Call for quotation.

Sealed quotations are invited for a the following equipments for setting a Bioreactor for animal cell culture, a High speed microcentrifuge and a digital image capturing device to attach with microscope along with software for image analysis, with the following specifications in the Department of Biotechnology, University of Kerala, Kariavattom Thiruvananthapuram.

1. A Central Control System of Bioreactor with disposable / glass culture vessels with the following specifications

- The system should be a compact autoclavable bench top bioreactor with 1.3 L total volume (working volume of 0.4 1.0 L) designed for growth of mammalian cells, insect cell lines and plant cells. Controllers should be capable of running either fermentation or cell culture. The system should also be able to accommodate vessel volumes of 3L, 7.5L or 14L. The vessels should be interchangeable and made of borosilicate glass, autoclavable with dished bottom.
- Gas mix options should be available ranging from 1 4 rotameters to Automatic Gas Control (1TMFC) via 4 solenoid valves.
- CO2 addition for pH and Oxygen addition or monitor, Air connection and Reagent inlets. pH probes, antifoam probes should be available.
- The Master Control Station should be capable of controlling up to 3 vessels simultaneously. The system should be equipped with a bright color touch-screen interface of minimum 8.4".
- The system agitation should be through magnetic drive or direct-drive mechanism. The agitation range and control should be from 25 -200 RPM with magnetic drive & 25-400 for Direct drive motor. The control should be PID with manual, automatic or cascade settings.
- Provision for updating the Reactor Process Control Firmware from the company site, as a USB ports on master controller should be available.
- Jacket water heater should be placed below vessel to maintain system on warmer / elevated temperatures & cooling achieved by circulating chiller water thru same jacket based on set process values.
- Pitched blade should be available as standard.
- System should have the possibility of using other impellers like Marine blade or spin filter.
- A super safe sampler should be available for safe sampling during the operation of the Bioreactor.
- Suitable Air compressor should be provided along with the control system.

- 2. A culture vessel suitable for growing various types animal cells (anchored type and non-anchored type) of working volume 2.5 to 7 L., with jacket for temperature regulation through water circulation. It should be autoclavable. Sould be used as culture vessel in the Bioreactors or fermentors.
- 3. Roller Bottles and Swing Buckets glass or plastic suitable for the growth animal cells Disposable types or autoclavable. Sould be usable attached to Control system of the Bioreactors or fermentors.
- 4. High speed Mini centrifuge with sspeed 500- 12,000 rpm, RCF 9,800x g, with rotor12x1.5/2ml tube, Rotor (with cover and Knob), 4x8 strip 0.2ml Tube(with knob). Dimensions 203 x 171 x 114 cm
- 5. A digital image capture device to attaché with Microscop and transferring the image to computer with USB data transfer cable along with appropriate working software for image transfer and analysis.

The quotations addressed to **The Head**, **Department of Biotechnology**, **University of Kerala**, should reach before 15th January 2014.