FLORIDA AGRICULTURAL AND MECHANICAL UNIVERSITY

SOLE SOURCE CERTIFICATION

Requisition Number: 204825 **Bid #** _____

In accordance with authority granted under Florida A & M University Regulation 6.005(10) (b), the following documentation is submitted in support of a request to purchase the items(s) listed below that are only available from one vendor.

Vendor: Luminex Corporation

Account Number: **Cost $** 177,388.50

Item(s):

Justification: (Describe efforts made, vendors contacted, prices quoted, specifications required, availability, compatibility, decision/reason for selection). See attached for justification.

Highly specialised equpiment, supplied by Luminex only, to be used to support the development of the Doctoral program in Biology.

Please see the attached for justification.

I, the undersigned, certify the above to be true and correct to the best of my knowledge and belief.

Danielle P. Nicholson | Graduate Coordinator | 07/07/2020

Signature **Title** **Date**

I, the undersigned designee of the Florida A & M University Purchasing Office, as delegated in Regulation 6.005(10) (b), (or a designee delegated the authority as described in. **hereby concur { } do not concur { }** with the above justification and **recommend { } do not recommend { }** the procurement of the above as a sole source. If applicable, the reason(s) for disapproval are:

Mattie Hood

Digitally signed by Mattie Hood
DN: cn=Mattie Hood, o=FAMU, ou=Office of Procurement Services, email=mattie.hood@famu.edu, c=US
Date: 2020.07.13 09:51:12 -04'00'

Director of Procurement Services **Date**

I, the undersigned designee, acting for and on behalf of the University President pursuant to the delegation authority **approve { }, disapprove { }** the procurement of the above as a sole source. If applicable, the reason(s) for disapproval are:

Alan D. Roberson 7/24/2020

VP, Administrative and Financial Services **Date**

POSTED FROM July 30, 2020 **TO** August 4, 2020

DATE **TIME** **DATE** **TIME**

FAILURE TO FILE A PROTEST WITHIN THE TIME PRESCRIBED IN REGULATION 6.005(9) (K), SHALL CONSTITUTE A WAIVER OF THE RIGHT TO PROCEEDINGS.

Revised 08-12 sf

Luminex

Sole Source Declaration

Unique Features, Capabilities and Selling Points of the Amnis® ImageStream®X Mk II Imaging Flow Cytometer

This document confirms Luminex Corporation is the sole manufacturer of the Amnis® ImageStream®X Mk II Imaging Flow Cytometer.

The ImageStream^X Mk II System is a unique combination of flow cytometry and very fast, high-resolution fluorescence microscopy. The special features of this technology are based on the fact that it is not only capable of measuring the intensities of fluorescence associated with cells or particles, but it also provides high resolution images of every cell at the same time. These images enable many morphological parameters to be determined, as well as different cell populations to be differentiated accurately and with minimal false positive or negative identification. The ImageStream^X Mk II is capable of measuring up to 12 images per cell at 5,000 cells per second (=300,000 cells per minute), which enables the user to identify rare populations of cells with a very high degree of accuracy. The technology is therefore also suitable for heterogeneous cell population analysis.

By combining brightfield, darkfield, and multiple fluorescent images of each cell, along with the speed necessary to image statistically significant numbers of rare cells, researchers can make determinations no other single instrument alone can achieve. Examples of unique capabilities and bioassays reported in the scientific literature on the ImageStream^X Mk II System include:

- **Visual verification of every cell:** Unlike conventional flow cytometry, imaging cytometry allows gate boundaries to be optimized via visual feedback for improved population definition and identification of outliers and artifacts.
- **Nuclear translocation:** Rapid measurement of transcription factor localization to the nucleus is not possible using flow cytometry without imagery, while traditional microscopic techniques offer limited quantitation and statistics.
- **Receptor co-localization:** This technique is not possible using flow cytometry without imagery, and traditional microscopy offers limited quantitative and statistical power.
- **Cellular activation and apoptosis in cell mixtures:** Using flow cytometry, there is often confusion between apoptotic and necrotic cells, while microscopy is rate-limiting to achieve a statistically relevant number of cells analyzed.
- **Morphological cell classification of heterogeneous mixtures:** This is not possible without high resolution imagery and a statistically relevant number of cells. The IDEAS® Software included with the ImageStream^X Mk II System provides many objective measures of cell morphology.
- **Biological consequences of cell-cell interactions:** Using cell specific labeling methods, reports in the literature describe both homogeneous and heterogeneous cell mixtures studied on the ImageStream^X Mk II System.
- **Cell clusters:** An important aspect of cell analysis is cell interactions. It is not possible to interrogate cell clusters on a flow cytometer without images.
- **Component analysis:** Direct measurement of individual cellular components within a cell is a unique feature of the imaging flow cytometer, which enables interrogation of individual particles or organelles within a cell.
- **Fluorescence In-situ Hybridization (FISH):** The analysis of such samples using classical microscopy takes a long time. With the ImageStream^X Mk II System, a large number of cells can be analyzed very quickly, and in some cases, with increased sensitivity, enabling the detection of rare events. Due to the higher throughput, analysis of FISH samples is now possible in a relatively short period of time with increased statistical significance.
- **Quantification of phagocytosis:** This is not possible using conventional flow cytometry. Microscopic analysis of this phenomenon is time intensive and therefore limits the statistical significance of results being collected.
- **Morphological changes:** These changes have been monitored using the complex migration assay methodology. When carried out using the ImageStream^X Mk II Instrument, the changes can be studied quicker, more efficiently, and more cost-effectively.
- **Internalization:** Collecting a statistically sufficient number of images using classic microscopy is time consuming and subjective. The ImageStream^X Mk II imaging flow cytometer can distinguish internal from external events rapidly and objectively within a heterogeneous population of cells.
- **Autophagy:** Verifying the autophagic flux by the co-localization of multiple probes is not possible without the imagery the ImageStream^X Mk II imaging flow cytometer provides.

- **Cell division analysis:** Detailed analysis of mitotic stages of cell division requires morphological information, which the ImageStream^X Mk II System can deliver. Since the different stages of division are transient, it is difficult to analyze these small sub-populations using microscopy at any one moment in time. The ImageStream^X Mk II Instrument delivers higher throughput, making it possible to analyze the sub-populations in a relatively short period of time.
- **Small particle analysis including extracellular vesicles:** Imaging flow cytometry, as performed with the ImageStream^X Mk II Instrument, with its combination of increased fluorescence sensitivity, low background, image confirmation ability, and powerful data analysis tools, provides a great tool to accurately evaluate EVs. Individual fluorescent particles of 20 nm are not only able to be detected individually, but also uptake and location within cells (internalization and co-localization) can be measured.
- **Cytokinesis-Block Micronucleus assay (CBMN):** Identifying micronuclei in dividing cells is currently a time consuming process done on a microscopy slide and takes many days to culture enough cells and many hours to analyze enough cells to gain significant results. The assay on the ImageStream^X Mk II Instrument is rapid and requires significantly less culture time and sample.
- **Unique reagents:** Reagents for imaging flow cytometry experiments are available to provide optimal retention of morphological parameters when internal probing is required. Optimized reagents for measuring protein aggregates in high concentration protein solutions are also available.

Performance Characteristics of the ImageStream^X Mk II Instrument

- A unique flow cytometer capable of producing high-definition images of cells in suspension.
- Collects pixilated intensity images from each collection channel including brightfield, scatter, and fluorescence.
- Utilizes time delay integration technology for image acquisition for maximum fluorescence sensitivity.
- Optional 96-well plate loader.
- Automatic feedback mechanism monitors and adjusts for changes in the position of cells in flow, keeping the vast majority of cells in focus.
- A complete self-test and self-calibration capability; (Amnis® ASSIST Self Calibration and System Verification Software).
- Analysis software able to analyze both intensity and morphological parameters at specific locations on, in, and/or between, cells and/or particles.
- Highly trained and experienced support teams available worldwide.

Features	Description
Images Per Cell	6 standard; 12 optional
Acquisition Speed	6 or 12 images per cell at 5,000 cells per second (20X objective); 2,000 cells per second (40X objective); and 1,200 cells per second (60X objective)
Number of Lasers	Up to 7
Excitation Wave Length and Lasers	**Standard**: Blue (200 mW, 488 nm), **Optional**: Blue (400 mW, 488 nm), Red (150 mW, 642 nm), UV (70 mW, 375 nm), Violet (120 mW, 405 nm), Green (200 mW, 561 nm), Yellow (300 mW, 592 nm), and Far Red (50 mW, 730 nm)
Side Scatter Laser	70 mW, 785 nm darkfield laser (Standard)
Magnification	**Standard**: 40X (0.75NA), **MultiMag Option**: 20X (0.5NA) and 60X (0.9NA)
Detection Limit	5 MESF
Image Size (Pixels)	1.0 x 1.0 µm (20X mag), 0.5 x 0.5 µm (40X mag), and 0.3 x 0.3 µm (60X mag)
Field of View	120 x 256 µm (20X), 60 x 128 µm (40X), and 40 x 170 µm (60X)
Sample Volume	20 µl - 200 µl

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For more information, please visit: luminexcorp.com/flow-cytometry-and-imaging

For Research Use Only. Not for use in diagnostic procedures. Products are region specific and may not be approved in some countries/regions. Please contact Luminex support at support@luminexcorp.com to obtain the appropriate product information for your country of residence.

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QUOTATION

FLORIDA A&M UNIVERSITY
Richard Long
1601 S MARTIN LUTHER KING JR BLVD
TALLAHASSEE, FL, 32307
United States

Our Ref: Q-00025760
7/06/2020
Expiration Date: 8/21/2020

Dear Richard Long,

Thank you for your interest in the following Flow Cytometry product(s). Attached please find a quote listing the catalogue numbers and prices of the items you requested.

At Luminex, our mission is to empower labs to obtain reliable, timely, and actionable answers, ultimately advancing health. We offer a wide range of solutions applicable in diverse markets including clinical diagnostics, pharmaceutical drug discovery, biomedical research, genomic and proteomic research, and food safety. We accelerate reliable answers while simplifying complexity and deliver certainty with a seamless experience. You can visit us on-line at www.luminexcorp.com for more information regarding Luminex products designed to advance your research.

Please don't hesitate to call if you have any questions or are in need of any additional information. We are eager to be of assistance.

Robert Dell'Orco
Luminex Corporation
rdellorco@luminexcorp.com

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Florida A&M ImageStream Sole Source Document

The ImageStream is a High-Content, imaging flow Cytometer, manufactured and distributed solely by Amnis, a division of Luminex Corporation. This novel system provides traditional flow cytometry performance, coupled with classic fluorescent microscopy. There is no other system on the market that can take up to 12 unique images of every cell, in up to 10 colors of fluorescence at a rate up to 5,000 events per second.

The ImageStream is designed and built much like a traditional flow cytometer; however, the spectrally-separated data is collected as images on a proprietary CCD camera system rather than as voltage measurements via photo multiplier tubes. The inherent sensitivity of the CCD array coupled with Amnis' patented Time Delay Integration technology (TDI) yields fluorescence sensitivity that is at least 10-fold better across all channels than traditional flow cytometers. This superior sensitivity allows the ImageStream to easily resolve rare and dim populations of cells.

The ImageStream also provides the most laser capacity and detection channels of any flow cytometer in its price range. The ImageStream can accommodate up to seven lasers and provides up to 12 detection channels, which can acquire up to ten channels of fluorescence, plus cell area and side scatter. More lasers and detection channels result in greater experimental flexibility for simultaneous detection of complex multicolor panels as well as for broader use in multi-user laboratory settings.

The ImageStream can generate images that are comparable to those produced by a 40X, fluorescence microscope. The Amnis IDEAS analysis software allows you to examine the images of any single cell or population of cells by simply clicking on a single dot or drawing a region around a population of interest. Visual verification of the ImageStream images will accelerate flow cytometry applications by simplifying and speeding assay development and troubleshooting.

Specifically, we will be using the system for the increased capabilities of imaging in flow, which produces quantitative microscopy data that cannot be generated by any other system on the market. By incorporating the Amnis technology, we will be able to generate novel data for applications in marine phytoplankton studies, which with current microscopic methodologies are time consuming, subjective, and qualitative. Now, we will be able to evaluate hundreds of thousands of cells very quickly, and produce quantitative results.

Additional advantages to campus investigators will be to visually confirm gating, examine unexpected populations, and quickly troubleshoot assays. Visual verification can make every flow user more productive by allowing them to easily see the cell images that underlie the histograms and dot plots.

The ImageStream is a powerful, high-performance imaging flow cytometry system that will enable or investigators to generate quantitative data, for a broad range of applications, which simply could not be generated by any other technique.

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QUOTATION

To facilitate processing your order, please provide this Quotation Number (Q-00025760) when submitting a purchase order to orders@luminexcorp.com

QUOTATION INFORMATION for:
FLORIDA A&M UNIVERSITY
Created Date: 7/06/2020
Quotation Number: Q-00025760
Expiration Date: 8/21/2020
Reference Number: 112355

PRIMARY CONTACT INFORMATION
Richard Long

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LUMINEX BUSINESS MANAGER
Robert Dell'Orco

rdellorco@luminexcorp.com

CUSTOMER LOCATION
1601 S MARTIN LUTHER KING JR BLVD
TALLAHASSEE, FL, 32307
United States

Freight Terms: No Charge- Do Not Add Freight Costs

PART NO.	QTY	DESCRIPTION	LIST PRICE (USD)	ADJUSTED AMOUNT (USD)	UNIT SELLING PRICE (USD)	EXTENDED PRI (USD)
100220	1	Amnis ImageStreamX Mk II System: 488 nm, 200 mW excitation laser; six high resolution imaging channels; 40X, 0.75NA objective; 785 nm darkfield laser; IDEAS software - single seat license pre-installed. One year (12 months) manufacturer's warranty. Made in the USA.	201,949.00	55,208.88	151,461.75	151,461.
200136	1	Red Excitation Laser - 642 nm, 150 mW	25,182.00	6,295.50	18,886.50	18,886.
610303	1	ImageStream Installation	9,387.00	2,346.75	7,040.25	7,040.

*Any State or Local Sales Tax, VAT, excise tax, and import duties are the responsibility of the buyer and is not included in this bid.

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QUOTATION

TOTALS SUMMARY

		TOTAL EXTENDED PRICE (USD)
Payment terms: NET 30 **All prices quoted are in: USD** Prices are subject to Federal and Local Taxes as applicable.	**Sub-Total (USD)**	**177,388.50**
	TOTAL PRICE (USD)	**177,388.50**

Maintenance and Support coverage will only be initiated after fully executed Luminex Maintenance and Support Agreement is in place.

Luminex's Standard Terms and Conditions of Sale are incorporated by reference into this Quotation and any resulting contract. By issuing a purchase order or otherwise ordering or accepting products or services, you expressly confirm that you intend to be bound by and agree to the terms of this Quotation and Luminex's Standard Terms and Conditions of Sale to the exclusion of all other terms not expressly agreed to in writing by an authorized representative of Luminex. Luminex's Standard Terms and Conditions of Sale can be found at https://www.luminexcorp.com/terms-conditions-of-sale/

Thank you for your request. Please contact me for information.

Sincerely,
Robert Dell'Orco,
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