NIH NATIONAL CANCER INSTITUTE

Posting Date: April 9, 2024

Closing Date: April 19, 2024 11:30 a.m. ET

Reference Number: 24-024420

To: NCI Bid Board

From: Viviane Rivera
NCI CCR P-ARC
viviane.rivera@nih.gov

Subject: NCI Bid Board Posting – Identify biomarker signatures using non-coding RNAs in the Lung Chip model for different doses of radiation and time points

The National Cancer Institute (NCI), the Radiation Biology Branch research activities are focused on pre-clinical basic science research aimed at identifying and incorporating novel approaches to cancer treatment, evaluation, and prevention. A variety of approaches are evaluated at the molecular, biochemical, cellular, and physiological levels including the impact of the tumor microenvironment and metabolic mutations to improve cancer treatment. Intentional or accidental exposure of humans to ionizing radiation or a course of definitive radiation therapy can lead to cancer induction or second malignancies. Research studies are directed to identify interventions to delay or prevent radiation-induced cancer after the exposure has occurred. Emphasis is placed on gaining a better understanding of the mechanisms of cell killing and protection and the activation/inhibition of complex signaling pathways mediated by oxidative stress, including ionizing radiation, reactive oxygen species (ROS), and reactive nitrogen species (RNS).

The primary objective of this purchase is improve our understanding of how radiation injury can impact normal human liver. This data is important for protecting normal liver tissue in cancer patients after radiation and civilians exposed intentionally or accidentally to radiation.

The National Cancer Institute plans to purchase sets of mRNA, lncRNA and microRNA data sets to identify relevant signals for classification between radiation-injury responses from Gryphon Scientific, LLC. This is not a request for competitive quotation. However, if any interested party believes it can meet the attached requirements, it may submit a statement of capabilities. The capability statement must be in writing and must contain information and material in sufficient detail to allow NCI to determine is the party can fully meet this requirement. The capability statement must be received in the contracting office by 11:30 AM on April 19, 2024. ET. A determination by the Government not to compete this requirement based upon responses to this notice is solely within the discretion of the Government. Information received will be considered solely for the purpose of determining whether to conduct a competitive procurement.

Sole Source Justification:

Gryphon Scientific is the only supplier with ALL these needed areas of expertise and experience. Gryphon has personnel who are experienced in manipulating large data sets. Laurel MacMillan of Gryphon has a Master of Science in statistics, with years of experience in analyzing biomedical data sets that are MORE complex than the dataset in this project. Moreover, she has experience programming in the open-source platform “R” to clean data and develop classifier models.
Gryphon Scientificis the only company that can provide the specialized service required to do the analysis for the signature development using RNA bio markers. We have done similar data analysis work with Gryphon Scientific previously; prior awards for similar work with Gryphon

Attached Documents:
SF18
Statement of Work

REQUEST FOR QUOTATION
(THIS IS NOT AN ORDER)

THIS RFQ [X] IS [ ] IS NOT A SMALL BUSINESS SET-ASIDE

PAGE 1 OF PAGES 1

1. REQUEST NO.	2. DATE ISSUED	3. REQUISITION/PURCHASE REQUEST NO.	4. CERT. FOR NAT. DEF. UNDER BDSA REG. 2 AND/OR DMS REG. 1	RATING
POTS 24-024420	04/08/2024	POTS 24-024420		

5a. ISSUED BY

6. DELIVER BY (Date): 08/31/2024

5b. FOR INFORMATION CALL (NO COLLECT CALLS)

NAME	TELEPHONE NUMBER	
	AREA CODE	NUMBER
Viviane Rivera	240	760-7125

7. DELIVERY: [ ] FOB DESTINATION [X] OTHER (See Schedule)

9. DESTINATION

a. NAME OF CONSIGNEE: Molykutty Aryankaylayil 301-496-1083

8. TO:

a. NAME	b. COMPANY	b. STREET ADDRESS
	Gryphon Scientific, LLC	10 Center Dr Rm B3B406

c. STREET ADDRESS	c. CITY
1 Halfyard Drive	Bethesda

d. CITY	e. STATE	f. ZIP CODE	d. STATE	e. ZIP CODE
Brookline,	NH	03033	MD	20892

10. PLEASE FURNISH QUOTATIONS TO THE ISSUING OFFICE IN BLOCK 5a ON OR BEFORE CLOSE OF BUSINESS (Date): 04/19/2024

IMPORTANT: This is a request for information and quotations furnished are not offers. If you are unable to quote, please so indicate on this form and return it to the address in Block 5a. This request does not commit the Government to pay any costs incurred in the preparation of the submission of this quotation or to contract for supplies or service. Supplies are of domestic origin unless otherwise indicated by quoter. Any representations and/or certifications attached to this Request for Quotation must be completed by the quoter.

11. SCHEDULE (Include applicable Federal, State and local taxes)

ITEM NO. (a)	SUPPLIES/ SERVICES (b)	QUANTITY (c)	UNIT (d)	UNIT PRICE (e)	AMOUNT (f)
1	Identify biomarker signatures using mRNA, microRNA (miRNA) and long noncoding RNA (lncRNA)in a Liver Quad Culture Chip model for different doses of radiation and time points Notice of Intent: If submitting a capability statement, please e-mail only 1 copy of the technical capability statement to: Viviane Rivera @ viviane.rivera@nih.gov. See attached statement of work This will be a Firm-Fixed Price Contract.	1			0.00

12. DISCOUNT FOR PROMPT PAYMENT	10 CALENDAR DAYS (%)	b. 20 CALENDAR DAYS (%)	c. 30 CALENDAR DAYS (%)	d. CALENDAR DAYS NUMBER	d. CALENDAR DAYS PERCENTAGE
			0.00		

NOTE: Additional provisions and representations [ ] are [ ] are not attached.

13. NAME AND ADDRESS OF QUOTER	14. SIGNATURE OF PERSON AUTHORIZED TO SIGN QUOTATION	15. DATE OF QUOTATION
a. NAME OF QUOTER		
b. STREET ADDRESS	16. SIGNER	
	a. NAME (Type or print)	b. TELEPHONE AREA CODE
c. COUNTY		
d. CITY / e. STATE / f. ZIP CODE	c. TITLE (Type or print)	NUMBER

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STANDARD FORM 18 (REV. 6-95)
Prescribed by GSA-FAR (48 CFR) 53.215-1(a)

STATEMENT OF WORK (SOW)

1.0 TITLE

Identify biomarker signatures using mRNA, microRNA (miRNA) and long noncoding RNA (lncRNA)in a Liver Quad Culture Chip model for different doses of radiation and time points.

2.0 BACKGROUND

RNA has been collected from a liver chip quad culture consisting of 4 cell types from (hepatocytes, liver sinusoidal endothelial cells, kuppfer cells and hepatic stellate cells) We will use the sets of mRNA, miRNA and lncRNA data sets to identify relevant signals for classification between radiation-injury responses and to understand pathway changes in cells after injury. We will examine the in vitro experimental data to understand signals important to identifying radiation injury in the organ chip model. This analysis will involve the development of an optimal model to distinguish between doses. This work will involve data cleaning, feature selection of relevant signals by using wrapper and filter algorithms. An analysis of differences in the response to different doses of radiation over time by examining sequenced cell-line data across four different cell types (hepatocyte, endothelial, Kupffer, and stellate) will be performed by Gryphon. In this task, Gryphon will use the raw sequencing data to identify differentially expressed genes between three radiation-injury response points across three different time points. This analysis will seek to identify top mRNA, lncRNA, and miRNA signals expressed within discrete time and dose categories. Additionally, Gryphon will analyze both mRNA and lncRNA signals for differentially expression as a linear function of time and dose, and within dose over time. This work will involve reprocessing the raw sequencing reads to obtain transcript and gene level quantification using modern bioinformatic tools. In addition to finalizing the lists of top up-and down-regulated genes for each cell type, RNA type, and dose group and time point as a discrete comparison, Gryphon will develop final lists of top signals that have significant slopes when time and dose are treated as continuous variables. Gryphon will also perform gene ontology analysis for the top signals across each cell and RNA type.

2.1 OBJECTIVE

The objective is identifying liver tissue specific biomarkers using RNAs to determine radiation exposure after mass-casualty incidents or to help with normal tissue injury in cancer patients. This could provide a valuable tool in developing and implementing effective and timely medical countermeasures.

3.0 SCOPE

1. Gryphon will use the sets of sequencing data to identify differentially expressed mRNAs, long non-coding RNAs and microRNAs between three radiation-injury responses: 1 Gy, 4 Gy, and 10Gy doses.

2. This analysis will involve the development of linear models to evaluate differential expression between the different dose groups over 3 times points (6-hour, 24 hours, and 7 days) using data from multiple biological replicates

3. This work will involve cleaning and normalizing either the FPKM or read count data. If read counts are not available, the FPKM values will be log transformed and then a standard linear modeling approach to evaluate differential expression will be used with time and dose as the batch and treatment variables, respectively.

4. Radiation Oncology Branch representative will provide raw data files from sequencing experiment for the analysis

4.0. CONTRACT REQUIREMENTS/ AND PERSONNEL QUALIFICATIONS

The Contractor shall provide our laboratory with data cleaning services, and sophisticated data analysis services, including classifier development and population of our decision tree. Gryphon staff bring an unusual depth of expertise in the physical and life sciences. Their basic science perspective is complemented by skills in qualitative and quantitative analytics as well as strong communication and research management skills.

The Contractor shall perform the following tasks:

- Data normalization
- standard linear modeling approach to evaluate differential expression with time and dose as the batch and treatment variables, respectively.
- Gene expression evaluation for developing gene signature

3.1 Project Management Plan

The data files will be transferred within one week after the approval of the purchase. The length of the analysis process and discussions should be approximately 4 weeks; this will lead to the acceptance of the analysis criteria by the Project coordinator, Dr. Molykutty J Aryankalayil, Radiation Oncology Branch, NCI, NIH. E-mail: - aryankalayilm@mail.nih.gov Phone: -240 858 3002.

4.0 TYPE OF ORDER

This is a Firm fixed price purchase order

5.0 PERIOD OF PERFORMANCE: 5/1/24-8/31/24

Payments will be made within 45 days after Client has received an invoice. The Client shall review Gryphon Scientific's invoices for accuracy within 5 days of its receipt by Gryphon Scientific. If an invoice is not disputed or rejected within 5 days of its receipt, it is deemed undisputed and payable to Gryphon Scientific by the Client. Gryphon Scientific agrees to retain financial records associated with this Agreement for an independent 3rd party auditor and/or Government audit and review for a period of three years from the date of final payment.

STATEMENT OF WORK (SOW)

6.0 PLACE OF PERFORMANCE

Gryphon Scientific, LLC
6930 Carroll Avenue, Suite 810,
Takoma Park, MD 20912

8.0 REPORT(S)/DELIVERABLES AND DELIVERY SCHEDULE

The contractor shall then perform the final statistical analysis and send the data to the project coordinator. This includes master list with both up and down regulated genes with fold change and p value, Gene Ontology classifications, Venn diagrams of different combinations and heat maps of our interest in actual CDs by FedEx. Will provide publication level quality figures on request. The files are also shared with us electronically.

DELIVERABLE	***DELIVERABLE DESCRIPTION / FORMAT REQUIREMENTS***	***DUE DATE***
Raw Data Files	Summary tables of the number of differentially expressed genes for 1) discrete comparisons across all cell types, RNA types, dose amounts, and time points 2) continuous comparisons across all cell types and RNA types 3) pathway analysis and gene ontology analysis visualizations.	45 days after award

9.0 PAYMENT

Payment shall be made _(*45 days after the award*)_____. Payment authorization requires submission and approval of invoices to the COR and NIH OFM, in accordance with the attached 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:

I INVOICE REQUIREMENTS

A. An invoice is the Contractor's bill or written request for payment under the contract for supplies delivered or services performed. A proper invoice is an "Original" which must include the items listed in subdivisions 1 through 12, below, in addition to the requirements

of FAR 32.9. If the invoice does not comply with these requirements, the Contractor will be notified of the defect within 7 days after the date the designated billing office received the invoice (3 days for meat, meat food products, or fish, and 5 days for perishable agricultural commodities, dairy products, edible fats or oils) with a statement of the reasons why it is not a proper invoice. (See exceptions under II., below.) Untimely notification will be taken into account in the computation of any interest penalty owed the Contractor.

1. Vendor/Contractor: Name, Address, Point of Contact for the invoice (Name, title, telephone number, e-mail and mailing address of point of contact).
2. Remit-to address (Name and complete mailing address to send payment).
3. Remittance name must match exactly with name on original order/contract. If the Remittance name differs from the Legal Business Name, then both names must appear on the invoice.
4. Invoice date.
5. Unique invoice #s for all invoices per vendor regardless of site.
6. NBS document number formats must be included for awards created in the NBS: Contract Number; Purchase Order Number; Task or Delivery Order Number and Source Award Number (e.g., Indefinite Delivery Contract number; General Services Administration number); or BPA Call Number and BPA Parent Award Number.
7. Data Universal Numbering System (DUNS) or DUNS + 4 as registered in the Central Contractor Registration (CCR).
8. Federal Taxpayer Identification Number (TIN). In those exceptional cases where a contractor does not have a DUNS number or TIN, a Vendor Identification Number (VIN) must be referenced on the invoice. The VIN is the number that appears after the contractor's name on the face page of the award document.
9. Identify that payment is to be made using a three-way match.
10. Description of supplies/services that match the description on the award, by line billed.*
11. Freight or delivery charge must be billed as shown on the award. If it is included in the item price do not bill it separately. If identified in the award as a separate line item, it must be billed separately.
12. Quantity, Unit of Measure, Unit Price, Extended Price of supplies delivered or services performed, as applicable, and that match the line items specified in the award.*

* NOTE: If your invoice must differ from the line items on the award, please contact the Contracting Officer before submitting the invoice. A modification to the order or contract may be needed before the invoice can be submitted and paid.

B. Shipping costs will be reimbursed only if authorized by the Contract/Purchase Order. If authorized, shipping costs must be itemized. Where shipping costs exceed $100, the invoice must be supported by a bill of lading or a paid carrier's receipt.

C. Mail an original and 1 copy of the itemized invoice to:

National Institutes of Health
Office of Financial Management, Commercial Accounts
2115 East Jefferson Street, Room 4B-432, MSC 8500
Bethesda, MD 20892-8500

STATEMENT OF WORK (SOW)

For inquiries regarding payment call: (301) 496-6088

In order to facilitate the prompt payment of invoices, it is recommended that the vendor submit a photocopy of the invoice to the "Consignee" designated for the acquisition in blocks 6A – 6E of the face page of the Order/Award document.

II. INVOICE PAYMENT

A. Except as indicated in paragraph B., below, the due date for making invoice payments by the designated payment office shall be the later of the following two events:

1. The 30th day after the designated billing office has received a proper invoice.
2. The 30th day after Government acceptance of supplies delivered or services performed.

B. The due date for making invoice payments for meat and meat food products, perishable agricultural commodities, dairy products, and edible fats or oils, shall be in accordance with the Prompt Payment Act, as amended.

III. INTEREST PENALTIES

A. An interest penalty shall be paid automatically, if payment is not made by the due date and the conditions listed below are met, if applicable.
1. A proper invoice was received by the designated billing office.
2. A receiving report or other Government documentation authorizing payment was processed and there was no disagreement over quantity, quality, or contractor compliance with a term or condition.
3. In the case of a final invoice for any balance of funds due the contractor for supplies delivered or services performed, the amount was not subject to further settlement actions between the Government and the Contractor.

B. 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.

IV. PROVIDING ACCELERATED PAYMENT TO SMALL BUSINESS SUBCONTRACTORS, FAR 52.232-40 (DEC 2013)

a) Upon receipt of accelerated payments from the Government, the Contractor shall make accelerated payments to its small business subcontractors under this contract, to the maximum extent practicable and prior to when such payment is otherwise required under the applicable contract or subcontract, after receipt of a proper invoice and all other required documentation from the small business subcontractor.
b) The acceleration of payments under this clause does not provide any new rights under the prompt Payment Act.

Include the substance of this clause, include this paragraph c, in all subcontracts with small business concerns, including subcontracts with small business concerns for the acquisition of commercial items.