

Call for quotation.

Sealed quotations are invited for a the following equipments, with the specifications given, in the Centre for Genomics and Gene Technology, Department of Biotechnology, University of Kerala, Kariavattom, Thiruvananthapuram.

1. Refrigerated Thermostatic Recirculating chillers-

Table Top Model and Compact, with inbuilt high efficiency pump for water circulation- 310 mbar pressure,

Stainless body with lid / polystat chillers , Cooling and heating controls with LCD display, with temperature range -20 C to 100 C with cut off controls, cooling capacity at -20 C- 320 W, Capacity – 5 to 7 L,

2. Freeze Dry System / Lyophilizer -

- Bench top Freeze Dry System, -85° with SS interior, 220V
- With sophisticated process monitoring, and spatially efficient design. System should remove minimum of 3.5 L of water in 24 hours.
- Vacuum and temperature should be displayed with LCD. Cumulative component service intervals should be displayed to enable proper maintenance.
- Ice Capacity – 4 Kg , Ice condenser capacity 6.5 L/24 hr , Ice condenser temperature 85 °C ,
- Power (Hz) 60, Power (VAC) 220, Ice condenser and ice condenser chamber with drain valve for defrosted water,
- Sublimation rate – 3.5 L/day,
- Two drying modes: automatic and manual, Automatic Purge System, to protect samples by preventing counter-flow of oil, Defrosting system ,
- Compressor delayed start function to minimize any damage to the compressor, LCD Monitoring system to monitor vacuum pressure, ice condenser temp. and sample temp., Vacuum Backfilling System by inserting sterile nitrogen gas for preventing contamination of the sample,

- Vacuum pump with suction capacity of 60L/min, Ultimate pressure 6.7×10^{-2} Torr, suitable for freeze dryer, Vacuum Chemical Hybrid Pump, Suitable for all types of solvents. Incl. exhaust filter
- Vacuum hose including standard flange connections diameter 25mm for external connection of the vacuum pump, Clear drying chamber with valves.
- Stainless steel sample tray- diameter 180mm, Oil-mist filter, Heated drying chamber with valves, suitable for P controller, Acrylic drying chamber, the cover diameter 260mm, with anti-detonating coating, 6 heated shelves diameter 230mm, 12 connections for individually controllable rubber valves for connecting 12 flasks, Standard two samples temperature sensors and one sensor for heating control, Round bottom flasks 50ml and 100 ml capacity, suitable for Freeze drying samples.

3. HPLC specifications

HPLC System for analytical and Preparative Functions

PUMP

Type- Quaternary systems, Gradient Mode,

Flow Rate : Minimum 0.5 ml to 10 ml/min or higher end

Function: Purification at micro, analytical or prep scale

Operation: Approx at high range 200 bar

Solvent Position: 24 aqueous buffers or 12 aqueous buffers and 12 organic modifiers

All should be automatic

- flushing and column equilibration
- generation of a Chem Station sequence
- Experiment setups for multiple samples and injections
- Settings can be stored as a template for reuse
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Flow accuracy Approx $< 2\%$

Flow precision Approx $\pm 0.1\%$ RSD

No. of eluents - Approx 4

Automation of Programme Auto stat programming, - Capability for Auto stat & Equilibrium, Multi method, programming Multi-method

programme Storage of upto 1 complete method parameters

tables with external events

Composition range - Approx 0-100%

Composition accuracy Approx $\pm 0.5\%$ (independent of Back Pressure)

DETECTOR

Detector-1 (PDA)

Source Single beam polychromators, Source: Deuterium and tungsten-halogen,
Wavelength range 190-700 nm
Sensitivity 0.01 to 2.0 AUFS
Mode of Operation Scanning and detection at variable/fixed wave length.

Detector-2 (UV)

Wavelength Complete UV-VIS range
Source Deuterium and / or Tungsten
Noise Approx. $\pm 0.35 \times 10^{-5}$ AU, dry cell 254 nm
Drift Approx $< 2 \times 10^{-4}$ AU/hr.
Linearity Approx 5 nm
Accuracy Approx. ± 1 nm
Reproducibility Approx. ± 0.1 nm
Automation Software and manual controls. The detector should have lamp optimization software, Variable Scanning and analysis facility

Detector-3 (Fluorescence detector)

Wavelength range Approx 200-900 nm or higher range
Light source xenon lamp
Cell volume Approx. 8 micro lit
Band width Approx. 20 nm
Sensitivity S/N Raman Approx. > 800 nm
Automation Software and manual controls. The detector should have lamp optimization software, Variable Scanning and analysis facility

Detector-4 (Refractive Index Detector)

Refractive Index range Approx 1-1.75 R/U
Flow rate Approx. 0.2 ~ 0.3 ml/min
Temperature Control Approx Internal oven 30 0 C to 55 0 C
Automation Software and manual controls. The detector should have lamp optimization software, Variable Scanning and analysis facility

SAMPLER

Auto Sampler mode Pressure Approx upto 600 bar

Sample should collect from Vials/microtiter plates

Sample volume for taking 0.1-100 μ L inj. vol.

Control through the parent software

Manual Sample mode Through manual sample mode of 20 micro-litre
Desirable (Optional) Sample Injection System with - For Analytical injector
Dual injector option, for 50/100/200 μ L / 100ps
Analytical & Semi-prep analysis for semi preparative 5ml /100ps (Approx)

Degasser

Online/Inline Vacuum degasser flow rate: channel :2 or 4 independent
Flow rate Approx 0.2-5.0 ml/min or higher
Column oven model
Temperature Range Approx. Ambient +40
C to 600 C

Columns

C-18 - 250 x 4.6 mm
C-8 250 x 4.6 mm
C-18 - 250 x 20 mm
C-8 - 250 x 20 mm
Pre-column derivatisation kit for Amino Acids

Bio suite C-18 PA-A 3 :m - 4.6 x 250 mm
Protein pak - 7.8 mm x 300 mm
Fraction collector (Optional)
Flow rate And accessories Approx. upto 150 ml/min
Software
Software with Computer System
Single point control of the entire HPLC
Customizable data reports, online help wizards
Report publisher/ Report can be stored at PDF format

Computer and Printer

A suitable computer that can Controls HPLC appropriate hardware configuration with all accessories and colour printer, for sustained function, with UPS 5 KVA online with external maintenance free battery for minimum back up for 60 min-120 min of the instruments in power failure.

Filtration assembly Oil free vacuum pump for sample and mobile phase filtration, filter funnel

Syringe Filtration assembly 5 pack (13 mm dia)
Syringe Filtration assembly 5 pack (45mm dia)
Nylon membrane for filtration 5 pack (13 mm dia) with adapter 2 packets
Cellulose acetate for filtration 5 pack (13 mm dia) with adapter 2 packets
Nylon membrane for filtration 5 pack (45mm dia) with adapter 2 packets
Cellulose acetate for filtration 5 pack (45mm dia) with adapter 2 packets
Column one each C-18 - 250 x 4.6 mm, C-8 - 250 x 4.6 mm, C-18 - 250 x 20 mm, C-8 - 250 x 20 mm

Pre guard Column

Adapter
Filter cartridge 1 box for guard column

Loop connector/loop Separable if any accidentally leak occurred

4. Spectro-fluorimeter (Fluorescence spectrophotometer)

Specifications

Measurements (Steady-State Fluorescence)

Electrical Time Resolution down to 8 ps FWHM/5 ps rms
Corrected excitation and emission spectra
Excitation-emission matrices
Polarization (anisotropy) measurements
Millisecond kinetics in photon counting mode
Dual-wavelength-ratiometric excitation or emission measurements

Light Sources

300 W high-pressure xenon arc lamp, 45 mW/nm brightness at 275 nm
Lamp power supply: controllable in current, with time meter

Optional Sources

Laser diodes
Light emitting diodes (LEDs)
Continuous wave lasers (argon-ion, krypton-ion, helium-cadmium, etc.)

Monochromators

Single concave holographic grating
Wavelength range: from 200 nm to 1200 nm (dependent on selected grating)

Wavelength Accuracy

± 0.2 nm

Wavelength Reproducibility

± 0.25 nm

Slew Rate

160 nm/s (optional double grating)

Lenses: UV-grade fused silica lenses

Polarizers

UV-grade Glan-Thompson, 10x10 mm, L/A=2.0
UV-grade Glan-Thompson, 14x14 mm, L/A=2.0
UV-grade Glan-Taylor, 10x10 mm, L/A=2.0 (for high power lasers)

Optical Design and Collection Geometry :

Parallel beam design for precise polarization measurements
T-format for simultaneous acquisition on 2 emission channels

Detectors

Selected side-on photomultiplier tubes in room-temperature or cooled housing
Emission channels PMTs: Model R928 by Hamamatsu
Reference detector PMT: Model R928 by Hamamatsu
PMT wavelength range: 240-900 nm

Detection Modes

Photon counting electronics, 10 KHz, on 3 independent channels
Optional: Analog Output

Pre-Amplifier Discriminators

80 MHz bandwidth, TTL output

Dynamic Range

Linear up to 4 million counts/second

Sensitivity

800 fM of fluorescein (with cooled PMT housing)

Signal-to-Noise Ratio

2000:1 (room temperature PMT housing)

6000:1 (cooled PMT housing)

Automation

Control of 4 shutters
Up to 3 monochromators
3 polarizers
Sample holder rotation
Stirrers
Filterwheel

Instrument Interface to the Device

Titration
Stopped-flow apparatus
Peltier sample compartment
Flow-through temperature bath

Power Requirements

Universal power input: 110-240 V, 50/60 Hz, 400 VAC

Should be Compact and beautifully designed

5. A snow maker / Ice Flakes Machine (not ice cubes)

1. Stainless steel body and reentering door which assures an easier accessibility to ice
2. Stainless steel cabinet properly insulated
3. Minimum 25kg bin capacity
4. More than 50 kg/day production
5. Safety protection from water supply
6. Should come with 3 years warranty
7. Bin Capacity 20 Kg., Water consumption- 3 L / Hr.

6. Stereo Dissection Microscope

Zoom Stereo Binocular Microscope with Greenough Optical System, LED Transmitting Illumination, High Point Eyepiece, and 110mm Working

D

Optical system

Greenough

s

Viewing Head

Trinocular tube View inclination angle 30°/ 45° Light path selection: 2 steps (Binocular 500, Photo 500), inclined at 45°, rotatable 360°, Interpupillary Distance 54-76mm

Eyepiece

10×/Φ23mm high point, diopter adjustable

Objective

Zoom objective 0.66×~5×

Zoom Ratio

Zoom ratio values: 8:1 (0.8X to 5.6)

Zoom magnification indication: 0.8, 1, 1.25, 1.6, 2, 2.5, 3.2, 4, 5, 5.6

Objective mounting: Screw mounting into thread

Zoom Mode

Axis zoom

Magnification

6.6×~50×

Working Distance

110mm

Illumination	LED Reflecting illumination 3W LED Transmitting illumination 3W
Dimension	32cm*30cm*42cm,

The quotations addressed to The Director, IU CGGT, Department of Biotechnology, University of Kerala, should reach before 30th December 2014.