UNIVERSITY OF DELHI SOUTH CAMPUS

CENTRAL INSTRUMENTATION FACILITY
University of Delhi South Campus
New Delhi-110021
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No: **Date: 28.01.2016**

The sealed quotations are invited under two-bid system for **LC-MS Platform with hybrid mass analyzer** with FOR destination (CIF, University of Delhi South Campus) price (Indian Rupees or foreign currency) for supplying and installation of the items as described below:

Description and Technical Specifications	Quantity
Specifications for LC-MS Platform with hybrid mass analyzer: **I. 2D-Nano LC system** 1. Flow rate in the range of 100-1000 nl/min without flow splitting (splitless). 2. System should offer reproducible gradient down to 100nl/min 3. System should include an additional isocratic loading pump (Flow range 1-50 µL/min) for sample enrichment on trap columns, before separation on Nano LC columns to allow analyses of low abundant analytes. 4. System should have working pressure of 10,000 psi or more and a flow rate accuracy of 1% and gradient accuracy of 1% 5. Temperature-controlled column compartment with integrated 10-port valves. 6. Programmable injection with autosampler (from 100 nl to 10 µl with standard 10 µl loop or higher loop) with working pressure up to 10,000 psi 7. The autosampler should have sample carryover of <0.05% and injection reproducibility RSD of <1.0% in full loop mode. 8. The autosampler should have capacity to hold microtiter plates or multiple sample vial racks. 9. The number of nano columns provided should be mentioned. **II. Fast and High Resolution LC system** 1. Binary gradient System with Vacuum Degasser, Auto sampler and Column Oven for Ultrafast separations 2. Capability to run columns from 2 um particles to 10 um particle size 3. Flow rate range: 0.010 to 2.000 mL/min, programmable in 0.001 mL increments. 4. Flow accuracy of +/- 1.0% (0.500-2.00 mL/min) or better. 5. Gradient precision 0.15% RSD or +/- 0.04 min SD, whichever is greater 6. Auto sampler should be available with a capacity of at least 80 vials of 2 ml and should be capable of accommodating 96 well plate with injection volume ranging from 0.5 – 50 uL, in 0.1 uL increments, partial or full loop mode 7. The system should have sample temperature control (ambient temp: 20 °C)	1

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8. System Should Have Max. Pressure more than 16000 PSI
9. Both the HPLC systems should have single point software based control with Mass Spectrometer

III. Mass spectrometer

1. Technology required: Quadrupole-TOF or Orbital Trap.
2. The system should include Electro Spray Ionization, nano ESI and Atmospheric Pressure Chemical Ionization. Electro Spray ionization sources should be capable to handle flow rates from 50 nl/min to 2ml/min flow (or more) without splitting for Nano LC to normal LC applications
3. Minimum resolution at m/z 200 (approximately) should be greater than 20000 for Q-TOF and more than 100000 for mass spectrometer with Orbital trap technology. High speed is expected with very high response time and efficient fragmentation and ability to acquire more than 50 MS/MS spectra per second in the case of Q-TOF technology.
4. The instrument should be capable of performing MS scanning, MS/MS product ion scanning and simultaneous MS and MS/MS scanning.
5. The system should be capable of performing both data dependent and data independent analysis
6. The system should be capable of performing Qualitative and relative Quantitative analysis (like iTRAQ, TMT etc) with the highest sensitivity, accuracy, precision and reproducibility. It should also be capable of performing unlabeled quantitation across the mass range like in SWATH/DIA/MS^e etc
7. Quadrupole mass range should be at least from 50-1800 amu
8. Desolvation temperature should be greater than 500 degree centigrade
9. Mass accuracy is expected to be of at least 3ppm with external calibration and better than 1pmm with internal calibration
10. The system should be able to perform self-cleaning by self-heating or self-baking and then restoring to the working condition with minimal manual intervention.
11. Robust system is expected requiring minimal precision temperature maintenance on-site. Compact design is expected to save floor and lab space.
12. System should be capable to carry out intact mass analysis as well.
13. Sensitivity should be in the range of 200 – 500 fg for reserpine.

(Note: The vendors should specify the system peformance parameters clearly and all the specifications quoted should be available in their company brochure. **Any claims of specifications that are not available in the company brochure will not be accepted**).

IV. Workstations and software

1. Original and licensed universal perpetual software, computers and workstations and all interfacing hardware and software for instrument control, data acquisition and data processing must be supplied compatible to the LC-MS system.
2. Software for proteomics, metabolomics and lipidomics applications, as well as other related and relevant applications, that can perform both qualitative and quantitative analyses with statistical tests, should be provided.
3. Each module must have its own data acquisition system.
4. A compatible data processing system with Quad Core processor having advanced

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specifications and required hardware configuration should be supplied. Windows 7 professional along with 27 inches LCD monitor must be supplied.

5. Separate high configuration workstation should be quoted for off-line data processing.

V. Others

1. Quoted prices should include:
   - (i) On-site Warranty for five years from the date of installation including the entire system, accessories and local items. Maximum downtime in case of repairs should be mentioned by vendor. Ideally, downtime should not exceed 5 days, following which the warranty period will be extended accordingly.
   - (ii) Cost for installation
   - (iii) On-site training of staff and students as required (at least once in a year).
   - (iv) All consumables required for initial demonstration and training of users.
   - (v) Appropriate calibration kits.
   - (vi) 2x20 kVa UPS systems with half-hour battery back-up and auto changeover system, plus installation of the same.
   - (vii) Essential accessories such as nitrogen gas generator and any other gas cylinders required for proper functioning of the instrument.

2. Optionals to be included:
   - (i) Cost of site preparation prior to installation of the machine (including insulation, electrical works etc).
   - (ii) Cost of air conditioner with inverter technology or precision air conditioner as per the requirement for the optimal functioning of the instrument.
   - (iii) Vendor should also provide a price list for all required consumables needed for experiments with a discount structure in slabs (linked to volume of order).
   - (iv) Cost of an additional high configuration workstation /server along with requisite software for off-line data processing should be supplied.
   - (v) Cost of CAMC and AMC beyond 5 years, for the next 5 years.

3. Miscellaneous to be included:
   - (i) Service support should be available 6 days a week.
   - (ii) Service person should report within 12 hours of breakdown call.
   - (iii) Provide details of service support available in the Delhi-NCR and in India, along with name and phone number of Service Engineer and Application specialist, along with their experience record and length of association with your company.
   - (iv) Supplier should also provide a list of users (name, phone number and e-mail addresses) in India **for the item quoted in the bid**.
   - (v) Also provide certificates from existing users (at least three) about the performance of the machine, quality of service and application support.

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Important Information:

1. The sealed quotation should be addressed to Professor-in-charge, Central Instrumentation Facility, University of Delhi South Campus, Benito Juarez Road, New Delhi-110021, with all terms and conditions latest by _____. Quotations have to be submitted in a **two-bid system**. The first part, **Technical bid**, should consist of all technical details and supporting documents with terms and conditions. **A Compliance Sheet must be filled by the vendor,** against each point, and giving reference of the same (page number, line number) in the supporting company brochure/document.
2. The second part, **Financial bid**, should contain item-wise pricing of items mentioned in the technical bid. Both the quotations/ bids are to be sealed in separate covers duly super scribed by the supplier and then placed in a bigger cover which should also be sealed and super-scribed. An interest-free Earnest Money Deposit of Rs 6.00 lakhs should be submitted along with the tender (in the envelope with the Technical Bid) by way of A/C Payee Demand Draft in favour of The Director, University of Delhi South Campus, payable at Delhi.
3. The bidder will have to quote all the items together: partial quotes will not be accepted. For each item, make model, technical specification and quantity have to be mentioned clearly.
4. The supplier should also provide a list of users (name, phone number and e-mail addresses) in India **for the item quoted in the bid**. Also provide certificates from existing users (at least three) about the performance of the machine, quality of service and application support.
5. The quote should be valid for 90 days from due date.
6. Payment will be made through Letter of Credit.

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