



भाकृअनुप - राष्ट्रीय अजैविक स्ट्रेस प्रबंधन संस्थान  
ICAR - NATIONAL INSTITUTE OF ABIOTIC STRESS MANAGEMENT  
भारतीय कृषि अनुसंधान परिषद, कृषि अनुसंधान एवं शिक्षा विभाग  
Indian Council of Agricultural Research, Department of Agricultural Research & Education  
कृषि एवं किसान कल्याण मंत्रालय, भारत सरकार  
MINISTRY OF AGRICULTURE & FARMERS WELFARE, GOVERNMENT OF INDIA  
मालेगांव, बारामती, पुणे 413 115 - , महाराष्ट्र, भारत  
Malegaon, Baramati- 413115, Pune, Maharashtra, India



A pre-bid meeting was held on December 01- 02, 2016 for discussion on technical specifications of LC-MS, Tissue Culture Growth (Animal), Tissue Culture Growth (Plant). Based on the pre-bid meeting the technical Specifications have been revised as given below:



भाकृअनुप - राष्ट्रीय अजैविक स्ट्रेस प्रबंधन संस्थान  
ICAR - NATIONAL INSTITUTE OF ABIOTIC STRESS MANAGEMENT  
भारतीय कृषि अनुसंधान परिषद, कृषि अनुसंधान एवं शिक्षा विभाग

Indian Council of Agricultural Research, Department of Agricultural Research & Education  
कृषि एवं किसान कल्याण मंत्रालय, भारत सरकार

MINISTRY OF AGRICULTURE & FARMERS WELFARE, GOVERNMENT OF INDIA

मालेगांव, बारामती, पुणे 115 413 - , महाराष्ट्र, भारत

Malegaon, Baramati- 413115, Pune, Maharashtra, India



Technical Specification of LC-MS after the pre-bid meeting held on 1st December 2016.

The LC-MS should have the following details:

State of art LC MS/MS (s) system(s) for routine and comprehensive work flows for ultimate qualitative and quantitative applications with Front end HPLC is required-

***Bidder should give compliance statement point wise showing/highlighting items part no/serial number as quoted in their quotation for comprehensive technical comparison. Proof of compliance should be mentioned point wise in the catalogue/specification sheet.***

If vendor wishes to quote more than one mass analyzers to comply with the tender specifications then it must be quoted with front end as well.

1	<b>APPLICATIONS</b>	Rapidly screen samples for a large number of compounds Confidently detect and identities of unanticipated compounds that may not be on a pre-defined target list. The system should use for the analysis of Protein, Metabolites and Small molecule identification and characterization. Suitable columns for above application should be provided with with atleast one column each.
2	<b>MASS ANALYZER</b>	High resolution mass analyzer Quadruples Time of Flight system with Mass range up to 10000 m/z or above
3	<b>INTERFACE</b>	Simple interface for maintaining cleanliness of ion optics and capable of handling large batches of complex samples. It should have a low maintenance interface which should not require frequent cleaning. This should have advanced innovative technology that delivers a sensitivity and detection limit with High Mass Accuracy and High Resolution
4	<b>ACQUISITION RATE</b>	50 Spectra per second in MS and MS/MS mode
5	<b>RESOLUTION</b>	20,000 (FWHM) or above
6	<b>MASS ACCURACY</b>	Minimum 2 ppm in both mode
7	<b>MASS ACCURACY STABILITY</b>	Mass accuracy stability with varying ambient temperature must be specified
8	<b>SENSITIVITY IN ESI</b>	High sensitivity for qualitative and quantitative analysis. Supplied system should have pg level of sensitivity when the Reserpine standard injected on column.
9	<b>POLARITY SWITCHING</b>	A fully protected air cooled vacuum system using turbo



भाकृअनुप - राष्ट्रीय अजैविक स्ट्रेस प्रबंधन संस्थान  
ICAR - NATIONAL INSTITUTE OF ABIOTIC STRESS MANAGEMENT  
भारतीय कृषि अनुसंधान परिषद, कृषि अनुसंधान एवं शिक्षा विभाग

Indian Council of Agricultural Research, Department of Agricultural Research & Education  
कृषि एवं किसान कल्याण मंत्रालय, भारत सरकार

MINISTRY OF AGRICULTURE & FARMERS WELFARE, GOVERNMENT OF INDIA

मालेगांव, बारामती, पुणे 115 413 - , महाराष्ट्र, भारत

Malegaon, Baramati- 413115, Pune, Maharashtra, India



		molecular pumps and rotary pumps. Vacuum read backs and automated vent system.
1 0	<b>DYNAMIC RANGE</b>	At least Four or above orders of dynamic range.
1 1	<b>ION SOURCE</b>	Choice of 2 Separate ionization sources to cover all areas of applications at higher flow rate of HPLC. 1. ESI Source 2. APCI Source The above ion sources should be easily interchangeable by the user himself.
1 2	<b>HPLC SYSTEM</b>	The HPLC system with the following features & functions should be supplied:  1. Binary or Quarternary Pump with vacuum degasser. The pump must contain all the necessary accessories as solvent cabinet, solvent bottles, tubing, filters, connections etc. 2. Pressure operating range: 1000 bar or above 3. Flow Rate Range: - From 0.001 to 5.0 ml/min, in 0.001 ml/ min increments 4. Flow Precision: < 0.07 % RSD Flow rate accuracy: - $\pm 1\%$ 5. Autosampler should have Sample capacity of minimum 130 vials 6. Should have Injection volume of 0.1–100 $\mu\text{L}$ in 0.1 $\mu\text{L}$ increments. 7. Sample Cooler with temperature range of 4°C to 40°C.
1 3	<b>COMPUTER PLATFORM</b>	A standard branded PC and Printer along with all necessary hardware and operating software required to operate all the specified equipment with one TB hard disk.
1 4	<b>OPERATING SOFTWARE</b>	Operating Software and Compounds Database ✓ Automated calibration ✓ Automated MS to MS/MS ✓ Software with effective data mining tool ✓ Software should have accurate mass database and libraries ✓ Software for empirical formula calculation. ✓ Confirm contaminants using accurate mass databases and libraries ✓ Implement high-quality methods quickly which include on-site support ✓ Selectively remove interferences with sample



भाकृअनुप - राष्ट्रीय अजैविक स्ट्रेस प्रबंधन संस्थान  
ICAR - NATIONAL INSTITUTE OF ABIOTIC STRESS MANAGEMENT  
भारतीय कृषि अनुसंधान परिषद, कृषि अनुसंधान एवं शिक्षा विभाग

Indian Council of Agricultural Research, Department of Agricultural Research & Education  
कृषि एवं किसान कल्याण मंत्रालय, भारत सरकार

MINISTRY OF AGRICULTURE & FARMERS WELFARE, GOVERNMENT OF INDIA

मालेगांव, बारामती, पुणे 115 413 - , महाराष्ट्र, भारत

Malegaon, Baramati- 413115, Pune, Maharashtra, India



		<ul style="list-style-type: none"> <li>preparation products</li> <li>✓ Increase speed, resolution, and sensitivity by using HPLC columns.</li> <li>✓ Qualitative, Quantative and Acquisition software</li> <li>✓ Software for protein analysis like deconvolution, PTM, PMF etc</li> <li>✓ Software for Metabolomics application with database and libraries</li> <li>✓ Software for structure correlator.</li> <li>✓ Software for Pesticide analysis.</li> </ul>
1 5	<b>GAS GENERATOR WITH BUILT IN AIR COMPRESSOR</b>	<p>A suitable gas generator capable of providing all the gases at the required purity, pressure and flow rate for the Mass Spectrometer must be quoted. The compressor should be noise-free. All the required accessories such as arrangement for gas supply through gas generator, compressor, and any other essential item for operation of the instrument should be supplied along with the instrument.</p> <p>-A 15 KV power back should be supplied with the system to ensure power supply at least 2 hrs in case of power cut.</p>
1 6	<b>CALIBRANT DELIVERY SYSTEM</b>	Built-in calibrant delivery system for automated introduction of simultaneous reference masses enables achievement of very low mass accuracy without manual adjustments.
1 7	<b>MASS ACCURACY STABILITY</b>	Mass Accuracy temperature stability of 1 ppm for temperature variation of 15 to 35 °C
1 8	<b>AFTER SALES SUPPORT</b>	Suppliers must have any active support in Baramati, Maharashtra and avoid instrument down time.
1 9	<b>WARRANTY</b>	Onsite warranty: The complete instrument and accessories excluding consumable items should be under warranty period for a period of 3 year from the date of installation.
2 0	<b>SINGLE POINT OF CONTROL</b>	Instrument should have a single point of control for both the MS and the HPLC.



भाकृअनुप - राष्ट्रीय अजैविक स्ट्रेस प्रबंधन संस्थान  
ICAR - NATIONAL INSTITUTE OF ABIOTIC STRESS MANAGEMENT  
भारतीय कृषि अनुसंधान परिषद, कृषि अनुसंधान एवं शिक्षा विभाग

Indian Council of Agricultural Research, Department of Agricultural Research & Education

कृषि एवं किसान कल्याण मंत्रालय, भारत सरकार

MINISTRY OF AGRICULTURE & FARMERS WELFARE, GOVERNMENT OF INDIA

मालेगांव, बारामती, पुणे 411 413 - , महाराष्ट्र, भारत

Malegaon, Baramati- 411115, Pune, Maharashtra, India



**Technical Specifications of Tissue Culture Laboratory after pre-bid meeting held on December 02, 2016**

**Animal Tissue Culture Laboratory development including furniture and related works  
(as per the layout):**

S. No.	Product technical details
1	<p><b>Animal Tissue Culture Laboratory should have following components:</b> Tissue culture rooms (2 nos.), Microscopy room, Media preparation room, Incubation room, Storage room and Changing room.</p> <p>The approx. dimensions (L x W) of the room are as follows:</p> <ul style="list-style-type: none"><li>• Tissue culture room (2 nos.): 10 ft x 11 ft and 9 ft x 13 ft. Epoxy flooring (3 mm thick, Anti Bacterial) for both tissue culture rooms.</li><li>• Microscopy room: 9 ft x 6 ft</li><li>• Incubation room: 13 ft x 9 ft</li><li>• Media preparation room: 10 ft x 9 ft</li><li>• Storage room: 10 ft x 8 ft</li><li>• Changing room: 10 ft x 9 ft</li><li>• Room height: approx. 11-12 ft.</li></ul>
2	<p><b>AIR SHOWER (Through Entry &amp; Exit)</b></p> <p><b>SIZE:</b> EXTERNAL -1800[W] x 1000 [D] x 2165 [H] MM INTERNAL - 750[W] x 750 [D] x 2000[H] MM</p> <p>Air Velocity: - 22-25 m/sec (By U- tube meter)</p> <p>MOC:- MS CRCA POWDER COATED</p> <p>Main Door MS CRCA POWDER COATED Matt Finished with Glass</p> <ul style="list-style-type: none"><li>• 1.0 mm Thk Without puff</li></ul> <p>1) 0.3 Micron Hepa Filters ( Delivery Filter) :</p> <ul style="list-style-type: none"><li>• Size:- 610 x 875 x 150 mm; Qty: 02-04Nos</li></ul> <p>2) Pre Filter (Suction filter) :</p> <ul style="list-style-type: none"><li>• 10 Micron, HDPE Washable; Qty: 02-04Nos</li></ul> <p>3) Hindustan or Crompton Greaves makes Blower Motor:</p> <ul style="list-style-type: none"><li>• 3-Phase; 0.75/1 HP Blower Motor Assembly with Rexene Bellow, Qty: 02-04 Nos. each</li></ul> <p>4) Fluorescent Tube Light: 20Watts, Size – Qty-01Nos.</p> <p>5) Nozzle 32 No.</p> <p>6) Noise Level: 75 db +/- 5; Door close: 2 no</p> <p>7) Bottom with grill - 1 no. (of 40 mm Depth)</p>
3	<p><b>ROOM PARTITIONING: (Approx. 2000 sq. ft. of wall area)</b></p> <ul style="list-style-type: none"><li>• Partitioning using either ACP sheet and aluminium frame partitioning or PUF panel (50 mm thick) partitioning from floor to roof including large see through glass windows (5mm thick) and doors (Single/Sliding, approx. 10 doors) along</li></ul>



भाकृअनुप - राष्ट्रीय अजैविक स्ट्रेस प्रबंधन संस्थान  
ICAR - NATIONAL INSTITUTE OF ABIOTIC STRESS MANAGEMENT  
भारतीय कृषि अनुसंधान परिषद, कृषि अनुसंधान एवं शिक्षा विभाग

Indian Council of Agricultural Research, Department of Agricultural Research & Education  
कृषि एवं किसान कल्याण मंत्रालय, भारत सरकार

MINISTRY OF AGRICULTURE & FARMERS WELFARE, GOVERNMENT OF INDIA

मालेगांव, बारामती, पुणे 115 413 - , महाराष्ट्र, भारत

Malegaon, Baramati- 413115, Pune, Maharashtra, India



	<p>with integrated door locks.</p> <ul style="list-style-type: none"><li>False ceiling to be provided for all rooms.</li></ul>
4	<p><b>PERIPHERAL LIGHTS &amp; ELECTRICAL PLUG POINTS:</b></p> <ul style="list-style-type: none"><li>LED Lights: 15 Nos; 2'X 1' ft, 18 w; Germicidal UV lamps in both culture rooms (Qty. 2). Light on/off points/Electrical plug points: A set of 20 electrical points (6A, 15A and 30A) must be provided via appropriate feed through. The sources for these points should be from UPS units or direct lines already present in the room.</li></ul>
5	<p><b>AIR CONDITIONING UNITS:</b></p> <ul style="list-style-type: none"><li>Split AC of 1 Ton (<i>Total: 4 nos.</i>) having 3/4/5 star rating, outdoor terminal bracket, copper piping, installation in tissue culture, media preparation and incubation rooms.</li></ul>
6	<p><b>GARMENT CABINET</b> having see-through glass door and made of complete MS duly powder coated to be provided.</p>
7	<p><b>WATER PURIFICATION SYSTEM</b></p> <ul style="list-style-type: none"><li>Capacity 6 LPH; Application: Tissue culture media preparation.</li><li>Input tap water; Output Type 2 water.</li><li>UV-Oxidation 185/254 nm; Resistivity at 25°C, MΩ-cm : 15 to 10.</li><li>Conductivity μS/cm : 0.067 – 0.1.</li><li>Position on laboratory bench or mount it on the wall; 230V AC single phase compatible.</li><li>CE/UL Certified.</li></ul>
8	<p><b>BIOSAFETY CABINET</b></p> <ul style="list-style-type: none"><li>Cabinet class II type A2; Internal Dimensions (W x H x D): 4 ft x 2.5 ft x 2 ft approx.</li><li>Filter: MPPS &gt;99.99%, H14 HEPA EN 1822.</li><li>Certifications: CE listed, NSF/ANSI 49 certified for Class II, Type A2 conditions.</li><li>Noise should not exceed 65 dBA. Work tray: made of single piece stainless steel.</li><li>Visual and audible alarm for indicating improper front window working position, and airflow restrictions.</li><li>Provision of interior lighting and at least one 230V plugs/receptacles on interior side.</li><li>Pressure sensors to detect changes in inflow/exhaust or down flow with alarm signals.</li><li>Should work on 230V AC single phase supply.</li></ul>
9	<p><b>CO<sub>2</sub> INCUBATOR</b></p> <ul style="list-style-type: none"><li>Bench top type with capacity: 150-200 ltrs, LCD/LED display.</li><li>Construction: corrosion free resistant stainless steel.</li><li>Sealed inner glass door facility with appropriate closing system to minimize</li></ul>





भाकृअनुप - राष्ट्रीय अजैविक स्ट्रेस प्रबंधन संस्थान  
ICAR - NATIONAL INSTITUTE OF ABIOTIC STRESS MANAGEMENT  
भारतीय कृषि अनुसंधान परिषद, कृषि अनुसंधान एवं शिक्षा विभाग

Indian Council of Agricultural Research, Department of Agricultural Research & Education  
कृषि एवं किसान कल्याण मंत्रालय, भारत सरकार

MINISTRY OF AGRICULTURE & FARMERS WELFARE, GOVERNMENT OF INDIA  
मालेगांव, बारामती, पुणे 115 413 - , महाराष्ट्र, भारत

Malegaon, Baramati- 413115, Pune, Maharashtra, India



	<p>loss of gases.</p> <ul style="list-style-type: none"><li>• Perforated shelf made up of stainless steel, 4-6 numbers of shelves.</li><li>• Temperature range: Ambient +5 °C to 50 °C, Temperature uniformity <math>\pm 0.3</math> °C. Should have settable temperature control with resolution of 1°C.</li><li>• Provision of CO<sub>2</sub> range 0.2 – 20 % should be provided</li><li>• CO<sub>2</sub> uniformity should not fluctuate beyond <math>\pm 0.1\%</math></li><li>• Incubator should have O<sub>2</sub> control option for hypoxic studies.</li><li>• O<sub>2</sub> accuracy must be <math>\pm 1.0</math> % measuring range at constant temperature and pressure.</li><li>• All control and measurement probes and sensors should be located directly inside the culture chamber to provide true and accurate process data and foster faster parameter recovery times.</li><li>• Incubator should be equipped with programmable tracking alarms for critical temperature and CO<sub>2</sub> control parameters, which can be custom configured to meet the needs of changing research requirements.</li><li>• The chamber should accompany one CO<sub>2</sub> cylinder and one N<sub>2</sub> cylinder, in-line two stage CO<sub>2</sub> gas regulators with auto-change over controllers and line filters.</li><li>• The incubator should have the facility for security system from over temperature cut off. It should also have automatic re-setting of the pre-set parameters in case of power failure.</li></ul>
10	<p><b>FLUORESCENT INVERTED MICROSCOPE WITH PC</b></p> <ul style="list-style-type: none"><li>• Optics: Infinity corrected Plan/ Neo Fluor 4x, 10x Phase, 20x Phase &amp; 40x phase extra Long working distance objective suitable for phase / Hoffman modulation &amp; fluorescence.</li><li>• Objective Nosepiece: Quadruple or better revolving nosepiece</li><li>• Transmitted-light illuminator: Minimum 5 watt white light LED or better minimum service life of 50,000 hours.</li><li>• Condenser: Interchangeable condenser heads with minimum working distance of 75 mm or better with phase contrast accessories.</li><li>• Stages: Stage 128 x 83 mm with object guide &amp; Universal holding frame to accommodate Petri dishes, slides &amp; Multi well plates.</li><li>• Documentation Camera port: Trinocular tube with minimum 45° angle, light path 100% visual &amp; 100% Photo.</li><li>• Eyepiece: Eyepiece 10X with Field no. 20mm or better.</li><li>• Dust Cover should be provided.</li><li>• Minimum 3 position or more Fluorescence filter slot / turret with 100W Hg fluorescence illuminator, No overlapping of the filters to avoid loss of image quality, Filter for DAPI, GFP &amp; RFP.</li></ul> <p><u>Digital Camera &amp; Software</u></p> <p>Scientific (dedicated for microscopy) Digital Color CMOS or better Camera &amp; Resolution 3mp or better, with a provision for software interpolation, color filter RGB, and live image full display. Fire wire or USB connection to PC. Software for image acquisition and analysis. Microscope, Camera &amp; Software should be from</p>



भाकृअनुप - राष्ट्रीय अजैविक स्ट्रेस प्रबंधन संस्थान  
ICAR - NATIONAL INSTITUTE OF ABIOTIC STRESS MANAGEMENT  
भारतीय कृषि अनुसंधान परिषद, कृषि अनुसंधान एवं शिक्षा विभाग

Indian Council of Agricultural Research, Department of Agricultural Research & Education  
कृषि एवं किसान कल्याण मंत्रालय, भारत सरकार

MINISTRY OF AGRICULTURE & FARMERS WELFARE, GOVERNMENT OF INDIA  
मालेगांव, बारामती, पुणे 115 413 - , महाराष्ट्र, भारत

Malegaon, Baramati- 413115, Pune, Maharashtra, India



	<p>same manufacturer for Optimum synchronization and better performance.</p> <p><u>Personal computer</u></p> <ul style="list-style-type: none"><li>Type: All-in-one; Processor: Intel Core-i5, RAM: 4 GB or higher, HDD: 1TB, Monitor: LED 20-22 inch, Wireless Keyboard &amp; mouse, Operating System: Windows 8 Professional or higher, Wi-Fi, DVD R/W, HDMI, Microphone-in, headphone-output, Ethernet jack.</li></ul>
11	<p><b>REFRIGERATED CIRCULATORY WATER BATH</b></p> <ul style="list-style-type: none"><li>Capacity/ Volume (Metric): 6 liters</li><li>Maximum temperature: +100 °C; Minimum temperature: -10 °C.</li><li>Display: bright, user intuitive, digital, with °C/°F/K modes and English language support.</li><li>Temp stability: 0.02 to 0.05°C; Cooling capacity: 240-250 W</li><li>Interior depth: &gt;5.8"; Max flow rate (Liters/min): 16-18 L/min</li><li>Stainless-steel bath for robust operation.</li><li>Should have provision for excessive high temperature shutdown, liquid low-level shutdown and auto-restart after power failure and audible and visible alarms high temperature and refrigeration.</li><li>Electric supply: 220-230V/ 50-60 Hz.</li><li>Compliance/Certification: CE/cULus.</li></ul>
12	<p><b>VERTICAL AUTOCLAVE</b></p> <ul style="list-style-type: none"><li>Capacity 100 Liters, Vertical model</li><li>Triple walled construction complete made of SS 304, lid made of SS 304</li><li>Water level indicator with stainless steel guard, pressure gauge, steam release valve, spring loaded safety valve, Automatic Pressure Control Switch, automatic low water detection and alarm</li><li>Unit should be fitted with Double safety radial locking system with paddle lifting device</li><li>Pressure adjustable from 5 psi to 20 psi with an accuracy of +/- 1 psi, with automatic pressure control switch.</li><li>Supply complete with stainless steel basket, cord and plug.</li><li>The pressure inside the chamber is variable from 5 psi. to 18 psi.</li><li>Working Temperature: 121°C settable by digital PID temp controller with timer</li><li>Hydrostatic Pressure at 35 psi along with certificate.</li><li>Should work on 230V AC single phase supply; Compliance/Certification: ISO/CE/cULus.</li></ul>
13	<p><b>LABORATORY TABLES (5 nos.) and CHAIRS (5 nos.)</b></p> <p><b>Island Table (5 nos.)</b></p> <ul style="list-style-type: none"><li>Approx. Size: L 2400 x D 600 x H 800 mm.</li><li>Made of 1 mm thick pre-treated GI sheets with polyester powder coated finish.</li><li>Doors and drawer front panels are double-skin construction.</li><li>All under-bench modules provided with inner horizontal partition.</li><li>Table top made from finely polished black granite with round edge.</li></ul>





भाकृअनुप - राष्ट्रीय अजैविक स्ट्रेस प्रबंधन संस्थान  
ICAR - NATIONAL INSTITUTE OF ABIOTIC STRESS MANAGEMENT  
भारतीय कृषि अनुसंधान परिषद, कृषि अनुसंधान एवं शिक्षा विभाग

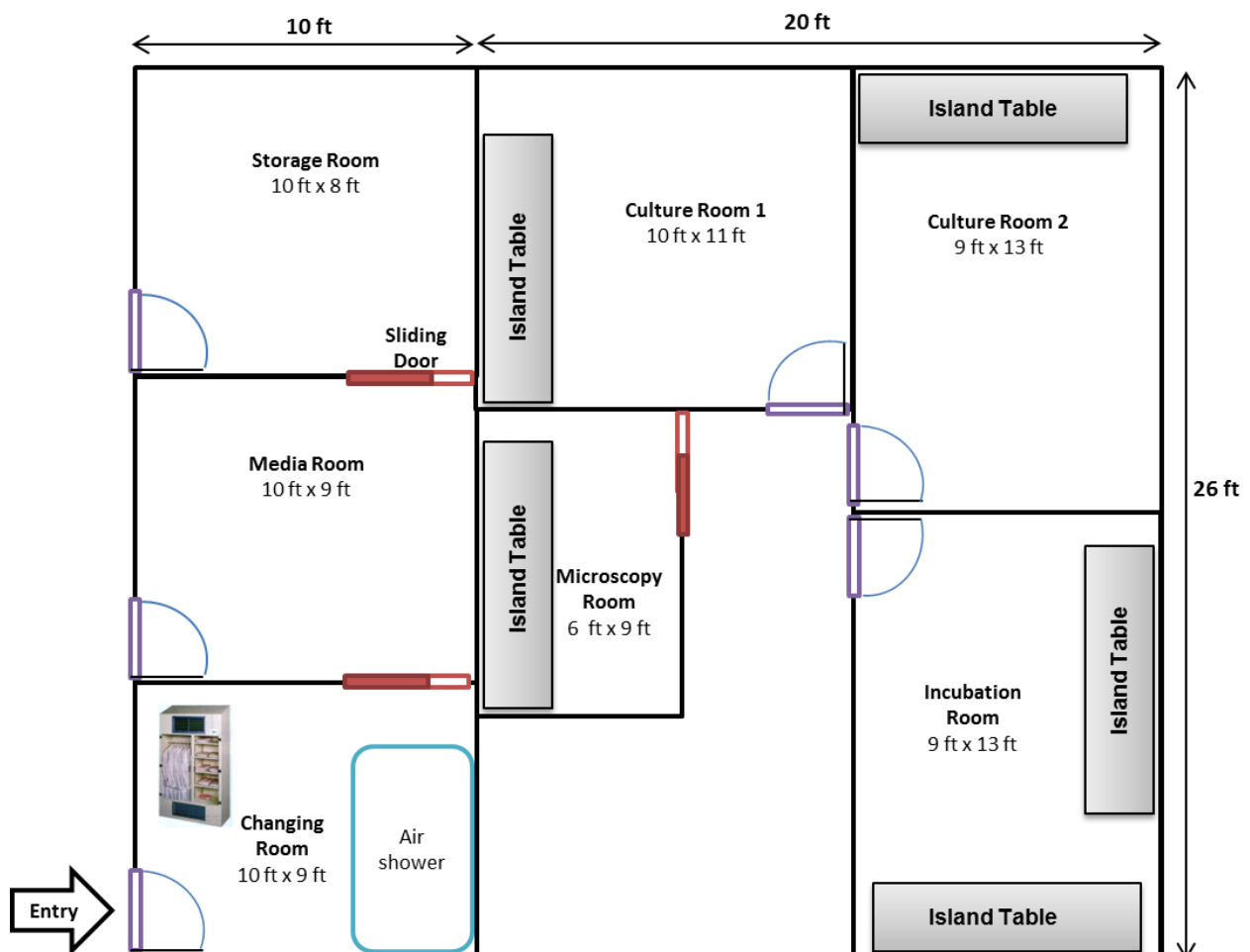
Indian Council of Agricultural Research, Department of Agricultural Research & Education  
कृषि एवं किसान कल्याण मंत्रालय, भारत सरकार

MINISTRY OF AGRICULTURE & FARMERS WELFARE, GOVERNMENT OF INDIA  
मालेगांव, बारामती, पुणे 115 413 - , महाराष्ट्र, भारत

Malegaon, Baramati- 413115, Pune, Maharashtra, India



	<b>High quality laboratory chairs (5 nos.):</b> foam based seat and backrest; pneumatic height adjustment; backrest tilt adjustment and lumbar support; 360 degrees rotation; polished aluminium base with castors.
14	<b>UPS:</b> Branded 10 KVA UPS with four batteries of 12V/200AH.
15	<b>Warranty:</b> One year warranty for the entire facility.
16	<b>Note:</b> The bidder firm will be responsible for transporting and installing all the tendered equipments at NIASM, Baramati. The onsite commissioning of fully functional animal tissue culture laboratory including partitioning will be the firm's responsibility. The firm must submit technical literature with enough technical details of the quoted equipments.





भाकृअनुप - राष्ट्रीय अजैविक स्ट्रेस प्रबंधन संस्थान  
ICAR - NATIONAL INSTITUTE OF ABIOTIC STRESS MANAGEMENT  
भारतीय कृषि अनुसंधान परिषद, कृषि अनुसंधान एवं शिक्षा विभाग

Indian Council of Agricultural Research, Department of Agricultural Research & Education  
कृषि एवं किसान कल्याण मंत्रालय, भारत सरकार

MINISTRY OF AGRICULTURE & FARMERS WELFARE, GOVERNMENT OF INDIA

मालेगांव, बारामती, पुणे 411 115 - , महाराष्ट्र, भारत

Malegaon, Baramati- 411115, Pune, Maharashtra, India



**Technical Specifications of Tissue Culture Laboratory after pre-bid meeting held on December 02, 2016**

**Plant Tissue Culture Laboratory development including furniture and related works  
(as per the layout):**

S. No	Product technical details
	<b>Plant Tissue Culture Laboratory should have following components: Tissue Culture rack room, Aseptic Room, Microscope room, hardening room and Ante room</b>
1	<b>Aseptic Room: 10 ft x 7 ft</b> <ul style="list-style-type: none"><li>• ISO Class 100000 or as per aseptic plant tissue culture lab standards of Biosafety.</li><li>• Epoxy coated (insulated) flooring.</li><li>• PUF Panelling should be at least 50 mm thick on ceiling roof and all walls.</li><li>• Electrical socket and switches for 6 amp and 15 amps, 4 numbers each should be provided.</li></ul>
2	<b>Microscope room: 8 ft x 7 ft</b> <p>Epoxy coated (insulated) flooring. PUF Panelling should be at least 50 mm thick on ceiling roof and all walls. Electrical socket and switches for 6 amp and 15 amps, 3 numbers each should be provided</p>
3	<b>Hardening Room: 8 ft x 7 ft</b> <p>Epoxy coated (insulated) flooring. PUF Panelling should be at least 50 mm thick on ceiling roof and all walls. Electrical socket and switches for 6 amp and 15 amps, 3 numbers each should be provided</p>
4	<b>Tissue Culture racks room: 18 ft x 12 ft</b> <ul style="list-style-type: none"><li>• ISO Class 100000 or as per aseptic plant tissue culture lab standards of Biosafety.</li><li>• Epoxy coated (insulated) flooring.</li><li>• PUF Panelling should be at least 50 mm thick on ceiling roof and all walls</li><li>• Electrical socket and switches for 6 amp and 15 amps, 4 numbers each should be provided</li></ul>
5	<b>Media Preparation room: 20 ft x 12 ft</b> <ul style="list-style-type: none"><li>• ISO Class 100000 or as per aseptic plant tissue culture lab standards of Biosafety.</li><li>• Epoxy coated (insulated) flooring.</li></ul>



भाकृअनुप - राष्ट्रीय अजैविक स्ट्रेस प्रबंधन संस्थान  
ICAR - NATIONAL INSTITUTE OF ABIOTIC STRESS MANAGEMENT  
भारतीय कृषि अनुसंधान परिषद, कृषि अनुसंधान एवं शिक्षा विभाग

Indian Council of Agricultural Research, Department of Agricultural Research & Education  
कृषि एवं किसान कल्याण मंत्रालय, भारत सरकार

MINISTRY OF AGRICULTURE & FARMERS WELFARE, GOVERNMENT OF INDIA  
मालेगांव, बारामती, पुणे 115 413 - , महाराष्ट्र, भारत

Malegaon, Baramati- 413115, Pune, Maharashtra, India



	<ul style="list-style-type: none"><li>• There should be L Shaped side benches with granite top.</li><li>• There should be a wash basin of biosafety standard.</li><li>• There should be two centre laboratory tables island type, 2400 x 1500 x 900 mm with drawers and leg space and reagent storage and Electrical utilities.</li><li>• Electrical socket and switches for 6 amp and 15 amps, 6 numbers each should be provided</li></ul>
6	<b>Change Room / Ante Room : 6 ft x 12 ft</b> <ul style="list-style-type: none"><li>• ISO Class 100000 or as per aseptic plant tissue culture lab standards of Biosafety.</li><li>• Epoxy coated (insulated) flooring.</li><li>• Should have Garment cabinet</li></ul>
7	<b>PUFF DOOR (Single Door) : 6 numbers</b> <ul style="list-style-type: none"><li>• Door thickness:- 50 mm</li><li>• Door sheet thickness:- 20 Gauge powder coated. Powder Coated with 7 tank imported process</li><li>• Frame thickness:- 1 mm powder coated</li><li>• With Puff Insulation Puff Core 40 kg/m<sup>3</sup></li><li>• GI Powder Coated</li><li>• SS 304 Push plate.</li><li>• Dorma door closer</li><li>• 'D' type door handle</li><li>• Stainless steel kick plate</li><li>• Drop seal</li><li>• Three side gasket for frame</li><li>• Stainless steel ball bearing but hinges</li><li>• Dual side glass (As Required)</li><li>• Size Approx - (H) 2100 mm X (W) 1000 mm</li></ul>
8	<b>CLEAN ROOM WALL PANELING: In all rooms including partitioning and ceiling ( 275 sq meter approx.)</b> <ul style="list-style-type: none"><li>• Double Skin Panel thickness: - 50 mm.</li><li>• Both side pre-painted GI of 9002 shade.</li><li>• Panel Sheet Thickness: - 22 Gauge.</li><li>• With Puff Insulation Puff Core density 45 kg for side walls and 50 Kg for ceiling.</li><li>• GI Powder coated with 7 tank imported process coated.</li><li>• Electric power and utility outlets.</li><li>• Silicone sealant filled in each joint of panels.</li><li>• Satisfying M-1 fire Rating (British Standard).</li><li>• Wall Track System as per standard by bottom adjusting with packing shims and a top with Self tapping screws to hold the panel complete.</li></ul>
9	<b>VIEW PANELS – See Through Double Skin Glass: 04 numbers</b> <ul style="list-style-type: none"><li>• View Panel Thickness: - 50mm</li><li>• 4 mm Thickness thick float glass</li></ul>



भाकृअनुप - राष्ट्रीय अजैविक स्ट्रेस प्रबंधन संस्थान  
ICAR - NATIONAL INSTITUTE OF ABIOTIC STRESS MANAGEMENT  
भारतीय कृषि अनुसंधान परिषद, कृषि अनुसंधान एवं शिक्षा विभाग

Indian Council of Agricultural Research, Department of Agricultural Research & Education  
कृषि एवं किसान कल्याण मंत्रालय, भारत सरकार

MINISTRY OF AGRICULTURE & FARMERS WELFARE, GOVERNMENT OF INDIA

मालेगांव, बारामती, पुणे 115 413 - , महाराष्ट्र, भारत

Malegaon, Baramati- 413115, Pune, Maharashtra, India



	<ul style="list-style-type: none"> <li>Frame made of GI Powder Coated</li> <li>High Density polymer gasket</li> <li>Sealed with Silicon sealant</li> <li>View Panel Size:- 1000 X 1000 X 50 mm</li> </ul>
10	<p><b>Window Pass Box: One Number</b></p> <ul style="list-style-type: none"> <li><b>SIZE: INTERNAL – 600 [W] x 600 [D] x 600 [H] mm</b></li> <li>MOC: - SS 1.2 mm thick (Matt finished and Leak tight double skin, opposite side openable with transparent glass fixed in both sides)</li> <li>Door Gasket:-Silicon rubber food grade Gasket</li> </ul> <p><b>Electronics Components:-</b></p> <ul style="list-style-type: none"> <li>Interlocking- PLC based device with smart Electromagnetic Lock and programmable timer.</li> <li>Power Supply 230 V AC Single phase</li> <li>Panel light for illumination</li> <li>UV light for sterilization</li> </ul>
11	<p><b>EPOXY FLOORING: Aseptic Room, Hardening Room, Tissue Culture Room, Lab Passage and Microscope Room</b></p> <ul style="list-style-type: none"> <li>Self levelling epoxy flooring</li> <li>Imported VIP blue colour shade</li> <li>Thickness:- 3 mm</li> <li>Anti bacterial and fungicidal</li> <li>Recovering provide seamless surface including base floor levelling</li> </ul>
12	<p><b>Coving Structure: In all rooms and passage</b></p> <ul style="list-style-type: none"> <li>Fully flush corner transitions wall-to-ceiling and wall-to-floor connections</li> <li>Eliminating corners, the radius coving system allows for total clean ability.</li> <li>Wall-to-wall and wall-to-ceiling junctions trimmed with an extruded coving that features a large 2" to 3" radius</li> </ul>
13	<p><b>AIR SHOWER (Through Entry &amp; Exit): One Number</b>  <b>SIZE: EXTERNAL -1900 [W] x 1000 [D] x 2165 [H] mm</b>  <b>INTERNAL – 800 [W] x 900 [D] x 2000 [H] mm</b>  <b>Air Velocity: - 22-25 m/sec (By U- tube meter)</b>  <b>MOC:- MS CRCA POWDER COATED Powder Coated with 7 tank imported process</b>  <b>Main Door MS CRCA POWDER COATED Matt Finished with Glass</b></p> <ul style="list-style-type: none"> <li>1.0 mm Thk Without puff</li> </ul> <ol style="list-style-type: none"> <li>0.3 Micron Hepa Filters ( Delivery Filter) : <ul style="list-style-type: none"> <li>Size:- 610 x 875 x 150 mm, Qty-06 Nos</li> </ul> </li> <li>Pre Filter (Suction filter) : <ul style="list-style-type: none"> <li>10 Micron, HDPE Washable , Qty-06 Nos</li> </ul> </li> <li>Standard make Blower Motor: <ul style="list-style-type: none"> <li>3-Phase</li> <li>0.75/1 HP Blower Motor Assembly with Rexene Bellow, Qty-05 Nos. each</li> </ul> </li> <li>Fluorescent Tube Light: 20 Watts, Size – Qty-01Nos.</li> </ol>



भाकृअनुप - राष्ट्रीय अजैविक स्ट्रेस प्रबंधन संस्थान  
ICAR - NATIONAL INSTITUTE OF ABIOTIC STRESS MANAGEMENT  
भारतीय कृषि अनुसंधान परिषद, कृषि अनुसंधान एवं शिक्षा विभाग

Indian Council of Agricultural Research, Department of Agricultural Research & Education  
कृषि एवं किसान कल्याण मंत्रालय, भारत सरकार

MINISTRY OF AGRICULTURE & FARMERS WELFARE, GOVERNMENT OF INDIA  
मालेगांव, बारामती, पुणे 115 413 - , महाराष्ट्र, भारत

Malegaon, Baramati- 413115, Pune, Maharashtra, India



	<p>5) Nozzle 24-32 Nos. 6) Noise Level: 75 db or lower 7) Door closer - 2 Nos 8) Bottom with grill - 1 number (40 mm depth) 9) PLC based Door inter locking System for smart operation and up gradation facility 10) ISO 9001 Certification</p>
14	<p><b>DOMESTIC AIR CURTAIN (3 ft): One number.</b> <b>Specification:-</b></p> <ul style="list-style-type: none"> <li>• MOC :- MS CRCA Powder Coated</li> <li>• Aluminum Impellers, FRP Blower Casing</li> <li>• Standard MCB Fitting and with required cable</li> <li>• Crompton makes Motor 1/4 HP, 1 Phase, motor, Rubber Bush suspended</li> <li>• Air Velocity :- 12 -13 m/sec</li> </ul>
15	<p><b>PERIPHERAL LIGHTS and fitting: 15 numbers</b> 2'X 1' ft, 18 w <b>PAR Lights and fitting for Hardening Room: 9 numbers</b> Variable intensity of PAR light for plants Intensity of Light should be 800 to 1000 <math>\mu\text{mole/m}^2\text{s}^{-1}</math> Separate switches for each PAR Light to increase and decrease light intensity <b>Photoperiodic timers: 4 Numbers</b></p>
16	<p><b>CLEAN ROOM SYSTEM With HVAC for Class 100000-- Aseptic Room, Tissue Culture Rack Room, Hardening Room &amp; Microscope Room: 40 sq meter approx.</b></p> <p>Filtration System with 0.3 Micron Hepa Filter Capacities. Cooling coil without Condensing door unit (ceiling suspended)</p> <p><b>Construction:</b></p> <ul style="list-style-type: none"> <li>• Filter Housing SS 1.2 THK (18 SWG.).</li> <li>• SS Ducting - 24 SWG. With Thermal insulation</li> <li>• Return Air Riser G I Powder Coated 20 SWG sheet with Aluminum Grills.</li> </ul> <p><b>DOUBLE SKIN CASING: For AHUs</b> Outer skin: 0.6 mm ( 24G ) Pre- coated GI Inner Skin: 0.6 mm (24 G ) SS Frame work: Non Thermal Break AL profile Thickness of insulated panels: 25 mm Thick, CFC Free PUF injected (Density: 40 kg/ /m3) Material of Drain pan: S.S tray duly insulated with PUFF. Unit Base: GSS</p>



भाकृअनुप - राष्ट्रीय अजैविक स्ट्रेस प्रबंधन संस्थान  
ICAR - NATIONAL INSTITUTE OF ABIOTIC STRESS MANAGEMENT  
भारतीय कृषि अनुसंधान परिषद, कृषि अनुसंधान एवं शिक्षा विभाग

Indian Council of Agricultural Research, Department of Agricultural Research & Education  
कृषि एवं किसान कल्याण मंत्रालय, भारत सरकार

MINISTRY OF AGRICULTURE & FARMERS WELFARE, GOVERNMENT OF INDIA

मालेगांव, बारामती, पुणे 413 413 - , महाराष्ट्र, भारत

Malegaon, Baramati- 413115, Pune, Maharashtra, India



	<p><b>FILTERS:</b></p> <p>Efficiency of Pre-filters: 90% down to 10 micron Efficiency of Fine-filters: 97% down to 3 micron</p> <p>Features:</p> <ul style="list-style-type: none"><li>• Inside Foam Insulated Filter Housing.</li><li>• Positive Pressure System to supply 20% Fresh air with in unit. Return Air Riser G I</li><li>• Powder Coated with 7 tank imported process</li><li>• LAF Velocity- 0.4 to 0.45 m/sec. 90 fpm. &amp; Minimum 30 air changes per Hours.</li></ul> <p><b>AHU:-</b></p> <ul style="list-style-type: none"><li>• AHU (Air Handling Unit) Ceiling Mounted.</li><li>• Capacity 2200 CFM with 125mm static pressure Blower with 5 HP Single Phase</li><li>• Standard Make Motor Qty. 04 Nos.</li><li>• Cooling Coil, SS Drain Tray</li><li>• First Stage Filtration HDPE washable 10 Micron in AHU.</li><li>• Filter section with pre filters of 10<math>\mu</math> and 5<math>\mu</math> mounted on common Filter frame</li><li>• Fan section with DIDW centrifugal backward curved fan, motor, Drive set with V belt.</li><li>• Fine filter section with filters of 5<math>\mu</math>.</li><li>• Manually operated AI Constructed SA damper</li><li>• G.I. Ducting - 24 SWG In GT sheet, with - 9mm Thickness</li><li>• Flux Aluminum Foil Insulation.</li><li>• Air Condensing Unit. AC with Reciprocating Compressor.</li><li>• Return Air Riser with Aluminum Grills.</li><li>• Air Velocity near about Hepa Filter 0.45-0.50 msec / 90-110 FPM</li><li>• UV ductwork sterilizer in HVAC returns. This fully automatic UV modules decrease germ loads on ceiling HEPA filters, minimize contamination of clean rooms.</li><li>• HVAC unit will be dedicated one to maintain clean room temperature.</li><li>• Electrical plug points: A set of 20 electrical points (6A, 15A and 30A) must be provided via appropriate feed through. The sources for these points may be from UPS units in the service area or direct lines already present in the room or Faculty platform area. Monitoring and controlling of all electrical plug</li></ul>
17	<p><b>Fully automatic UV sterilization in room:</b> One number</p> <ul style="list-style-type: none"><li>• Fully automatic operation mode</li><li>• Manual operation mode</li></ul>





भाकृअनुप - राष्ट्रीय अजैविक स्ट्रेस प्रबंधन संस्थान  
ICAR - NATIONAL INSTITUTE OF ABIOTIC STRESS MANAGEMENT  
भारतीय कृषि अनुसंधान परिषद, कृषि अनुसंधान एवं शिक्षा विभाग

Indian Council of Agricultural Research, Department of Agricultural Research & Education  
कृषि एवं किसान कल्याण मंत्रालय, भारत सरकार

MINISTRY OF AGRICULTURE & FARMERS WELFARE, GOVERNMENT OF INDIA  
मालेगांव, बारामती, पुणे 115 413 - , महाराष्ट्र, भारत

Malegaon, Baramati- 413115, Pune, Maharashtra, India



	<ul style="list-style-type: none"><li>Continuous sterilization (User programmable)</li><li>7 days of programming with various level of programming cycle</li><li>SAFETY - If room door is opened while UV light is already ON in room, it will automatically override UV light control and will turn OFF UV light source to avoid accidental contact with UV light.</li></ul>
18	<b>Water Purification System, quote as an OPTIONAL ITEMS (QUOTE SEPARATELY IN TENDER BID) : One number</b> <ul style="list-style-type: none"><li>Capacity 6 LPH</li><li>Application : Tissue culture media preparation, Molecular biology work</li><li>Input tap water</li><li>Output: Type 1 and type 2 water</li><li>UV-Oxidation 185/254 nm</li><li>TOC value for Type 1 water : 1 to 5</li><li>Resistivity at 25°C, MΩ-cm : 15 to 10</li><li>Conductivity μS/cm : 0.067 – 0.1</li><li>Position on laboratory bench or mount it on the wall.</li><li><b>CE Certified</b></li></ul>
19	<b>Laminar Air Flow Chamber: One number (Quote as an OPTIONAL ITEMS (QUOTE SEPARATELY IN TENDER BID))</b> <ul style="list-style-type: none"><li>Internal work area : 1200 x 600 x 600 mm</li><li>Average air flow velocity : 0.45 m/s (90 fpm) at initial set point</li><li>ULPA Filter efficiency : &gt;99.999% at particle size between 0.1 to 0.3μm</li><li>NSF Certified/CE certified, EN 12469, ISO 14644.1, Class 3</li><li>Class 100 air quality</li></ul>
20	<b>Vertical Autoclave: One number</b> <ul style="list-style-type: none"><li>Capacity 100 Liters, Vertical model</li><li>Triple walled construction complete made of SS 304, lid made of SS 304</li><li>Water level indicator with stainless steel guard, pressure gauge, steam release valve, spring loaded safety valve, Automatic Pressure Control Switch, automatic low water detection and alarm</li><li>The Unit should be fitted with Double safety radial locking system with paddle lifting device</li><li>Pressure adjustable from 5 psi to 20 psi with an accuracy of +/- 1 psi, with automatic pressure control switch.</li><li>Supply complete with stainless steel basket, cord and plug.</li><li>The pressure inside the chamber is variable from 5 psi. to 18 psi..</li><li>Working Temperature : 121° C settable by digital PID temp controller with timer</li><li>Hydrostatic Pressure at 35 psi along with certificate.,</li><li>Should work on 230V AC single phase supply</li><li>ISO 9001, ISO 13485 ISO 14001 &amp; CE Certified</li></ul>



भाकृअनुप - राष्ट्रीय अजैविक स्ट्रेस प्रबंधन संस्थान  
ICAR - NATIONAL INSTITUTE OF ABIOTIC STRESS MANAGEMENT  
भारतीय कृषि अनुसंधान परिषद, कृषि अनुसंधान एवं शिक्षा विभाग

Indian Council of Agricultural Research, Department of Agricultural Research & Education  
कृषि एवं किसान कल्याण मंत्रालय, भारत सरकार

MINISTRY OF AGRICULTURE & FARMERS WELFARE, GOVERNMENT OF INDIA  
मालेगांव, बारामती, पुणे 115 413 - , महाराष्ट्र, भारत

Malegaon, Baramati- 413115, Pune, Maharashtra, India



21	<p><b>Tissue Culture Rack: Two Numbers</b></p> <ul style="list-style-type: none"><li>• Total no. of shelves - 5</li><li>• No of culture shelves- 4</li><li>• Rack made of MS Tubular frame duly powder coated</li><li>• Distance between shelves to shelves is 16" approx.</li><li>• Size of each shelf is 108" x 18"</li><li>• Eight 36-watt flicker free fluorescent light per culture shelf. Total 32 Nos tube lights.</li><li>• Automatic digital control timer for fluorescent light – 2 per rack</li></ul> <p><b>Tissue Culture Rack: Two numbers</b></p> <ul style="list-style-type: none"><li>• Total no. of shelves - 5</li><li>• No of culture shelves- 4</li><li>• Rack made of MS Tubular frame duly powder coated</li><li>• Distance between shelves to shelves is 16" approx.</li><li>• Size of each shelf is 108" x 24"</li><li>• Eight 36-watt flicker free fluorescent light per culture shelf. Total 32 nos tube lights.</li><li>• Automatic digital control timer for fluorescent light – 2 per rack</li><li>• ISO 9001, ISO 13485 ISO 14001 &amp; CE Certified</li></ul>
22	<p><b>Upright fluorescence microscope facilitated with phase contrast, Bright field applications and DIC slot, There should be provision to mount camera with suitable adaptor 0.7X</b></p> <ul style="list-style-type: none"><li>• Light source: Transmitted pre-centered LED illuminator LED at least 5W illumination with long life of 50,000 hours or better.</li><li>• Eyepiece: Paired wide-field eyepiece 10X with minimum 22mm.</li><li>• Objectives: Automated objective turret N Plan/fluorite/Semi Apochromatic objectives 4X/5X, 10Xph, 20Xph, 40Xph, 100x oil objective</li><li>• Observation tube: Trinocular tube, F.N. 22 or better, three position prism for selection of light path for 100% /50% observation</li><li>• Revolving nosepiece: Interchangeable six fold revolving motorized nosepiece with DIC/analyzer slot.</li><li>• Fluorescence filters (Band pass): All filters should be interference based and emission should not overlap with other filters (e.g. DAPI, TRITC, FITC etc.). A source of 100 W mercury or better should be provided.</li><li>• Condenser: Universal automated condenser with automated switchable condenser top for Bright field and phase applications.</li><li>• Mechanical stage: Rectangular XY stage with double slide holder suitable for analysis of thick tissue specimen.</li><li>• Cameras: CCD Peltier cooled dual mode (colour and monochrome) camera with min. 5 MP resolution, 9 fps @ full resolution, FireWire / USB 3.0 Interface along with necessary 0.5x to 0.7x C-mount adaptor should be provided</li><li>• Software: Imaging system automatically upgraded software that allows quantification of distance between two points and related morphometric measurements and intensity measurements, contrast and other adjustments</li></ul>



भाकृअनुप - राष्ट्रीय अजैविक स्ट्रेस प्रबंधन संस्थान  
ICAR - NATIONAL INSTITUTE OF ABIOTIC STRESS MANAGEMENT  
भारतीय कृषि अनुसंधान परिषद, कृषि अनुसंधान एवं शिक्षा विभाग

Indian Council of Agricultural Research, Department of Agricultural Research & Education  
कृषि एवं किसान कल्याण मंत्रालय, भारत सरकार

MINISTRY OF AGRICULTURE & FARMERS WELFARE, GOVERNMENT OF INDIA  
मालेगांव, बारामती, पुणे 413 115 - , महाराष्ट्र, भारत

Malegaon, Baramati- 413115, Pune, Maharashtra, India



	and multichannel fluorescent merging. Microscope, camera and software should be provided from single manufacturer.
23	<b>Warranty:</b> The supplier shall guarantee satisfactory performances of the unit for the minimum period of 24 months from the date of installation and shall undertake to rectify any defect including replacement of spare parts, resulting from faulty design, poor workmanship, bad materials etc. during the guarantee period free of charge.
24	<b>Note:</b> Bidder must have constructed fully functional Plant Tissue Culture laboratory in research institutions/organization. The bidder should provide user list for Plant Tissue Culture laboratory establishment with complete address and contact details of the user. The firm must submit illustrated technical literature with enough technical details. All equipment for Plant Tissue Culture facility should be ISI/ISO and CE certified.



भाकृअनुप - राष्ट्रीय अजैविक स्ट्रेस प्रबंधन संस्थान  
ICAR - NATIONAL INSTITUTE OF ABIOTIC STRESS MANAGEMENT  
भारतीय कृषि अनुसंधान परिषद, कृषि अनुसंधान एवं शिक्षा विभाग

Indian Council of Agricultural Research, Department of Agricultural Research & Education  
कृषि एवं किसान कल्याण मंत्रालय, भारत सरकार

MINISTRY OF AGRICULTURE & FARMERS WELFARE, GOVERNMENT OF INDIA  
मालेगांव, बारामती, पुणे 115 413 - , महाराष्ट्र, भारत

Malegaon, Baramati- 413115, Pune, Maharashtra, India

