

BHARATI VIDYAPEETH (DEEMED TO BE UNIVERSITY), PUNE
INTERACTIVE RESEARCH SCHOOL FOR HEALTH AFFAIRS (IRSHA)

Part I: SCHEDULE OF REQUIREMENTS

Technical Specifications for Flow cytometry

Application: Capability of simultaneous 18 color measurements along with forward & side scatter (total 20 parameters) and upgradable to more color & lasers. Compatible for performing bead based multiplex cytokine assessment.

Technical Specification:

- **Lasers system as follows or better if available**
 1. Blue (488nm; ≥ 50 mW; 10k hrs. lifetime)
 2. Red (633nm-640nm; ≥ 50 mW; 10k hrs. lifetime)
 3. Violet (405nm; ≥ 50 mW; 10k hrs. lifetime)
 4. UV (355nm; ≥ 15 mW; 10k hrs. lifetime)
 5. Yellow Green (561nm; ≥ 50 mW; 10k hrs. lifetime)
- Hydrodynamic focusing technology with fluorescent resolution of rCV<3%.
- Five beam spots to accommodate 5 lasers to fire simultaneously
- **Alignment-** All lasers and optics should be fixed alignment
- **Optics-** Avalanche Photodiodes (APD) / PMT
- **Removable filters**
- **Acquisition rate-** minimum 30,000/sec
- **High throughput system (HTS)** - Plate loader for flow cytometer acquisition from 96 well plates directly.
- **Computer-** Latest compatible data computer attached to flow cytometer with minimum of following specifications

32 GB RAM, 1 TB hard drive, Graphics Board: 1 GB PCIe, Keyboard, Optical Mouse, latest licensed Windows and licensed antivirus.

- **Offline computer:** Same as above or better

Software Specification:

Latest version of system operating software together with offline analysis software with upgradability for minimum of four years

Additional Accessories:

1. Starter kits and calibration reagents, should be supplied with the system
2. One complete set of preventive maintenance kit should be supplied
3. Required spares and accessories such as steady tables and chairs should be included
4. 10 KVA Compatible UPS and color laser printer should be provided.

Requirement of Operator:

- One qualified and trained person to operate the system and process the data should be provided for 4 years

Quality Control:

- 21 CFR 11 Compliance (optional)

Power Requirement:

- Operation at 100/115/230 VAC and 50 or 60 Hz Maximum power: 1,500 watts

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Technical Specifications for ELISpot cum plaque counter

Application:

- Single/Double-color ELISPOT, virus plaque counting, 2-3 Color FluoroSpot (upgradeable)

Technical Specification:

- Analyzer should integrate all major components including computer, monitor and keyboard tray in one unit to save the lab space.
- Plate Formats compatibility: 6-12-24-48-96- well plates, 60 mm and 100 mm petri plate with manual and motorized zoom
- Stacker: Compatible for 6-, 12-, 24-, 48-, 96- well plates., Microplate capacity: 30 plate
- Light source/camera/microscope:
- Camera Microscope, maximum image resolution 18/ 25 megapixels, computer Interface, Zoom lens, Manual/ Motorized focus, lighting top and bottom, uniform luminescent flat light panel and provides balanced light across all compatible plate types including transparent and membrane bottom

Computer Features:

- Latest compatible computer specifications should be provided clearly.

Quality control:

- Calibration controls and quality control modules.
- 21 CFR compliance (optional)

Software Specification:

- Latest version of acquisition and analysis software with upgradability for minimum four years with specifications
- Minimum of following functions should be done by the software

Viral plaque counting, spot counting on filter plates, cell counting, qualification report generator, counting algorithms, multi-assay pattern counting, analyzers should be compatible for all plates, two-colour module, spot classification, statistics-based autogating, etc.

Additional Accessories:

1. Starter kits should be supplied with the system, required spares and accessories such as work space table should be included

Power Requirement: Voltage 120/230 V AC, 60/50 Hz

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Technical Specifications for Real time PCR machine

Application:

Quantitation (absolute/relative), Gene Expression, Genotyping, Copy Number Variation, Allele detection, MicroRNA analysis, Pathogen Detection, IVD Platform.

Technical specifications:

- Blocks—three or more independent temperature zones for precise temperature control over your PCR optimization
- Intuitive color touch-screen, Cloud enabled system.
- WiFi-enabled and accessible - to design and securely upload methods from any mobile device or desktop computer. Remote monitoring should be available to monitor networked instruments simultaneously.
- Compatible with over 8 million TaqMan® assays for gene expression, genetic variation, gene regulation, or protein expression experiments
- Dimension: Small to fit the system almost anywhere.
- Reactions per run 96 or 384, interchangeable block for Formats 96 or 384 well plate with normal or Fast plate compatibility, Separate module for TaqMan Array plates (interchangeable)
- Throughput: High (Capable of multiplexing upto 8 colours)
- Flexible temperature control
- Excitation Source: halogen lamp
- Chemistry: All real-time PCR-based chemistries. Flexibility for chemistries with or without passive reference dye.

Computer Features:

- Latest compatible computer specifications should be provided clearly.

Software specifications:

- Latest version of software with upgradability for minimum four years with specifications
- Should include qPCR analysis modules compatible with all the latest available chemistries

Additional accessories:

- Required spares (holders for strips and plates, plate sealer) and accessories such as work space table should be included
- Starter kits should be supplied with the system, required spares and accessories such as work space table should be included

Quality control:

- 21 CFR Part 11 compliant (optional)

Power requirement:

- Voltage 120/230 V AC, 60/50 Hz

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Technical Specifications for Multiplex protein array system

Application:

Simultaneous detection and quantification of multiple analytes in various sample types

Technical Specification:

- General
 - Analyze multiple assay templates per plate (100 analytes per well)
 - Automatic sampling from a 96-well plate.
 - Platform plate holder: flatbottom, conical, round, filter bottom, half plates, any color.
 - Sheath container and waste container should hold enough volume to execute assay.
 - Distinguish minimum of 1 to maximum of 100 unique molecules in a single sample
 - Detect and distinguish surface reporter fluorescence emissions
- Lasers system as follows or better if available
 - Reporter laser: 532 nm, Classification laser: 635 nm, Mode of operation, continuous wave
 - Reporter detector: Photomultiplier tube, detection bandwidth of 565 – 585 nm
 - Classification detector and doublet discriminator: Avalanche photo diodes with temperature compensation
- Fluidics specification should included minimum of sheath flow rate, sample injection, sample update volume should be included
- Accuracy and precision parameters should included minimum sample uptake volume, internal sample carryover, classification of microspheres, misclassification of microspheres, temperature control, etc.

Computer Features:

- Latest compatible computer specifications should be provided clearly.

Quality control:

- Calibration and verification kit for weekly performance verification.
- 21 CFR Part 11 compliant (optional)

Software Specification:

- Latest version of acquisition and analysis software with upgradability for minimum four years with specifications

Additional Accessories:

- Suitable ergonomic furniture should also be provided.
- Magnetic separator plate
- Luminex performance human XL cytokine discovery panel

Power Requirement: Voltage 120/230 V AC, 60/50 Hz