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

Technical Specifications of Benchtop Flow Cytometer
RFx No. 6100001311 (Reference No. 1000030602)

1. **Laser Configuration:**
   Bench top flow cytometer with at least 3 lasers i.e. 488 nm blue laser with 50 mW power (or more), 405 nm Violet laser with 80 mW power (or more), and 633-642 nm red laser with 50 mW power (or more).

2. **Detection Parameters:**
   The system should have a minimum of 15 parameters, including 13 for fluorescence detection, and more colour analysis capabilities simultaneously along with FSC & SSC.

3. **Optics:**
   The light collection must be carried out by wavelength division multiplexing (WDM) technique for higher sensitivity.

4. **Photon detector:**
   The system should have a Photomultiplier tube with acoustic focusing/ highly sensitive Avalanche Photodiode Detector (APD) for fluorescent detection of particle size range (0.08 μm or even smaller).

5. **Alignment:**
   System should have alignment free optical cuvette flow cell design to avoid any user level alignment for day to day run of the instrument.

6. **Analysing events:**
   System should have a capability to analyze at least 30,000 events per second or more.

7. **Resolution:**
   The resolution 3% CV (or better) preferably at all flow rates.

8. **Cell counting:**
   The flow cytometer should be able to give absolute counts without use of reference counting beads.

9. **Monitoring software:**
   The software should allow automated start up, performance tracking and shut down capability.

10. **MESF (molecules of equivalent soluble florochrome):**
The system should provide superior sensitivity to measure events with low antigen expression and application with dim fluorescence staining which is achievable by high efficiency, low-noise.

11. **Sample loader:**
   The system should use semi-automatic Single Tube Loading must hold 1.5ml tubes and Fluidics should provide continuous flow and volumetric measurements integrated into compact footprint.

12. **Cross contamination with samples:**
The system should have a carryover of less than 1% in single tube format and less than 0.5% in 96 well plate format.

13. **Compensation setup:**
The system software should support offline and online compensation. The system should be capable of storing repository of compensation spillover values of dyes in a library to easily determine the correct compensation matrix with virtual multicolor panel and/or with new gain/Voltage settings.

14. **Sample flow rate:**
System should be able to process samples at sample flow rates between 10 µL and 240 µL per minute providing high sensitivity and adjustable flow rates allowing sample sizes as low as 10 µL for rare population collection.

15. **Flow cell design:**
System should have alignment free optical cuvette flow cell design with >1.3NA

16. **Gain and threshold setting:**
The system should have a full analysis software featuring time saving functions such as "linear gain" to automatically modify compensation following gain setting changes and "auto threshold" function whereby the software can automatically set the threshold based on population scaling in order to easily find target population.

17. **Code of Federal regulation (CFR) compliances:**
The Software must be 21CFR part 11B compliant. Electronic Records Management installation should provide tools that facilitate compliance with 21 CFR Part 11, Electronic Records and Electronic Signatures

18. **Analysing software licence:**
The accompanying analysis software must be available for unlimited download and usage.

19. **Workstation:**
Data management system: Should be supplied with suitable PC workstation with latest configuration (Windows 10, 7th gen Intel i5 with 8GB RAM and 1 TB storage)

20. **UPS:**
3Kva UPS with 30 minutes backup for the instrument

21. **Warranty:**
Five years warranty with parts and laser replacement