

Government of India
BHABHA ATOMIC RESEARCH CENTRE
RADIATION MEDICINE CENTRE
Trombay, Mumbai- 400 012.

Ref: 24.5.22

**Sub: Invitation of quotation for Whole transcriptome and Bioinformatics
Analysis on illumina platform for Mycobacterium Knocked down strains**

For and behalf of President Of India, sealed quotations are invited by **Head, Radiation
Medicine Center, BARC** for gene synthesis at **RMC, BARC (Room No. 231)**.

1. Quotations are invited for **Whole transcriptome** (10 samples) and Bioinformatic analysis. Taxes and duties if any shall be quoted separately. Necessary tax exemption certificates shall be provided if applicable.
2. MYcobacterium cells will be provided to the firm/company under dry ice conditions which will be used by the supplier for RNA extraction, RNA QC, RNA sequencing library preparation and bioinformatics analysis. Details of the work are given in annexure-I.
3. The bidder should collect the samples from Radiation medicine centre, Parel, Mumbai.
4. The bidder shall submit the soft copy of the raw and processed sequences (both the chromatogram as well as the sequence).
5. The quotations must reach Head, RMC by **Date: 15.06.2022**, or earlier and must be sent in a sealed envelope superscribed with the above reference number and due date given above. The envelope with quotations **must be sent via ordinary India Post, and not by any other means.**
6. The address on the envelope should read:

The Head, Room 415
Radiation medicine centre
Bhabha Atomic Research Centre
Parel, Mumbai -400 012.

Attn: MeghaSodani

7. The bidder shall have to take an insurance policy against any materials issued to him by the purchaser, if applicable.
8. The above-mentioned Reference No., Date and Time of opening of bids must be clearly written on the sealed envelope containing the quotation.
9. The bidder shall deliver the service within 4-6 weeks from the date of issue of work order to the bidder. The finished components and the scrap from the free issue material shall be delivered by the bidder at, Radiation medicine centre, Bhabha Atomic Research Centre,

Parel, Mumbai -400 012, if applicable.

10. **The bidder has to give PAN No/VAT No./CST No./Service Tax No. while submitting the sealed quotation. Xerox of the PAN Card/ VAT/CST Registration Slip are required to be attached.**
11. Quality of service will be assessed judiciously. It is deemed to be high quality, in case materials quality is not up to the mark and product did not work, firm may be asked to replace the same product at no further charge on us.
12. Head, Radiation medicine centre, BARC reserves the right to accept/ reject any or all quotations without assigning any reason.

Megha Sodani

(Megha Sodani)
SO/D, RMC

Through:

ASD RMC
Head, RMC, BARC 26/05/2022

अध्यक्ष विकिरण औषध केंद्र
Head, Radiation Medicine Centre

CC:
AAO
Works, BARC

Head
SIRD, BARC

Annexure 1

Specifications for Transcriptome Sequencing and Bioinformatics Analysis for Mycobacterium Samples on illumina platform

1. **Technology to be used: Illumina Hi-Seq Platform**
2. **Application: RNA sequencing**
3. Sample Type: Bacterial mycobacterium samples
4. No of sample: 10
5. Mycobacterium cells pellets will be shared with the supplier. The supplier has to pick up the samples from user site (provision of at least 3 times sample pick up should be there and is invoked in case of split samples or if the sample fails the quality control)-bidder must mention the requirement in the quotation.
6. RNA will be extracted from biological samples by the supplier for further RNA QC, library preparation and Next Generation RNA Sequencing.
7. **All the methods/kits followed should be disclosed by the company at the time of submitting the quotations.**
8. Library QC using Qubit, bioanalyzer to be used for measuring the quality and quantity of the library before sequencing.
9. Read Length and Data: 75x1 bp for RNA Sequencing to generate 15-20 million single end reads per sample with at least 10 GB data per sample
10. At least 90 % reads should have QC value (Phred Quality Scores) >30, Low quality reads should be excluded from the analysis
11. Data analysis should include the following
 - Average base content per read
 - GC content distribution of reads
 - Read length distribution
 - Sequence quality score distribution
 - Base quality score distribution
12. Bioinformatics data analysis should include entire analysis as mentioned below
13. Bioinformatics data Analysis for RNA Sequencing (The detailed bioinformatics pipeline including the softwares used should be mentioned in the quote; otherwise the bid will be solemnly rejected):
 - Primary Statistics report - QA/QC results should be generated using FASTQC Tool
 - Read statistics reports,
 - Adapter sequence removal and contamination sequence removal (tRNA, rRNA)
 - Read Alignment statistics report from RNA sequencing experiments should be generated using HiSat (hierarchical **indexing** for spliced **alignment** of transcripts) Alignment Tool.
 - Differential Gene Expression Reports across different conditions using DeSeq Tool or DEseq2 whichever is applicable.
 - RNA identification and annotation (known and novel miRNA reports)
 - RNA abundance matrix and RPM
 - RNA differential expression analysis

Megha Seelan

- RNA target identification
 - Heatmap generation of top 20 up and down regulated l RNA using RScript Tool.
 - Support for uploading data in required format in public databases
 - Data should be maintained on the server for at least 3 months after the project completion.
14. Vendor should own in-house sequencing facility in India. Illumina CS Pro certified vendor only will be considered.
 15. Samples (Tissue, RNA, library etc.) should not be sent out of India.
 16. Proof of Publications: Minimum 50 publications should be cited for NGS Analysis, Minimum 3 NGS publications list from BARC should be attached with quotation.
 17. Proof of lab facility: Illumina installation certificate in India should be provided, partner/collaborator company installation certificate located abroad will not be considered.
 18. Establishment of firm: Firm should be established in India 20 years before with NGS lab and experience in handling NGS projects. The company should have good experience/ record in conducting such experiments before with proof of publications, purchase/work order and successful completion certificate for 'RNA-seq and bioinformatics analyses' from 5 independent scientists (at least 3 from BARC) in last two years in writing.
 19. Quotation should be on firm's letter head with GST Number, PAN Number and CST Number mentioned clearly.
 20. All the quotations will be evaluated based on the technical competence and past experience in the similar projects by the bidding companies. Each technically suitable offer will be evaluated by the indenter by audio and video conferencing, if needed.
 21. Data should be delivered through secured server & HDD only. To maintain data confidentiality, firm should not write data in CDs/DVDs. Both Raw and processed data and results of analysis should be provided as soft copy
 22. Time line to complete the project with complete analysis (including bioinformatics part) should be written clearly and should not exceed more than 6 weeks.
 23. The details of progress of experiment will be intimated to the customer/scientist and further processing in case of any issues will be based on the instructions of the customer only.
 24. Failure to submit quotation as per the technical specification will deprive the concerned firm from consideration. Bidders must clearly mention all the above technical specification, term and conditions in the quotation, failing which the quotation will be rejected.
 25. DAE-BARC reserves the right to disqualify any bidder without certifying any reason.
 26. Submission of a point by point compliance sheet mentioning bidder's specifications against all the specifications mentioned in the tender document with proper documentary/literature evidence is mandatory, failing which the quotation will be rejected.

Meghe Sodani