INDIAN INSTITUTE OF TECHNOLOGY BOMBAY
MATERIALS MANAGEMENT DIVISION
Powai, Mumbai 400076

Purchase Requisition No. 1000011391 (SRM/RFX No. 6100000164)

Technical specification of Muliplexed Imaging Cell Analysis System

1. The automated imaging system must operate and capture images from within a standard tissue culture incubator so that precise control of temperature, humidity and other environmental factors such as CO2 and oxygen can be maintained.
2. The optics must move to the areas being imaged. The cell culture vessels must remain stationary during this process. Stationary optics and stage driven vessel movement are not acceptable.
3. The system must be capable of simultaneously imaging any mixture of 6 assay plates that conform to the ANSI/SLAS standard for assay plates. These include 384-well microplates, 96-well microplates, 48-well plates, 24-well plates, 12-well plates, and 6-well plates.
4. The system must accommodate the following but must not be limited to the following plastic tissue culture vessels: 92.6 cm^2 Roboflask, 500 cm^2 Tripleflask, 84 cm^2 Autoflask, 225 cm^2 flasks, 185 cm^2 flasks, 182 cm^2 flasks, 175 cm^2 flasks, 162 cm^2 flasks, 150 cm^2 flasks, 75 cm^2 flasks, 25 cm^2 flasks, 35mm dishes, 60 mm dishes, 100mm dishes, 150mm dishes, chambered slides and microslides.
5. The system must possess fully automated, hands-free operation for periods exceeding 25 days and must be designed to autofocus and auto expose without intervention during this time period. The automated imaging system must return to the same location in a repeated fashion without error over this same time period.
6. The software must be capable of generating label free, time based, growth curves for cells.
7. The software must be able to mask, quantify and generate time-based curves based on fluorescence metrics including but not limited to: Fluorescent Count, Fluorescent Average Area, Fluorescent Total Area, Fluorescent Confluence, Fluorescent Mean Intensity, Fluorescent Average Integrated Intensity, Fluorescent Total Integrated Intensity, and Fluorescent Eccentricity.
8. Control of the system must be distributed over a network and the client software must be able to elicit control of the automated imaging system from any networked computer. Unlimited licensees of the client software must be available. The client software must not operate using a client computer license key or dongle.
9. The system must perform whole-well imaging for selected vessels and include software for image navigation and panning, clone registry, and a physical vessel marking tool to mark vessels for clone picking.
10. The system must have high definition phase contrast optics and two fluorescent wavelengths (red: ex565-605nm, em625-705nm; green: ex440-480nm, em504-544nm). The fluorescence optics must be capable of reading YoPro-3, mKate2, GFP, YFP, Alexa 488, intercalating DNA dyes, fluorescein or fluorescein derivatives.

11. The high definition optics of the system must image standard 384 well tissue culture plates or any ANSI/SLAS standard assay plate without any sidewall or meniscus effects.
12. The system must have the following objectives: 4x PLAN APO, 10x PLAN FLUOR, and 20x PLAN FLUOR.
13. Data storage capacity on the system must consist of at least 10 TByte in the form of a RAID Array design.
14. Must have software capable of autofocusing on, capturing images from and measuring cell density on the top and bottom side of directed cell migration or chemotaxis plates.
15. Should be supplied with Cell Migration / Wound healing & Neurotracker software
16. Should be provided with a Wound Maker with 96 Channels to make a scratch / wound in each well of a 96 well Microplate
17. Should be supplied with a Multi-Mode Microplate Reader with following specifications
    a. The Detection Methodology should be Integrated Monochromators and filters. All should be possible as standard.
    b. Combined use of Monochromator and Filter for Fluorescence
    c. Detection Modes should be Fluorescence Intensity - including FRET, Luminescence (glow) - including BRET, UV/Vis Absorbance,
    d. Should be upgradeable at site to Fluorescence Polarization, Laser AlphaScreen, AlphaLISA, HTRF
    e. Endpoint and Kinetic measurements, Spectral Scanning in Absorbance and Fluorescence and Luminescence measurement in both Filters and Monochromator
    f. Variable Bandwidth, at least >50nm
    g. Light Sources should have High energy xenon flash lamp.
    h. Separate Detectors for Fluorescence and Absorbance
    i. Should have Automated focal height adjustment for both top and bottom reading
    j. Top & Bottom Reading in Fluorescence and Luminescence
    k. Bottom Reading in Fluorescence and Luminescence
    l. Shaking should have Linear, orbital, and double-orbital with user-definable time and speed
    m. Onboard Incubation +3°C above ambient to 45°C
    n. System should be upgradeable to Atmospheric Gas Control
    o. Software should be 21CFR Part 11 as standard
    p. Instrument should be supplied along with branded desktop (intel core i3/i5, minimum 4 GB RAM, 500 GB Hard disk).
18. Must be supplied with following accessories
    a. Adapter for 35mm, 60mm, Glass Slides, TC Flash, SBS Plates : 2 sets each
    b. 100 Cell Migration Plates

19. Warranty – The instrument should be supplied with 3 Years Warranty. The Warranty Cost should be included in the Instrument Cost.