard point/linear scanner. At least 4 fluorochromes or more simultaneously at the scanning speed of 12 fps or more at full frame of 512 x 512 for higher speed imaging.			
b)	The spectral dispersion should be based on either reflection grating with 32 array detection/transmission grating/with prism based dispersion with high spectral detection			
c)	Must come with Scanner/(s) with compatible detectors			

i)	*Standard point/linear scanning @ 4 fps or more @ full frame of 512 x 512 at full FOV. Scan resolution should be 4k x 4k or preferably more.*			
ii)	*High speed live scanning for Video rate live cell imaging @ 12 fps or more @ full frame of 512 x 512 and at imaging rate at least 400 fps or more@ frame of 512x16. Scan resolution should be 512 x 512 or preferably more. FOV should be 14mm or more.*			
d)	Minimum of two or more PMT detectors capable of spectral detections and conventional imaging.			
e)	Two HyD /GaAsP detectors for spectral imaging each with a peak Quantum Efficiency of 45% or equivalent system.			
f)	The main Dichroic /AOBS should allow available laser lines in visible range at highest efficiency and speed			
g)	In case of Dichroic system, appropriate dichroics should be provided for UV, visible and IR range as applicable			
	No of Dichroics for lasers.			
	Provide the list of Dichroics offered.			
h)	It should be possible to couple all the lasers from UV to visible to IR to the same scan head at the same time			
i)	Preferably having built-in rotatable polarizer/analyzer before detector			
j)	Online Spectral separation of the multiple dyes			
k)	Computer controlled continuously variable confocal pinhole with software control. Scan resolution of 4k x 4k or better			
l)	The system should be able to carry out four colours or more simultaneous detection. The point-scanning confocal unit should be completely motorised with built-in/integrated/separate high sensitivity spectral detectors (with GaAsP/Hyd based imaging for at least 2 channels in addition to the standard 2 channel or more spectral PMT). Detection with independent analog gain controls for all channels. The system should be capable of recording emission spectra with spectral resolution of <= 5nm or better.			
3	**Laser modules including laser controllers and relevant accessories:**			
A)	**Fixed lines Visible LASER details:** Visible LASER illumination system with AOTF control for the following laser lines:			

	I) Multi Argon gas laser (458nm, 488nm, 514nm) with minimum of 25 mW laser power or more or equivalent Solid State lasers of 445/448nm, 488 nm and 514nm with minimum of 20 mW laser power each to optimally excite CFP, Fura Red AM, IANBD-Amide, Rhodamine 5 GLD, super glow GFP, Alexa 488, GFP, FITC, Acridine orange, Rhodamine 110, Calcium, YFP, SYTO 22, etc. II) DPSS 561 nm Laser with minimum of 20 mW laser power or more to optimally excite TRIC, Alexa 547, 594, Texas red, Cy3, Ds Red, Nile red, MitoTracker Red, etc. III) Red HeNe 633 nm gas / 638 nm or 640 nm solid state Laser with minimum of 5 mW laser power or more to optimally excite Cy5, Alexa 633, TO-PRO3, etc.			
B)	**Fixed lines UV LASER details:** UV LASER illumination system with AOTF control for the following laser lines: I) Solid state blue diode approximately 405 nm laser with minimum of 30 mW laser power or more for optimal excitation of DAPI, AMCA, Hoechst, Fura2 etc. II) System should be upgradable to Solid state blue diode 405 nm pulse laser with minimum of 3 mW laser power or more for fluorescence life time imaging of unknown dyes/single molecule excitation/nanomaterial etc. III) System should be upgradable to dedicated 355 nm UV laser for ablation.			
4	**Improved resolution:** The system should be capable of providing improved resolution of approximately 140nm or better at XY and approximately 350 nm or better at Z for minimum of two or more fluorescence channels simultaneously for high resolution imaging of smaller structures like cell organelles, nanoparticles and live imaging of the same. It should be done either by automatically changing/enhancing the system parameters with high sensitive/QE detectors or alternate technology. The improved resolution images should retain the image metadata and image acquisition parameters and should be fully analyzable in the off line softwares asked for. The acquisition speed in the improved resolution mode should be same as in the confocal mode.			
5	**Hydraulic breadboard Optical / Anti-vibration active table with compressor** should be supplied by the microscope manufacturer with proper alignment of the lasers. The said table should be manufactured by internationally recognized firms.			
6	**WORKSTATION**			
	i. System acquisition online workstation having highest possible configuration at the time of delivery with at least 64 bit computing with intel 10c xeon processor or better, DDR3 or better, 2 TB or more of storage with compatible			

	SSD or equivalent. RAM 64 GB or better, SuperMulti SATA +R/RW, slim super multi DVD writer, DVD combo drive, 2xUSB 2.0, 8xUSB 3.0, Gigabit Ethernet, Firewire port, Large 1x31" LED monitors or better with best resolution available not less than 4k, graphics card with minimum 2 GB RAM, 4 GB high performance GPU and ports for DVI and HDMI, 64 bit Windows 7 OS or latest compatible, keyboard, mouse. A sturdy housing system for laser modules, monitors etc. from the microscope manufacturer should be provided after consultations with the user.			
ii	**Workstation (Offline)**			
	Offline workstation with similar above configuration as online system having 1x31" LED monitor or better			
7	**System control and imaging software**			
	Upgradable software capable of controlling Motorized functions of microscope, digital camera, scan head control, laser control including AOTF and Image acquisition & processing. One user license for the followings should be included in the main specification. One more identical license of all the items should be mentioned as optional with price frozen for warranty period. i) Software module or facility to image extended dynamic range while acquiring like HDR/BrightR/or equivalent with GaAsP/ HyD. ii) Saving of all system parameters with the image for repeatable/reproducible imaging. iii) Line, frame, Z-stack, Time series imaging capabilities. iv) 2D automated image analysis, measurements and object tracking. v) Standard geometry Measurements like length, areas, angles etc. including intensity measurements. vi) Advanced 3D image reconstruction from a Z-stack image series software. vii) Dedicated FRET AB, FRET SE, FRAP, FAST FRAP, Photoactivation, BiFC application softwares. viii) 3-D Deconvolution Software. ix) Editing and movie generation. x) Co-localization and histogram analysis with individual parameters. xi) Physiology software. xii) Spectral un-mixing and emission fingerprinting or equivalent with separation of overlapping emission spectra of fluorophores. xiii) 3D volumetric analysis and measurement software. xiv) Complete Imaris software suite/SVI Huygens with all available modules along-with individual prices for image processing should be quoted in optional.			