UNIVERSITY OF MISSISSIPPI

Notice of Intent to Certify Sole Source

SS 288

The University of Mississippi (UM) anticipates purchasing the item(s) listed below as a sole source purchase. Anyone objecting to this purchase as a sole source shall follow the procedures outlined below.

Commodity or commodities to be purchased (manufacturer, model, description):

10X Genomics, Inc. Chromium iX & Accessories

The need to be fulfilled by this item(s) and why it is the only one that can meet the specific needs of the department:

Our group needs a piece of equipment to perform single cell research, and no other instrument in the marketplace can be found that fits our need. This piece of equipment is compatible with equipment in our core facility that enables animal imaging, tissue harvest/digestion, and cell sorting. However, without the ability to do single cell analysis the core will not be able to complete the necessary workflow for high resolution biological analysis in the core facility. The Chromium X Series, powered by Next GEM Technology, provides a precisely engineered reagent delivery method that enables thousands of micro-reactions in parallel. Encapsulate a sample into hundreds to tens of thousands of uniquely addressable partitions in minutes, each containing an identifying barcode for downstream analysis. Each Gel Bead, infused with millions of barcoded oligonucleotides, is mixed with a sample, which can be individual cells or nuclei. Gel Beads and samples are then added to an oil-surfactant solution to create Gel Beads-in-Emulsion (GEMs), which act as individual reaction vesicles in which the Gel Beads are dissolved, and the sample is barcoded. Barcoded products are pooled for downstream reactions to create short-read sequencer compatible libraries. After sequencing, the resulting barcoded short read sequences are fed into turnkey analysis pipelines that use the barcode information to map reads back to their original single cell or single nucleus of origin. The Chromium X Series enables internet connectivity to the Cloud. The Chromium iX can be upgraded to the Chromium X through a software upgrade which activates compatibility for HT assays. A detailed explanation of the technology follows:

The Chromium Next GEM Single Cell Gene Expression Solution delivers a scalable microfluidic platform for 3’ digital gene expression profiling of up to 80,000 cells per run (up to 8,000 cells per low throughput run, up to 320,000 cells per high throughput run). In addition, the Feature Barcoding technology enables simultaneous profiling of additional cellular phenotypes (e.g. cell surface proteins, gRNAs). The 10x Next GEM Technology samples a pool of ~3.6 million barcodes to separately index each cell’s transcriptome. It does so by partitioning thousands of cells into nanoliter-scale GEMs, in which all generated cDNAs share a common barcode. Libraries are generated and sequenced from the cDNA, and barcodes are then used to associate individual

reads back to their individual partitions or cells. The Chromium X Series provide a complete solution for uncovering cell-to-cell gene expression and identifying rare cells in heterogeneous populations. Technical innovations and the Feature Barcoding technology allows the efficient creation of high complexity libraries from single cells to maximize information from any sample.

The Chromium X Series uses a microfluidic chip to provide high-throughput reagent delivery. The 8-sample cartridge is loaded with Gel Beads, Single Cell 3' reagents, a cell suspension and an oil-surfactant solution. Reagents and cells are combined to generate GEMs in such a way that single cells are partitioned with unique, cell-linked molecular barcodes. The simple workflow creates tens of thousands of GEMs per channel in an instrument run time of <18 minutes.

Unique Platform Characteristics:

- Generate single-cell transcript counts from up to 80,000 cells per run
- Produce >90,000 individual nanoliter-scale partitions leveraging ~3.6 million unique barcodes (~10k unique barcodes for LT)
- Capture cells at high efficiency up to 65% (up to 35% for LT)
- Low doublet rate of 0.9% per 1,000 cells (~8% for LT, ~0.5% for HT)
- Achieve deep profiling of complex cell populations with high-throughput digital gene expression of individual cells
- Access the whole transcriptome with an unbiased approach appropriate for discovery work, or focus on a subset of relevant target genes by performing target enrichment of the same library sample prior to sequencing
- Measure additional phenotypes with Feature Barcoding technology (including CellPlex)
- Provide turn-key analysis pipelines and visualization software for novice and expert users alike
- Include a microfluidics chip that is compatible with a wide range of eukaryotic cell sizes and types (e.g. adherent cell cultures, suspension cell cultures, tissues, blood, etc.)
- Rapid time to lysis provides an accurate view of the transcriptome with minimal impact on expression

Name of company/individual selling the item and why that source is the only possible source that can provide the required item(s):

10x Genomics is the only producer of the Chromium iX instrument and is the sole owner of the proprietary technology (Next GEM Technology) that enables single cell analysis by the instrument. Moreover, 10x only sells their instruments directly and not through any other vendors in the marketplace. As outlined above, the platform has a variety of unique characteristics that would be lost when considering competing technologies on the market, including: the ability to capture many cells at once, high efficiency of cell capture, low doublet rates, rapid analysis time, and compatibility with many cell and tissue types.

Why the amount to be expended for the commodity is reasonable:

This is actually one of the least expensive models that 10x or any other providers produce. Single Cell Technology requires state-of-the-art proprietary technology and many instruments are double the amount of this instrument.

Efforts that the agency went through to obtain the best possible price for the commodity:

We have developed a relationship with the 10x representative for our area, Nicky Hales. She made us aware of a promotional deal for the Chromium iX.

Submission Instructions and Format of Response from Objecting Parties:

Interested parties who have reason to believe that the item(s) above should not be certified as a sole source should provide information in the following format for UM to use in determining whether or not to proceed with awarding the Sole Source purchase.

1.1 **Interested Party Information**

1.1.1 **Contact Name, Phone Number, Address and email address**

1.1.2 **Company Website URL, if applicable**

1.2 **Objection to Sole Source Certification**

1.2.1 **Interested parties must present specific objections to the Sole Source certification using the criteria listed above.**

1.2.2 **A statement regarding the Interested Party's capabilities as related to this Sole Source Certification Request.**

1.3 **Comments will be accepted at any time prior to Monday, October 17, 2022 at 10:00 am (Central Time) to Katherine Jones at kajones4@olemiss.edu (with Cc: to purchase@olemiss.edu) at The University of Mississippi Procurement Services Department, 164 Jeanette Phillips Drive, PO Box 1848, University, Mississippi 38677. Responses may be delivered by hand, via regular mail, overnight delivery, or e-mail. The envelope or email should reference the sole source number. UM WILL NOT BE RESPONSIBLE FOR DELAYS IN THE DELIVERY OF RESPONSES. It is solely the responsibility of the Interested Parties that responses reach UM on time. Interested Parties may contact Katherine Jones to verify the receipt of their Responses. Responses received after the deadline will be rejected.**

If after a review of the submitted notice and documents, UM determines that the commodity in the proposed sole source request can be provided by another person or entity, then UM will withdraw the sole source certification and submit the procurement of the commodity to an advertised competitive bid or selection process.

If UM determines after review that there is only one (1) source for the required commodity, then UM will appeal to the Public Procurement Review Board for approval to purchase.