STATEMENT OF NEED (SON)

1.0 TITLE

Purchase of a Diagenode Bioruptor Plus sonicator instrument with 1.5 ml TPX microtubes

2.0 BACKGROUND

The NIH/NCI/CCR Cancer Genetics Branch is requesting the purchase of a Diagenode Bioruptor Plus sonicator with 1.5ml TPX microtubes. This equipment will be available to many PIs in our building, including Dr.'s Paul Meltzer, Peter Aplan, Natasha Caplen, Michael Lichten, Shiv Grewal, and Joanna Vidigal. PIs have been using a manual sonicator, but the results are variable. Research projects on epigenetics require sonication of crosslinked cells as an essential step, often involving many samples; an automated sonicator will help the lab obtain reproducible results

The Bioruptor consists of a high-power ultrasound generating element which is located below a sonication bath without any contact to the sample, unlike probe sonication, which requires the probe to be inserted into the sample. It uses a highly controlled ultrasonic energy with Adaptive Cavitation Technology (ACT) to accurately achieve random and unbiased shearing for different fragment lengths from 150 bp to 1 kb. The gentle ultrasound and a cooling system providing isothermal processing preserves the integrity of biological samples and ensures high sample recovery.
The Bioruptor sonication devices use a unique system to uniformly process multiple samples simultaneously in sealed tubes of 0.2 ml to 50 ml capacity (depending on the model). The design of the tube holders allows to sonicate 3 to 16 sealed tubes simultaneously (depending on the model) without risk of sample cross-contamination and aerosol formation improving biosafety. The continuous sample rotation guarantees equal distribution of the energy and ensures shearing consistency.

3.0 TYPE OF ORDER

This is a Firm Fixed-Price Purchase Order.

4.0 SPECIAL ORDER REQUIREMENTS

4.1 PRODUCT FEATURES/SALIENT CHARACTERISTICS

Diagenode's Bioruptor® Plus uses a gentle method of sonication to retain the integrity of DNA and/or biological complexes, including chromatin, protein-protein binding, protein-DNA complexes and other biochemical and biological assay systems; The built-in cooling system (water cooler and Single Cycle Valve) ensures high precision temperature control resulting in higher quality samples. An excellent device for shearing chromatin, cell and tissue disruption and many other applications

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- The Bioruptor® Sonication System uses a sonication bath to generate indirect sonication waves, which emanate from an ultrasound element below the water tank. Because the system is gentler than other sonicators, the Bioruptor® produces better and more consistent results than with harsher sonication methods. Ultrasounds are derived from magnets below the water tank without any contact to the sample, unlike probe sonication which requires probe insertion into sample. This technology was developed and patented by Diagenode.
    - § Unique patented resonance system indirectly transfers ultrasonic energy to samples without contact
    - § No aerosol formation - improved biosafety
    - § No risk of contamination between samples due to sealed tubes
    - § No tedious manipulation of probes
    - § Reduced "foaming"

- Up to 12 closed tubes can be sonicated in parallel on the Bioruptor Plus and the continuous rotation of tubes allows even distribution of the energy for efficient sonication and enables automation of sonication, guaranteeing higher reproducibility of results. Allows simultaneous sonication of multiple samples and sonication in different volumes
    - § Uniformly process multiple samples simultaneously in sealed tubes of 0.5ml to 50ml capacity on the Bioruptor Plus.
    - § Different adaptors available to sonicate various volumes. In a single run, it is possible to sonicate up to 12 X 0.5ml tubes, 6 x 1.5 ml tubes, 6 x 15ml tubes and 3 x 50 ml tubes
    - § Unique device for sonication of multiple samples in small quantities and volumes, down to 50 µl.

- Simple operating procedure
    - § Fully automated and walk-away system plus automatic power switch, no tuning button.
    - § Optimal sonication settings can be easily determined and used repeatedly
    - § Controlled flow of cold water between water chiller and water bath protects samples from heat
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- High shearing efficiency and highly reproducible results
    - § Continuous rotation of tubes allows even distribution of energy and temperature
    - § Tube holders always at the same height relative to the ultrasound source
    - § Better temperature control improves preservation of epitopes and sample quality
    - § Validated protocols are available for consistent data generation
    - § Allows standardized transfer of protocols between labs

The requested equipment will fit within the lab's existing space allocation.

- Control unit dimensions 350(W) x 260(D) x 165(H) mm; Sonication unit dimensions (sonication bath) 175(W) x 160(D) x 265(H) mm; Soundproof box dimensions 350(W) x 350(D) x 500(H) mm

4.2 DELIVERY / INSTALLATION

Item shall be delivered within 10 business days of receipt of purchase award. For Installation guidance, please reference pages 10-11 of the Bioruptor Plus manual. There is also an online video that can be referenced for installation guidance. Installation by a Diagenode employee can be requested and scheduled at no cost at the convenience of the lab personnel based on COVID protocols for visitors.

4.3 TRAINING

Guidance on use of the instrument can be found in the Bioruptor Plus manual. Training by a Diagenode employee can be requested at no cost via video call or in person based on lab personnel needs and COVID protocols for visitors.

5.0 PAYMENT

Payment shall be made once item has been delivered and accepted. Payment authorization requires submission and approval of invoices to the COR and NIH OFM, in accordance with the payment provisions listed below:

The following clause is applicable to all Purchase Orders, Task or Delivery Orders, and Blanket Purchase Agreement (BPA) Calls: PROMPT PAYMENT (JUL 2013) FAR 52.232-25. Highlights of this clause and NIH implementation requirements follow:

ELECTRONIC INVOICING INSTRUCTIONS
To All National Institutes of Health (NIH) Contractors/Vendors:
This notification is effective on **Wednesday April 1, 2020.**
The current national emergency and the need to protect Federal and Contractor staff has resulted in a change to NIH's invoice submission process. Effective Wednesday, April 1, 2020, all NIH contractors/vendors invoices should be sent electronically via email to the NIH Office of Financial Management (OFM) and the NIH Contracting Officer (CO) using the below electronic submission instructions.
On March 30, 2020, Governor Hogan issued a stay-at-home order for the state of Maryland where residents should not leave their homes unless it is for an essential purpose. Stay-at-home orders were also issued by the state of Virginia and the District of Columbia. Therefore, any mailed contractor/vendor invoices will be processed by NIH; however, significant delays are expected due to staff teleworking and complying with the stay-at-home orders. It is important that NIH contractors/vendors follow the below procedures in order to ensure smooth processing of invoices and timely payment.

Contractor/Vendor Electronic Invoice Submission to the Office of Financial Management (OFM):

The Contractor/Vendor shall:

- Send the invoice to the NIH centralized invoice email box: invoicing@nih.gov
- Follow the below format in the email subject line, which is a **must (**Note: The keywords and separating bars in **bold** must be present to identify the information.**)**

  Vendor: name of the contractor/vendor**|PO:** Contract Number/Task Order Number**|Invoice:**9999999
- Ensure that the body of the email and attached invoice must both include the contractor/vendor's correspondence email address in the below format (**bolded information must be present to identify information**):

  Correspondence email address: xyz@abc.com

  Note: See screenshot example below
- Follow the system size limits that apply to the email and each invoice: individual email attachments cannot exceed 5 megabytes each; and the email plus all attachments cannot exceed a total of 30 megabytes.
- Clearly identify a valid and complete contract number on each invoice
- Clearly identify a valid and complete order number on each invoice
- Clearly identify an accurate DUNS number on each invoice
- Not include confidential information such as Social Security Numbers (do not include TIN if it is a Social Security Number)
- Send one (1) invoice per email

The date/time that a valid invoice is submitted electronically to the email box (invoicing@nih.gov) will be the same date/time logged as that the invoice is received by NIH.

Please do not hand-deliver invoices to any NIH office. Please follow the above electronic submission instructions until further notice. In addition, please note that your contract or order will not be modified to reflect the above changes to the invoicing instructions. Failure to follow the above electronic submission instructions may result in invoice processing delays.

For Questions? Inquiries regarding the status of invoices such as receipt of invoices, due date, or payment of invoices should be directed to the OFM Commercial Accounts Branch, Customer Service Office at 301-496-6088. The office is open Monday-Friday from 8:30 am to 4:30 pm (eastern prevailing time). The Customer Service Office is closed daily between 12:00 pm to 1:00 pm (eastern prevailing time).Determination of interest and penalties due will be made in accordance with the provisions of the Prompt Payment Act, as amended, the Contract Disputes Act, and regulations issued by the Office of Management and Budget.