**Scope of Tender & Specification**

**1.** **Introduction**

The University of Westminster (hereafter referred to as the University) wishes to procure a Flow Cytometer Instrument. The University’s requirements are set out below.

**2. Context**

2.1 The University is an established teaching and research university located in central London. The School of Life Sciences is currently upgrading the teaching laboratory space, and as part of this would like to seek tenders for a new flow cytometer instrument to complement the two existing instruments which have been serving the school for over ten years now. The new instrument will primarily be utilised in teaching undergraduate students and also be capable of delivering high quality results in research oriented flow cytometry.

2.2 The new instrument which will be required to be delivered prior to the university financial year end of 31st July 2019 should be able to support a demanding teaching and research programme that includes a wide range of investigations including but not withstanding:

2.3 The teaching use of the required instrument requires a robust and stable performance coupled with the ability to perform diagnostic tests used in a modern haemato-oncology laboratory. It is important that our students are trained on and become familiar with instruments used in the state of the art immune-phenotyping procedures. This includes detection of up to forty cell surface markers of differentiation critical for diagnosing malignancies with excellent quality control and rapid data analysis.

2.4 The flow cytometry data analysis software available for teaching must be intuitive and allow generation of graphs and data reports, that can be used for students’ coursework and exported into word, power point, pdf and other commonly used file formats. Furthermore, additional software packages should be available for offline analysis of data on remotely based PC’s.

2.5 For the purposes of research the instrument should be capable but not limited to investigating cell health status, from viability to late-stage apoptosis or programmed cell death, cell cycle status, providing a powerful tool to assess cells in G0/G1 phase versus S phase, G2, or polyploidy, including analysis of cell proliferation and activation and, the Identification and characterization of distinct subsets of cells within a heterogeneous sample, including distinguishing central effector memory cells from exhausted T cells or regulatory T cells.

**3. Scope & Specification**

3.1 The provision of a Flow cytometer instrument for a research/teaching laboratory with flexible upgrades, including additional lasers and colours/fluorescence detectors. An expandable high-parameter flow cytometer that can grow with the laboratory research, and teaching needs with a feasible upgrade to a 6-7 laser instrument.

3.2 Compact and able to sit on top of a benchtop/table; dimensions max W x D x H = 120 x 80 x 100 cm (<160 kg).

3.3 0A minimum of 4 high power lasers (>30 mW): violet, blue, yellow-green, red (405 nm, 488 nm, 561 nm, 638 nm).  A UV laser would be desirable, but not essential. Equipped with four-five lasers with up to 16 different wavelengths and delivered by fiber optics to detect FSC, SSC and up to 18 colours simultaneously. Ability to analyse rare cells (<0.1% of total cell population) and a wide range of cell sizes and sub-cellular particles (microparticles/exosomes).

3.4 Fluorescence sensitivity for PE <30 molecules of equivalent soluble fluorochrome (PE-MESF).

3.5 The fluidics system should be based on hydrodynamic focusing. The flow cell should be in fixed alignment with the laser and collection optics to maximizes signal detection and increase instrument sensitivity and resolution.

3.6 The optical pathway and the sample core light stream should be fixed so that laser alignment is constant from day to day and from experiment to experiment.

3.7 Data acquisition rate >30,000 events/second. The software sample acquisition should have the ability to make inter and intra-laser compensation, pre- and post-acquisition compensation and multiple parameter thresholding.

3.8 A flexible and intuitive software package for data analysis that allows post-acquisition changes in parameters.

3.9 A 1 year standard warranty, plus 4 years extended warranty in the form of a comprehensive service contract to cover all aspects of after sales support including rapid spare parts availability, 24 hour service engineer call-out, accessible online support for students and staff.

3.10 An inclusive training package to include full instrument training for a minimum of two academic staff members, plus two technical staff plus detailed service support training for a minimum of two designated technical staff either on site on at an alternate location.