



**DEPARTMENT OF BIOCHEMISTRY**  
**DST-FIST & UGC-SAP Sponsored Department**  
**UNIVERSITY OF KERALA**

(Established as University of Travancore by the Travancore University act in 1937 and reconstituted as University of Kerala by the Kerala University act of 1957 and presently governed by the Kerala university act of 1974 passed by the Kerala state Legislative assembly No. 3878-F1/72/Law dated 27<sup>th</sup> July 1974 of the government of Kerala)

**(Re – accredited by NAAC with ‘A’ Grade)**

**Kariavattom**

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BCH/Plan Proposal/2015-16

01/03/2016

**QUOTATION NOTICE**

Competitive quotations are invited from various firms for the following laboratory equipments as per the specifications mentioned towards the purchase of equipments for the Advanced Centre for Tissue Engineering. The quotations in the sealed covers addressed to the Professor & Head, Department of Biochemistry, University of Kerala, Kariavattom, 695581 should reach the department on or before 14/03/2016, 4.30 P.M. The tender opening will be on 15/03/2016, 10.30 A.M. in the department. Bidders have to note the terms and conditions and should attach the relevant documents along with the quotation.

**Previous quotation notice dtd.06.1.2016 and 11.01.2016 stands cancelled.**

**List of Equipments**

**1. Biological Safety Cabinet**

Class II, Type A2, Stainless steel interior Size 3'× 2'. UV/ Visible lighting, Automatic Gas inlet, UV cut off on door opening, Vertical Airflow and HEPA filters. Internal power socket. With min 3 year warranty.

**2. CO<sub>2</sub> incubator**

Interior Volume – 180 L or more with stainless steel interior. Working temperature of 5°C above ambient to 50°C with uniformity of ±0.3 °C at 37 °C, water jacketed, cut off alarm, CO<sub>2</sub> range of 0-20%. Shelves –four or more. With min 3 year warranty.

### **3. Thermocycler**

Independent PCR blocks with individual programming options suitable for individual tubes and strips of 0.2ml tube capacity. Heated lid. Temperature of 4 °C to 99 °C with temperature uniformity of  $\pm 0.5$  °C. Should be supplied with UPS of min 2 hours backup. With min 3 year warranty.

### **4. Refrigerated Centrifuge**

Fixed angle rotors for 2 ml, 10-15 ml and 50 ml tubes. Cooling capacity upto -10 °C, centrifugation speed of minimum 15,000 g, lid lock option while in operation, user programmable operation feature. With min 3 year warranty

### **5. Freezer -20°C**

Minimum capacity of 340 L, should be vertical, single door model with minimum six shelves, non-auto defrost mechanism and operating temperature of -18 to -22 °C with min3 year warranty.

### **6. Freezer -80°C**

Temperature range -50 °C to -80 °C. Capacity 400L and above. Five or more compartments, Polyurethane foam Insulation, Non-volatile memory, Plunger assembly to release the vacuum. Two stage cascade compressor system. With min 3 year warranty.

### **7. Electrospinning apparatus**

An electrospinning apparatus containing all the necessary components with an inbuilt hood resistant to chemical vapours.

1. High Voltage Power Supply - 1 to 30kV Single Output, 0.5mA max Current with digital Voltmeter and Current meter. Facility for constant V or A settings. Charge discharge safety unit.

2. Collector

Stationary collecting unit made of stainless steel or suitable metals with size ranging 12 x 12 inch. Rotating mandrel with speed control from 500 rpm to 3000 rpm or better. Size of mandrel 10 cm diameter or 5 cm diameter.

3. Syringe Pump - Single or multiple syringe loading pump capable of accommodating standard syringes (2 ml to 20 ml) to dispense solutions at flow rate of 5  $\mu$ l / hr to 15 ml / min and accuracy of  $\pm 2\%$  or better. Microprocessor controlled with digital display and programmable with multiple steps. Adjustable platform to align pump and collector height.

4. Computer interface and suitable software. - Computer interface to control the individual components using common software. All parameters of electrospinning has to be operational through software with data backup. The settings should be saved for retrieval or re-do.

5. Safety Hood within built power supply, lighting and exhaust. Minimum 1 m length with 1.5 m height or better, inside hood for comfortable working. Protective measures to avoid electrical shock, solvent vapour and flying nanofibers.. With min 3 year warranty.

### **8. Liquid Nitrogen Storage System**

Tank volume 120- 150 L, average daily loss less than 1 L static holding capacity of more than 100 days. Capacity to hold 4 and above racks of 6 cryoboxes each. Digital level display with audible alarm. Roller base platform. With min 3 year warranty.

### **9. Water purification system**

Tap water to ultrapure output capability. Output resistivity- 18.2 megaOhm. Conductivity less than 0.055uS/cm. Flow rate more than 30 L/hr. Multistage purification process with particulates less than 1 p/ml. Built-in reservoir of above 5 L. With min 3 year warranty

### **10. Sonicator**

Ultrahigh intensity sonication, tapered micro tips of options 3 mm and 5 mm probes. Sample handling range of 0.5 to 20 ml. Acoustic insulation hood with transparent door. Multiple modes of operation for continuous, pulsed and timer controlled operation. With min 3 year warranty.

### **11. UV/Visible Spectrophotometer**

200-900nm- double beam with capacity to read 96 well plate format. Option for computer connectivity and data output. To be supplied with branded computer. With min 3 year warranty.

### **12. Microscope-Phase contrast, inverted with camera**

Inverted microscope with LED illumination. Suitable for bright field and phase contrast Imaging. Objective: 4X, 10X, 20X and 40X, Bidirectional stage movement with digital camera and option for computer connectivity. With min 3 year warranty

### **13. Electricity Backup System**

- a) Three Online UPSs of 5, 2 and 1 KVA, with battery backup for 1 hour.
- b) SMF batteries of either 26, 42 and 65AH as applicable. Quote for each type may be included.
- c) Servo controlled voltage stabilizers of 1, 2 and 3KVA.
- d) Warranty min 3 years for each quoted item.

#### **14. Shaker incubator with cooling facility -**

Refrigerated model with temperature range of +4°C- 50 °C, digital display and brushless motor operations, revolution of 20-300 rpm, clamps for 50ml, 100 ml, 250 ml and 500 ml conical flask. Minimum 4 clamps each. Warranty min 3 years.

**Note: Please send separate quotations for each item**

#### **Terms and conditions**

1. The Bidder should be a manufacturer or their dealer specifically authorized by the manufacturer to quote on their behalf for this tender. Certificate to this effect should also be included in the quotation.
2. The models quoted should be in successful operation for at least one year as on the date of Bid opening.
3. The tender submitted shall remain valid at least for 90 days from the date of opening the tender. Validity beyond three months from the date of opening of the tender shall be by mutual consent.
4. The supplier should be fully equipped to render us after sale service during warranty and thereafter.
5. Charges for annual maintenance contract after expiry of warranty period to be quoted separately.
6. The University of Kerala reserves the right to accept or reject any or all tenders without assigning any reason thereof. In case of any dispute the decision of the University Authority shall be final.
7. The price quoted should be inclusive of all taxes and for supply, installation, demonstration and testing at the University campus, Kariavattom.
8. All equipments must be covered by 3 years comprehensive warranty.
9. Users list of the specified model to be attached preferably from research centers within Kerala.
10. Performance Certificate from at least 3 research centers in Kerala, preferably in Trivandrum shall be an added advantage.
11. Suppliers with service centers in South India, preferably in Kerala shall be an added advantage.

Sd/-

Professor and Head