

Open Tender Notification for the procurement of “Nucleic Acid Expression Analysis & Gel Imaging workflow” at the Indian Institute of Science, Bangalore

(Last date of submission of tenders: 2nd July 2021)

(TENDER FROM DOMESTIC VENDORS)

Date: 18.06.2021

Dear Sir/Madam,

Please send your quotation valid for 90 days for the supply of equipment described below. Your quotation should clearly indicate the terms and conditions of the quotations, delivery, delivery schedule, entry tax, payment terms, warranty coverage etc. The tender should be submitted in two separate sealed envelopes – one containing the “Technical bid” and other containing the “Commercial bid”, both of which should be duly signed and must reach the undersigned on or before 17:00 hours 2nd July 2021.

Please note:

1. Quote should come only from Indian Original Equipment Manufacturer (OEM) or their Indian authorized distributor.
2. The quotations should be on FOR-IISc Bangalore basis in INR only

Quote/bids should be addressed to:

**The Chair
Department of Biochemistry
Division of Biological Sciences
Indian Institute of Science
Bangalore-560012
Karnataka, India**

High-sensitive Chemiluminescence imager:

1. System with true 16 bit CCD (not A/D) camera; pixel density of 65,536 gray levels.
2. Individual pixel size should be at least 4.54 x 4.54 μm or bigger.
3. Camera resolution should be more than 6 megapixel.
4. The instrument should provide excellent quantitative data from a single blot having very intense and weak signals in a single image; to facilitate the same instrument's dynamic range should be at least 4 orders of magnitude for all applications (please support with relevant technical data)
5. Instrument should have Stain-Free Imaging- This allows visualization, verification, and validation at all steps of electrophoresis and blotting, potentially saving time wasted on western blots with problems that would not otherwise have been detected until the later stages of blot processing and development.
6. Instrument should provide highest level for sensitivity and hence must have minimal dark current with maximum limit of 0.002 e/p/s and low read noise of not more than 6e-.
7. The camera should have peltier based cooling.
8. Quantum efficiency at 425 nm should be 70% or more, this will ensure that the instrument is highly sensitive to very faint signals from chemiluminescent blots.
9. Motorized zoom fast lens with f/0.95 or better should be provided.
10. Light sources/excitation should include – Trans-UV (302 nm), Epi White, trans-white (requires White sample tray), stain-free and should have option of trans-blue light (for SYBR safe DNA application), Epi-Blue (460-490 nm), Epi-Green (520-545 nm), Epi-Red (625-650 nm), Epi-far red (650-675 nm), Epi-near IR (755-777 nm)
11. Instrument should have provision for protective UV shield for use during band excision with safety interlocks to avoid un-intentional UV exposure to the user.
12. Minimum imaging area for white light and chemiluminescence application should be 20.5 cm x 16.5 cm.
13. Should provide image acquisition with automatic zoom, focus, and iris adjustment without the need for users to focus or adjust aperture settings.
14. The instrument should have onboard attached touchscreen of 12" or bigger with multi-touch capability (2 points) enabling users to easily interact with the touchscreen to acquire, assess and export images. Touchscreen actions should include – tap, double tap, pan, scroll and pinch to zoom.

15. Instrument should have multiple input/output ports with minimum 3 USB ports allowing users to connect USB devices (like keyboard, mouse, data storage, and printer). One USB port should be provided on the front panel for easy export to USB. Also, system should have one Ethernet port so that users can transfer image files via Ethernet to networked computers.

16. Factory calibrated flat fielding for ensuring uniform data for all applications. System should be calibrated for image area, focus, and flat field correction at the factory and files stored in the integrated PC.

17. Users should be able lock the system to prevent other users from interrupting a long acquisition or changing the settings

18. The system should have a fixed sample stage.

19. The system should provide flexibility in selecting the pixel binning options, should be possible to select minimally 2x2, 4x4 and 8x8 binning.

System Software

1. Software should have highest level of automation in hardware calibration, image optimization, capture, and analysis.

2. Should have automated workflow recorded in a protocol file from image capture to results thus eliminating need for training.

3. Should allow 100% repeatability of the workflow by any user and ensures optimized image data and analysis from a gel in a single uninterrupted, fast, and completely reproducible workflow.

4. Should have automated image capture driven by a selected gel or blot application.

5. Software should have automated normalization feature for normalizing western blot signals of target band with either a housekeeping protein band or total protein load of a sample.

6. Should generate publication ready images with user defined dpi, dimension and format with one click export option thus eliminating the need of using other software like Photoshop.

7. Should generate customizable reports.

8. Should have feature for Automatic print when only imaging and printing is required.

9. Software should have easy copy/paste functionality, crop, zoom, 3D and colors.

10. Signal Accumulation Mode (SAM) for easy optimization of exposure time for chemiluminescent detection.

11. Software should be both PC and Mac compatible.

12. Software should be provided for minimum 20 users with license for complete acquisition and analysis features.

13. Software should be able to export images on a 16-bit and 8-bit tiff images with a one-click export option.
14. Software should be able to export images in multiple formats with minimum options of exporting in .tiff, .png, .jpg and .bmp
15. Software should have unlimited undo and redo functions to easily correct for any missteps with additional features like easy copy/paste, crop, zoom, 3D viewer and colors.
16. Should be single software for acquisition and analysis.
17. The software provided should have minimum 10 citations in peer-reviewed international journals for use in western blot normalization using stain-free technology/method. Please attach the publications in technical bid highlighting the same.
18. Automated image capture optimized for each selected gel or blot application - Software should automatically select the appropriate filters, light sources, and camera settings for all applications. The software should ensure that image optimization is specific to a selected gel or blot application or can be used for a large portfolio of detection methods. Applications include chemiluminescent, colorimetric, and fluorescent blots, and nucleic acid and protein detection via colorimetric and fluorescent stains.

96-well quantitative rea-time PCR machine specifications

1. Real-Time PCR Detection System Should be six-channel, five colors and one dedicated FRET channel for FRET assay, system should allow excitation and detection of up to five fluorescent dyes in a single reaction well.
2. System should have Capacity of 96-well plate format should be compatible with 8-tube strips; 0.2ml tubes with optical clear lids
3. System should set up quickly with easy installation and factory-calibrated optics with no periodic calibration.
4. System should be able to upgrade to high throughput in future to 384 well by interchangeable block with the same base.
5. System can run real-time PCR experiments without being attached to a computer. When operated as a stand-alone instrument, the instrument will save up to 100 run files.
6. Real-time data traces can be viewed during a run from the thermal cycler base.
7. System includes an automated lid that opens, closes, and can apply sealing force to reaction wells.
8. System should have Thermal gradient enables optimization of multiple temperatures in a single assay, Temperature differences of up to 24°C front-to-back can be created.
9. System should have Row wise Peltier-driven thermal cycler features a maximum ramping speed of 5 °C/sec or more, with an average ramp rate of 3.3 °C/sec.

10. System should have a thermal block operational range of 0–100°C.
11. System should have Sample block temperature accuracy is +/-0.2°C of programmed target at 90°C, with a uniformity of +/-0.4°C well-to-well within 10 seconds of arrival at 90°C.
12. System should have Optical system allows excitation and detection of up to five fluorescent dyes in a single reaction well.
13. System should have Optics shuttle independently illuminates and detects fluorescence from each well. The system uses five filtered LEDs for illumination and differentially detects emission using five filtered photodiodes (one for each channel).
14. System should have Innovative Optical Design Shuttle Scanning just above the sample plate which can work without a Reference Dye or normalization Dye to reduce reagent cost.
15. System should have Fixed optical path, directly over each well, eliminates the need to normalize for positional bias.
16. System should have Optics shuttle excites fluorescent dyes with absorption spectra in Range of excitation/emission wavelengths 450–730 nm.
17. System should have One channel is dedicated for FRET experiments — illuminate dyes with absorption spectra in the 450–490 nm range and detect dyes with emission spectra in the 560–580 nm range.
18. System should read all 96 wells in all channels in less than 10 seconds. In fast scan mode, the system should read all 96 wells within 3 seconds.
19. System should have a linear dynamic range of 10 orders of magnitude for detection of input samples.
20. System should Detects one copy of target sequence in human genomic DNA.
21. System should have Reaction volumes from 1–50 µL can be used, 10–25 µL recommended.
22. System should Detects ≤ 10 fmol of fluorescein.
23. System should have Dynamic Ramping feature
24. System should have Reduced-mass honeycomb sample block-fast ramping and settling produce the shortest time to target temperature
25. System should have Optical reaction modules are interchangeable; the instrument base can be converted between any of the following formats: 96Well, 384Well, 96 Deep Well by exchanging the optical reaction module unit.

26. System should have O-ring hermetic seal extends the life of the heating and cooling elements. Condensation from constant heating and cooling can degrade thermal electric modules (TEs), causing them to fail.
27. System should be supplied with licensed free software with multiple users.
28. System should be supplied with Starter Package of consumables Hard-Shell Low-Profile Thin-Wall 96-Well Skirted PCR Plates with Microseal 'B' Adhesive Seals and reagent SsoAdvanced Universal SYBR Green Supermix.
29. Real-time PCR should be licensed for Research Use.
30. Should have application & service support based in Karnataka from manufacturer for the quoted model, support document to be submitted
31. System should have Minimum 25 Installation in Karnataka COVID lab, list should be submitted along with few reference letters for the quoted model.
32. Small footprint Dimensions (W 33cm x D 46 cm x H36 cm)