

**INDIAN ASSOCIATION FOR THE CULTIVATION OF SCIENCE**

2 A & B RAJA S. C. MULLICK ROAD

**JADAVPUR, KOLKATA – 700032**

**Global Tender Notice No.: PSU/AKN/12/A-04, dated 14.09.2012**

Sealed tender in two bids system (technical bid and price bid) is invited from bonafied resourceful and eligible manufacturer/exclusive distributor/vendors for **MALDI Time-Of-Flight** Mass spectrometer.

Part-I (technical bid) of the tender should contain technical specifications in details as well as commercial terms and conditions. Part-II (price bid) should clearly indicate group-wise price as mentioned in the technical bid. The technical bid and price bid are to be submitted separately sealed envelopes distinctly marked accordingly and both to be put inside another envelop, that should be sealed and superscribed with tender notice no. and due date. The bidders may submit bids duly signed in their own letterheads.

Completed tender bids should reach the office of **Polymer Science Unit, Indian Association for the Cultivation of Science (IACS), 2A and B Raja S. C. Mullick Road, Jadavpur, Kolkata-700032** on and before the schedule date and time specified below.

<b>Tender Notice No.</b>	PSU/AKN/12/A-04
<b>Last date and time of submitting tender</b>	18/10/2012 at 2.00 pm
<b>Pre-bid meeting to be held on</b>	5/10/2012 at 3.30 pm
<b>Date and time of opening tender</b>	18/10/2012 at 3.00 p.m.
<b>Place of opening tender</b>	C.V. Raman Hall , IACS

The **technical bid** will be opened first to judge/evaluate the technical specifications of the said instrument thereafter the **price bid** of only technically qualified tenders will be opened

## 1. TECHNICAL BID

The technical bid should contain technical specifications and should be kept in a separate sealed envelope duly superscribed as **TECHNICAL BID** on the outer cover of the envelope as already detailed above.

The Technical Specifications acceptable for the "MALDI Time-Of-Flight Mass spectrometer" along with accessories are as follows :-

Sl.No	Product	Quantity
1	<p><b>MALDI Time-Of-Flight</b> Mass spectrometer along with accessories</p> <p><i>I. General specifications</i></p> <p>A MALDI tandem time of flight spectrometer with highest quality performance in high mass accuracy, sensitivity, resolution for comprehensive peptide, proteins and polymer applications such as determination of mass, averaged mass, end groups, mass distribution, conformational distribution, proteomics, bioinformatics etc should include complete instrumentation, software, direct link to online database and necessary accessories. Required amount of analytical kits, essential reagents and standards must be supplied with the equipment for fortnightly calibration during a warranty period of not less than 5 years. Required number and amount of readymade samples for demonstration and training purpose during installation should be supplied along with the equipment.</p> <ol style="list-style-type: none"> <li>1. The instrument should have flexibility to operate both in Reflectron and Linear modes with high mass resolution, sensitivity and accuracy.</li> <li>2. The instrument is capable of operation in Positive as well as Negative Ion Modes covering full features.</li> <li>3. Collision Induced Dissociation (CID) facility with high collision energy for both type of ions.</li> <li>4. Ion gate for Precursor Ion selection before CID for both positive and negative ions.</li> <li>5. Active video viewer of the target under acquisition.</li> <li>6. Rastering option for the target under acquisition.</li> </ol>	1

7. User friendly cleaning / self-cleaning of ion source.
8. Unwanted mass / mass range suppression.
9. Quantification of mass range and mass peaks.
10. MALDI plates should be of industry standard and should be compatible with auto spotter.
11. Time between loading sample plate and firing laser should be 2 minutes or less.
12. High speed data digitizer.
13. High repetition stable laser (1kHz) with capable to focus to 10 micron diameter or better.
14. The laser should be solid state with repetition rate 1000 Hz or higher and pulse energy 30  $\mu$ J. Laser life should be at least  $10^9$  or higher shots.
15. Laser repetition rate (all modes): 1Hz to 1kHz.
16. Laser focus should be adjustable to (10-100) microns or lower.
17. Sample compartment should be compatible with 96-well and 384-well plate format or better.

## ***II. Specification at particular mode of operation***

### **A. LINEAR Mode**

1. Measureable mass range in this mode:  $\geq 100$  kDa.
2. Minimum Mass resolution in this mode (both positive and negative mode): better than 1100 at 11 kDa / 80 at 66kDa
3. Mass accuracy in this mode: better than 50ppm.
4. Mass peak reproducibility: Less than 0.05 Da@1600Da.
5. Minimum sensitivity for mass 100 kDa: 500 f mol or better @66kDa with adequate S/N.

### **B. Reflectron Mode:**

1. Mass Accuracy in this mode should be better than 1.5ppm with internal calibration.
2. Mass Accuracy in this mode should be better than 10ppm with external calibration.
3. Upper limit of mass range in this mode: 20kDa or more.
4. Minimum measureable mass in this mode: 100Da.
5. Minimum sensitivity for mass 100Da: 250 a mol or better with adequate S/N .
6. Minimum mass resolution in this mode (M/ $\Delta$ M): 12,000 @600Da and 40,000@3kDa.
7. Mass peak reproducibility: Less than 0.05 Da@1000-2000Da.

**C. MS/MS mode**

1. The instrument should be capable of ToF-ToF facility and this mode operates with gas collision cell.
2. The instrument may be operational in Reflectron, Linear modes and MS/MS modes. Under ToF-ToF facility.
3. The instrument should have two stages of ion acceleration with the 2<sup>nd</sup> used for MS/MS analysis of masses resolved by first stage under ToF-ToF facility.
4. Molecular fragmentation hardware for MS/MS may be capable of operating under suitable inert gas environment under ToF-ToF facility.
5. Range in MS/MS mode: 2000-6000Da or better.
6. Minimum measurable mass in MS/MS mode: 100Da or less.
7. Mass resolution ( $M/\Delta M$ ): 1,500@150Da and 4,500@1200Da.
8. Mass accuracy: less than 0.05Da.
9. Minimum sensitivity: 400 a mol with adequate S/N.

**III. SOFTWARE supplied with the spectrometer**

1. High performance computer (workstation) with adequate memory and all interfacing software and hardware. Computer specification should be submitted along with the technical bid.
2. Software for instrument control, data acquisition, data processing.
3. Software for database searching.
4. The operating system should be based on Windows 7 (64bits), XP etc. OS with adequate features to transfer data between computers for stand alone data analysis.
5. Appropriate site licensing of software for data analysis and access to data base as required.
6. Complete software for polymer analysis from low mass to high mass polymers, for low to high molecular mass oligonucleotides and peptide nucleic acid, for lipid/lipid-protein conjugates, for protein identification, characterization, peptide finger printing and data base searching should be supplied with site licences.
7. Software should provide sophisticated tools for analysis of homopolymer and copolymer composition, molecular weight distributions, polydispersity, deconvolution of homopolymer and copolymer mixtures ( $M_n$ ,  $M_w$ ,  $M_z$ , PD, DP<sub>n</sub>, DP<sub>w</sub>, DP<sub>z</sub>)

values).

8. MASCOT or M/Z or equivalent software search engine should be provided.

**IV. Other items:**

1. Suitable no of required gas cylinder and regulator, if required.
2. Operation and maintenance training for at least FIVE persons.
3. Service level training for at least THREE persons.
4. Adequate set of sample plates to be used with matrix and sample plate s for matrix free operation.
5. Adequate number of Matrix, Calibration kits and bio beads for ion extractions
6. Responsibility of on-site maintenance by the manufacturer for 24x7 operations (Provide a legal document).
7. Instruments must be attended within 48hours in case of breakdown. Downtime of instruments will be less than 5% of the warranty period per year. In the event of longer downtime the vender shall increase the comprehensive maintenance period by five times of the downtime
8. System installation at the site provided by IACS to be done by the vendor. Preparation of site with electrical fittings, suitable AC and table should be done by the vendors and the full capabilities of the system has to be demonstrated to the complete satisfaction of IACS authority.
9. A multinational brand Un-interrupted Power Supply (UPS) unit with minimum 1 hours power backup and capable of meeting the power demand of the entire system including the main equipment, computers etc. should be supplied.
10. Additional consumables for smooth operation of the system, for at least two year, should be quoted separately.
11. Replacement guarantee period and extended warranties should be clearly specified.
12. A minimum of THREE years comprehensive warranty on all items from the date of installation.
13. A training course for the users, by experts, for using the instrument after the installation process is complete on a set of dates given by IACS.
14. Pre-dispatch inspection of goods.

***Optional requirements***

1. The instrument may be capable of ion mobility based conformational separation.
2. The instrument may have the option of Q-TOF.

**Please SUBMIT ITEMIZED QUOTES with separate pricing for each accessory.**

***List of Matrix Molecules:***

**DHB:** 2,5-dihydroxybenzoic acid, gentisic acid

**CHCA:** alpha-cyano-4-hydroxycinnamic acid

**Dithranol:** 1,8-dihydroxyanthracen-9(10H)-one

**Sinapinic acid:** SA, sinapic acid, 3,5-dimethoxy-4-hydroxycinnamic acid

**Ferulic acid:** FA, 3-methoxy-4-hydroxycinnamic acid

**THAP:** 2,4,6-trihydroxyacetophenone

**HABA:** 2-(4-hydroxyphenylazo)-benzoic acid

**IA:** trans-3-indoleacrylic acid,

**Vanillic acid:** 4-hydroxy-3-methoxybenzoic acid

**ATT:** 6-aza-2-thiothymine

**ANP:** 2-amino-4-methyl-5-nitropyridine

**4-NA:** 4-nitroaniline

**1,5-DAN:** 1,5-diaminonaphthalene

**DCTB:** T-2-(3-(4-t-butyl phenyl)-2-methyl-2-propnylidene)malononitrile

Additional analytical kits

## 2. **PRICE BID**

The price bid indicating (item-wise) price for the item(s) mentioned in the technical bid should be kept in a separate sealed envelope duly superscribed as **PRICE BID** on the outer cover of the envelope as already detailed above. Price bids of only technically qualified bidders will be opened and they will be intimated the date and time of the opening of opening at their e-mail Ids. Rest of the bidders will be stand rejected.

**PRICE: Price to be quoted both on FOB/CIF basis. Name of the particular Port from where our authorized forwarder will lift the consignment must be mentioned clearly with FOB price.**

### **BID SECURITY:**

1. An Account Payee Demand Draft/ Pay Order for **Rs. 5,00,000/-** (Rupees five lakh only) drawn in favour of "**Indian Association for the Cultivation of Science**" is to be furnished along with the Technical Bid as Bid Security (EMD).
2. The Demand Draft/ Pay Order for the **Bid-Security** should have at least 45 (fortyfive) days validity period after opening of the Bids.
3. The Bid Security of unsuccessful bidders will be returned.

### **PERFORMANCE SECURITY:**

1. The successful bidder should deposit 10% of the tendered value as "**Performance Security**", by way of an account payee demand draft drawn in favour of "**Indian Association for the Cultivation of Science**".
2. Performance Security should remain valid for a period of 60 (sixty) days beyond the date of completion of all contractual obligations of the supplier including warranty obligations.
3. Bid Security (EMD) would be refunded to the successful bidder on receipt of the Performance Security.

**C) GENERAL INSTURCTIONS:**

1. Incomplete & conditional tenders and tenders received after the due date will be summarily rejected without assigning any reasons thereof.
2. At any time prior to the bid due date, IACS may, for any reason, whether at its own initiative or in response to a clarification requested by a prospective bidder during pre-bid meeting, modify the bidding documents. The amendment(s) will be notified on the Institute website. Prospective bidders are advised to occasionally visit the website ([www.iacs.res.in/tender](http://www.iacs.res.in/tender)) for any amendment.
3. **Payment:** 100% against delivery and successful installation subject to submission of performance guarantee.
4. **Warranty:** Minimum 5 years
5. **Installation/Demonstration/Application Training at site:** Free of cost by the supplier
6. **Service facility:** Supplier should mention their details of service setup and Manpower in Kolkata who are responsible for after sales support. Response time should be within 24 hours
7. **Validity of tender:** Tender submitted shall remain valid at least for three months from the date of opening the tender. Validity beyond three months from the date of opening of the tender shall be by mutual consent.
8. The tender should accompany a compliance chart.
9. The rate should be inclusive of all taxes, transportation etc. Nothing extra will be paid in addition to the quoted rate.
10. The model number, make, and a printed literature of the product shall submit positively.
11. Proposed delivery schedule should be mentioned clearly.
12. Manufacturers/exclusive distributors/vendors should have history of supplying this type of instrument to this or other Scientific Organizations.
13. Authorized Dealership Certificate is must in case of principal manufacturing company is not quoting directly.
14. Guarantee certificate, users manuals etc. are to be handed over to the user after successful commissioning of the system.



15. In the event of date being declared a closed holiday for purchaser's office, the due date for submission of bids and opening of technical bids will be the following working day at the appointed time.

16. In case of any dispute, the decision of the Institute authority shall be final and binding on the bidders.

17. For any clarification regarding technical specifications, etc. please send your queries to Prof. Arun Kumar Nandi ([psuakn@iacs.res.in](mailto:psuakn@iacs.res.in))

18. The Institute reserves the right to reject any or all of the tenders received without assigning any reason thereof.

**REGISTRAR**