

Statement of Work

Research Lab 23 General Equipment

Southeast Louisiana Veterans Health Care System
Research Service 11F
New Orleans, LA

12/7/2017

1. PURPOSE

1.1 The overall purpose is to provide and configure equipment for the Veterinary Medical Unit at Southeast Louisiana Veterans Health Care System (SLVHCS) Research Building, "P", 2400 Canal St, New Orleans, LA 70119. This equipment is requested to fulfill the Research mission.

2. SCOPE

2.1 The Contractor shall provide, transport, install, and configure all listed equipment. All products must meet all salient characteristics defined in this section.

2.2 All equipment and installation must meet manufacturers and VA specifications.

2.3 The Contractor shall furnish all supplies, equipment, facilities and services required for delivery and installation of the supplies and equipment.

2.4 The Contractor is responsible for any missing parts and components not included in order to carry out the installation.

2.5 SALIENT CHARACTERISTICS

2.5.1 **Description :** Flow Cytometry Cell Sorter, 1 **each**, configured in Research building rooms: TBD

Suggested Manufacturer Brand Name/ Model: BD Biosciences, BD Melody Flow Cytometry Cell Sorter or equivalent

Specifications/Salient Characteristics:

Optics

Excitation laser

488-nm blue direct diode laser, nominal power: 16 mW

640-nm red direct diode laser, nominal power: 36 mW (optional)

405-nm violet direct diode laser, nominal power: 36 mW (optional)

Beam size

$9 \pm 3 \times 67 \pm 5 \mu\text{m}$

Laser beam alignment

Fixed and spatially separated alignment of all lasers with the cuvette flow cell

Optical coupling

The quartz cuvette flow cell is gel-coupled by refractive index matching optical gel to the fluorescence objective lens for optimal light collection efficiency.

Detection channels

Forward scatter (FSC), side scatter (SSC) and up to nine fluorescence.

Sample input

5.0-mL polystyrene or polypropylene tubes.

Temperature control: adjustable through software: 4°C, 22°C, 37°C and 42°C or off

Sample agitation: adjustable through the software to keep the sample constantly suspended

Sample flow automatically stops when the sample input tube is empty.

Nozzle

100-µm nozzle to be removed and sonicated.

Fluidic tanks

Autoclavable 10-L sheath container

10-L waste container

Fluorescence sensitivity

Fluorescence sensitivity to be measured

80 molecules of equivalent soluble fluorochrome

PE: 30 molecules of equivalent soluble fluorochrome

Fluorescence detection efficiency

Qr is the relative fluorescence detection efficiency, used for describing the detection efficiency of a detector for a specific fluorochrome. One unit, for a given fluorochrome, is defined as the fluorescence of one antibody

(fluorochrome to protein 1:1) bound to a cell.

Qr (x1000): 40 photoelectrons/ABD

Qr (x1000): 325 photoelectrons/ABD

FITC: 1,600 photoelectrons*

PE: 13,000 photoelectrons*

antibodies bound = 40,000

Fluorescence resolution

Full-peak coefficient of variation (FPCV): <3.0%, G0/G1 peak for propidium iodide (PI)-stained chicken erythrocyte nuclei (CEN)

Fluorescence linearity

Doublet/singlet ratio: PI-stained CEN: 1.95–2.05

Forward and side scatter sensitivity

Sensitivity separation of 0.5-µm beads from noise.

Forward and side scatter resolution

Scatter performance optimized for resolving lymphocytes, monocytes and granulocytes.

Sort performance

Droplet sorting

~34,000 drops per second

Automated setup, optimization and monitoring of droplet breakoff and sort streams

Automated drop-delay determination

Automated clog detection and sort tube protection system

Sort collection

Two-way sorting: 1.5-, 2.0- and 5.0-mL tubes

One-way sorting: 6-, 24-, 48-, 96- and 384-well plates, 96-well PCR tray,

Temperature control: water recirculation unit to provide heating or cooling for collection into tube holders, multiwell plates

Pulse measurement

Height, area, width

Acquisition rate

Maximum throughput rate ~ 40,000 events per second, independent of the number of parameters.

Channel threshold

Available for any single parameter from any laser

Computer

Minimum: Intel® 2.8G CPU Quad Core™ i7,
Microsoft® Windows® 10 64-bit operating system

Monitor

Minimum 23-inch LCD with a minimum 1920 x 1080 resolution

Memory

Minimum 8 GB RAM

Storage

Minimum 500-GB hard drive

Plate sorting

Software controlled single or multiple cell deposition, one-way sorting: minimum

- Plates: 6-, 24-, 48-, 96- and 384-well plates
- PCR tray: 96 well
- Microscope slide: 3 x 9 grid

Sample temperature control

Water recirculation unit and sort collection devices to provide heating or cooling of tubes, multiwell plates and slides during sorting

Air compressor

Installation requirements

80–90 psi, regulated, filtered (<5 ppm), dry, oil free

Power

Operation at 115v

Operating temperature range

Between 17.5°C (63.5°F) and 27.5°C (81.5°F)
+2.5°C variation in the same day

Operating humidity

40–60% relative humidity (non-condensing)

2.5.2 **Description :** Flow Cytometry Analyzer 1 each, configured in Research building rooms: TBD

Suggested Manufacturer Brand Name/ Model: BD Biosciences, BD Celesta Flow Cytometry Analyzer or equivalent

Specifications/Salient Characteristics:

Excitation Optics**Excitation Optical Platform**

The optics layout should accommodate two or three lasers in one of four configurations.

BV10: 4 Blue (488 nm)/ 6 Violet (405 nm)

BVR12: 4 Blue (488 nm)/ 3 Red (640 nm)/ 5 Violet (405 nm)

BYV12: 2 Blue (488 nm)/ 4 Yellow-Green (561 nm)/

6 Violet (405 nm)

BUV12: 4 Blue (488 nm)/ 2 UV (355 nm)/ 6 Violet (405 nm)

Laser Power

355 nm: 15 mW

405 nm: 50 mW

488 nm: 20 mW

561 nm: 50 mW

640 nm: 40 mW

Side Scatter Detector

Photomultiplier tube (PMT) with a 488/10 BP filter

Fluorescence Sensitivity

FITC: 25 molecules of equivalent soluble fluorochrome (MESF)

PE: 15 MESF

FITC and PE measurements performed

Rainbow Calibration Particles

Fluorescence Resolution

Coefficient of variation: Area of <3%, full G0/G1 peak for propidium iodide (PI)-stained chicken erythrocyte nuclei (CEN)

Fluorescence Linearity

Doublet/singlet ratio of 1.95–2.05 for CEN stained with PI and excited with the 488-nm blue laser

Forward and Side Scatter Sensitivity

Enables separation of fixed platelets from noise

Forward and Side Scatter Resolution

Scatter performance optimized for resolving lymphocytes, monocytes, and granulocytes.

Side Scatter Resolution

Enables separation of 0.3- μ m beads from noise

Data Acquisition Rate

25,000 events/s with beads*

Operating Modes

Minimum three modes: RUN, STANDBY, and PRIME.

Sample Flow Rates

Continuously adjustable flow rate, plus minimum three preset flow rates:

LO: 12 μ L/min

MED: 35 μ L/min

HI: 60 μ L/min

Standard Fluidic Reservoirs

One 10-L sheath container and one 10-L waste container to be provided

Data Management System or similar capabilities

Minimum Software: BD FACSDiva v8.0.1.1 Workstation

HP EliteDesk 800 G1 Mini PC

Minimum Operating System or similar capabilities

Microsoft® Windows® 7 Professional (32-bit) OS

Processor System or similar capabilities

Intel® Core™ i5-4590T 2.0G 6M HD 4600 CPU

RAM or similar capabilities

4 GB RAM

Hard Drives

500 GB SATA 6G 2.5 8G SSHD

Networking

Intel 7260 802.11 a/b/g/n M.2 NIC

Monitor Option

One 19-in. LCD 1,280 x 1,024 maximum resolution

HTS Throughput

Acquisition: Less than 15 minutes per microtiter plate in high throughput mode using a 2-second acquisition, less than 44 minutes in standard mode using a 10-second acquisition

Temperature Operating Range

17.5.C–27.5.C (± 2.5 .C variation in the same day)

Operation at 110 v

Maximum power: 250 watts

2.5.3 DESCRIPTION : MICROPLATE READER AND IMAGER, 1 EACH, CONFIGURED IN RESEARCH BUILDING ROOMS: TBD

Suggested Manufacturer Brand Name/ Model: BioTek, Cytation5-MicroPlate Reader and Imager or equivalent

Specifications/Salient Characteristics:

Detection modes: Monochromators: FL, Lum, UV-Vis Abs, TRF

Read methods: kinetic, spectral scanning, well area scanning

Temperature control: incubation to 65 °C with condensation control, minimum variation ± 0.2 °C at 37 °C

Shaking: Linear, orbital, double-orbital

CO₂ and O₂ control: 0 – 20% CO₂ control and 1 – 19% O₂ control

Imaging

Imaging modes: Fluorescence, brightfield, color brightfield, and ph. phase contrast

Imaging methods: Single color, multi-color, montage, time lapse, Z-stacking

Light source: High power LEDs

Absorbance

Light source: Xenon flash lamp

Wavelength selection: Monochromator

Wavelength range: 230 – 999 nm, 1 nm increment

2.5.4 DESCRIPTION: WESTERN BLOT ANALYZER, 1 EACH, CONFIGURED IN RESEARCH BUILDING
ROOMS: TBD

SUGGESTED MANUFACTURER BRAND NAME/ MODEL: PROTEIN SIMPLE 004-600 or Equivalent

SPECIFICATIONS/SALIENT CHARACTERISTICS:

• A fully automated complete solution for protein detection and characterization which performs all the manual processes associated with a **traditional Western blot**. Protein sizing, quantitation and immunodetection of proteins to be performed in a nano-immuno assay system.

General Specifications

- Bench-top footprint
- 110 V power connection
- Fully operable in a humidity range of 20-60% relative, non-condensing
- Fully operable in a temperature range of 18-24oC
- Processes a maximum of 25 samples per run
- Run time 3- 4 hours
- Analyze the following samples: culture mammalian cell lines, white blood cells, sorted cells, plasma and crude cell culture supernatants
- Complete 25 nano-immunoassays within a cycle time in three hours
- Robotic automated system which prepares capillaries for sample uptake
- Robotic automated system which volumetrically loads sample and buffer
- Perform automated size-based separation
- Wash capillaries, remove matrices and perform automated immunoassay steps incubating of primary and secondary antibodies and protein blocking steps
- Automatically introduce chemiluminescent reagents for immunoassay detection results

Separation Specifications

- Molecular weight size separation power supply able to produce 0-3,000 volts
- Constant voltage output
- Contains a low-pressure mercury lamp

Detection Specifications

- Automated detection of fluorescently labeled protein size standards
- Molecular weight ladder ranges from 12 to 230 kDa
- Ability to distinctly resolve biotinylated protein standards
- Chemiluminescent and fluorescent detector
- CCD Camera that is cooled and with no less than 1.4 megapixel and 16-bit resolution

Software Specifications

- Software to set-up assay protocols and analyze run data
- Specify up to 25 samples per run
- Specify primary and secondary antibodies per sample
- Specify the molecular weight per sample
- Specify chemiluminescence collection time
- Perform relative quantitation of identified peaks by total area or peak height
- Export data to spreadsheet or other optional data analysis and presentation packages

2.7 DELIVERY AND INSTALLATION

2.7.1 DELIVERY

- 2.7.1.1 Contractor shall deliver all equipment to the Southeast Louisiana Veterans Health Care System (SLVHCS), Research Building, "P", 2400 Canal St, New Orleans, LA 70119 beginning on March 15, 2018.
- 2.7.1.2 Deliver materials to job in manufacturer's original sealed containers with brand name marked thereon.
- 2.7.1.3 Package to prevent damage or deterioration during shipment, handling, storage and installation. Maintain protective covering in place and in good repair until removal is necessary.
- 2.7.1.4 Deliver specified items only when the site is ready for installation work to proceed.
- 2.7.1.5 Store products in dry condition inside enclosed facilities.
- 2.7.1.6 Any government requested delayed delivery up to 90 days after initial award delivery date, shall be at no additional cost to the Government.
- 2.7.1.7 A pre-delivery meeting will be conducted 60 days prior to initial award delivery date for verification of delivery and installation dates.
- 2.7.1.8 Delivery and Installation will be coordinated through the COR.

2.7.2 CONFIGURATION

- 2.7.2.1 All equipment shall be floor mounted by contractor upon delivery unless otherwise noted above.
- 2.7.2.2 Install/Configure all equipment to manufacturer's specifications maintaining Federal, and Local safety standards
- 2.7.2.3 Installation/Configuration must be completed by April 30, 2018. All work shall be completed between 8:00 a.m. and 4:30 p.m. Monday – Friday. All federal holidays, excluded. Federal holidays are available at the Federal Holiday OPM Site.
- 2.7.2.4 If there is an operational conflict with installation, night or weekend installation may be required. Government will provide a 72 hours' notice of change of installation hours.
- 2.7.2.5 The contractor shall coordinate all deliveries, staging areas, installations, and parking arrangements with the COR.
- 2.7.2.6 The Contractor shall remove all related shipping debris and cleanup any construction associated with delivery and installation of the specified items. Contractor shall remove all packaging from the SLVHCS premises. The Contractor shall be responsible for any damage to the building that occurs due to Contractor error or neglect.

2.8 SITE CONDITIONS

- 2.8.1 There shall be no smoking, eating, or drinking inside the hospital at any time.

3. INSPECTION AND ACCEPTANCE:

- 3.1 The Contractor shall conduct a joint inspection with the COR upon delivery of equipment.
- 3.2 Contractor shall provide dates of completion of punch list items and replacement parts and/or short ship items from the manufacturer(s).
- 3.3 The COR shall ensure all work is completed satisfactorily prior to acceptance. Disputes shall be resolved by the Contracting Officer.

4. DELIVERABLES

- 4.1 Operation and Maintenance Manuals
 - 4.1.1 Binders - Quantity (1) for each line item
 - 4.1.2 Digital Copies- Quantity (1) for each line item

4.2 Deliver compilation of all manufacturer recommended maintenance schedule and operation materials packaged in binder(s) to COR upon completion of installation.

5. OPERATOR TRAINING:

5.1 Contractor shall provide On-site training of the equipment to the Users. Scheduling of operator training shall be coordinated with the SLVHCS COR after installation is complete.

OR

5.1 Not Applicable

6. PROTECTION OF PROPERTY

6.1 Contractor shall protect all items from damage. The Contractor shall take precaution against damage to the building(s), grounds and furnishings. The Contractor shall repair or replace any items related to building(s) or grounds damaged accidentally or on purpose due to actions by the Contractor.

6.2 The Contractor shall perform an inspection of the building(s) and grounds with the COR prior to commencing work. To ensure that the Contractor shall be able to repair or replace any items, components, building(s) or grounds damaged due to negligence and/or actions taken by the Contractor. The source of all repairs beyond simple surface cleaning is the facility construction contractor (or appropriate subcontractor), so that building warranty is maintained. Concurrence from the VA Facilities Management POC and COR is required before the Contractor may perform any significant repair work. In all cases, repairs shall utilize materials of the same quality, size, texture, grade, and color to match adjacent existing work.

6.3 The Contractor shall be responsible for security of the areas in which the work is being performed prior to completion.

6.4 Contractor shall provide floor protection while working in all VA facilities. All material handling equipment shall have rubber wheels.

7. WARRANTY

8.1 The contractor shall provide a minimum one-year manufacturer's warranty on all parts and labor. This warranty will begin upon opening of the SLVHCS Research building.

8.2 The warranty shall include all travel and shipping costs associated with any warranty repair.

8. SECURITY REQUIREMENTS

8.1 The Authorization & Accreditation (A&A) requirements do not apply and a Security Accreditation Package is not required. See Attachment 1 for Security Requirements.

8.2 See Attachment 1 (Att_1_PWS_Security Requirements) for additional requirements.