

Global Tender Notification for the procurement of “Ultra High-Performance Liquid Chromatograph - Quadrupole Time of Flight -High Resolution Mass Spectrometer (UHPLC- QTOF -HRMS)”

Late date of submission of tenders: 12.00 (noon), 24th June 2023

Tender No: IISc/CSD/HRMS/23Date: 30/05/2023

Indian Institute of Science, Bangalore invites offers from bonafide, resourceful and eligible manufacturer/exclusive distributor/vendors, for the supply of “**Ultra High-Performance Liquid Chromatograph - Quadrupole Time of Flight -High Resolution Mass Spectrometer (UHPLC- QTOF -HRMS)**” conforming to the specifications given in (**Annexure-I**).

General

Terms and Conditions of Tender

1. Preparation of Bids: - Quote should come only from the Global Manufacturers or their authorized Indian distributor. The tenders should be submitted under **Two bid system** (i.e.) Technical- and Financial bid.

2. Delivery of the tender: - The tender shall be sent to the below-mentioned addresses either by post or by courier (duly sealed and super scribed on the envelope with the reference No and due date) to reach the following address before the due date and time specified in our schedule:

**Prof. G. Mugesh,
The Dean, Chemical Sciences Division,
B-116, Chemical Sciences Building,
Indian Institute of Science,
Bangalore – 560012.**

Direct all questions concerning the acquisition to Prof. K. Geetharani by email only at: geetharani@iisc.ac.in

As per the OM No.F.4/1/2023-PPD dated 03-04-2023 on Relaxation on Procurement of Certain Items through GTE, HRMS Systems (among 364 Medical devices) are exempted from the instructions related to GTE (for details, see the Annexure A of the OM, Sl. No. 220 and 224).

4. Technical bid: The technical bid must contain a point-by-point technical compliance document. The technical proposal should contain a compliance table that should describe

your compliance in a "yes" or "no" response against each of the items in the table listed in this RFQ. If the response is "no", the second column should state the extent of the deviation. The third column should state the reason for the deviation, if any. The fourth column can be used to compare your tool with that of your competitors or provide details as requested in the technical requirement table below.

Any additional capabilities or technical details, that you would like to bring to the attention of the purchase committee, can be listed at the end of the technical table. The technical bid **must not contain** any price information. **Tender documents without technical compliance documents will not be considered.**

5. Financial bid: - Indicating item wise price for the items mentioned in the technical bid, as per the format of quotation provided in tender, and other commercial terms and conditions.

a. The offer/bid should be inclusive of taxes and duties. The percentage of tax & duties should be clearly indicated separately.

b. In case of import supply, the price should be quoted without custom duty. The price should be quoted on EX-WORKS and CIP (stating the Cost, Insurance, Freight separately) and indicating the mode of shipment.

6.The Price Bids of the bidders qualifying the technical bid will only be opened, the date of which will be intimated to the short-listed bidders at their email addresses. The rest of the bids will be rejected.

7. Quotations received incomplete or beyond the stipulated time will be summarily rejected.

8.Terms of Delivery: - The item should be supplied to Chemical Sciences division at IISc Bangalore as per Purchase Order. In case of import supply, the item should be delivered at the cost of the supplier to our Institution. The Installation/Commissioning should be completed as specified in our important conditions.

9. Payment: - In case of import supplies the payment will be made only through 100% Letter of Credit i.e. (90% payment will be released against shipping documents and 10% after successful installation wherever the installation is being done). Any loss due to fluctuation in foreign exchange rates will be at the beneficiary account.

11. On-site Installation: -The lead time for the delivery of the equipment should not be more than 6 months from the date of receipt of our purchase order. It should be clearly mentioned in the technical and commercial bids.The equipment or machinery has to be installed or commissioned by the successful bidder within 90 days from the date of receipt of the item at site of IIScBangalore.

12.All quotations must be valid for at least 90 days at the time of submission.

13. Warranty: Three years standard warranty to be offered on the entire system.

16.Accept /Reject: IIScBangalore reserves the full right to accept / reject any tender at stage without assigning any reason.

17. Settlement of Disputes: Any legal disputes arising out of any breach of contract pertaining to this tender shall be settled in the court of competent jurisdiction located within the city of Bangalore in Karnataka.

- 18. Risk Purchase Clause:** - In the event of failure of supply of the item/equipment within the stipulated delivery schedule, the purchaser has all the right to purchase the item/equipment from other sources on the total risk of the supplier under risk purchase clause.
- 19.** Original catalogue (not any photocopy) of the quoted model duly signed must accompany the quotation in the technical bid.
- 20. List of customers and references:** The Bidder should have supplied similar equipment in Central Universities, preferably in centrally Funded Technical Institutes (IITs, IISc, IISERs, NITs, CSIR Labs, etc.). Please provide the details and contact information.
- 21.** The Bidder must NOT be blacklisted/banned/suspended or have a record of any service-related dispute with any organization in India or elsewhere. A declaration to this effect should be provided.
- 22.** Items in addition to that listed in the technical table that you would like to bring to our attention, such as data sheets, technical plots, etc., can be listed at the end of the compliance table.
- 23.** Vendors are encouraged to highlight the advantage of their tools over comparable tools from the competitors.
- 24.** If needed, a meeting for any technical clarifications can be scheduled with the undersigned by sending an email.
- 25.** After the award of the purchase order, the vendor must provide an Order Acknowledgement within 30 days from the receipt of the Purchase Order.
- 26.** The vendor should have a good track record of having previously supplied similar equipment in IISc and other centrally funded universities/institutes.
- 27.** The vendor should be able to provide End User Certificates from at least five users, preferably in centrally Funded Technical Institutes (IITs, IISc, IISERs, NITs, CSIR Labs, etc.).
- 28.** If the goods are found to be defective, they have to be replaced or rectified at the cost of the supplier within 30 days from the date of receipt of written communication from us.
- 29.** The detailed technical literature and make of each component should be submitted by the bidders.
- 30.** The quotations should be on CIF/FOR-IISc Bangalore basis.
- 31.** The vendor should have qualified technical service personnel for the equipment based in India (preferably in Bangalore).
- 32.** The lead time for the delivery of the equipment should not be more than 3 months from the date of receipt of our purchase order. It should be clearly mentioned in the technical and commercial bids.
- 33.** The decision of purchase committee will be final.

ANNEXURE – I

Technical Specifications for the state- of- the- art "**Ultra High-Performance Liquid Chromatograph - Quadrupole Time of Flight -High Resolution Mass Spectrometer (UHPLC-QTOF -HRMS)**"

General Description:

- The instrument should be capable of performing high resolution MS and MS/MS experiments for a wide range of applications such as analysis of small molecules, organometallic compounds, nanoclusters, synthetic polymers, metabolites, protein, and peptides.
- Should have Electro Spray Ionization (ESI) and Atmospheric Pressure Chemical Ionization (APCI) modes.
- Should have high resolution Q-TOF mass analyser.
- All the components should be manufactured, supplied and installed by a single vendor to provide a seamless integration between the components.

Technical Specifications

Technical Specification for Quadrupole with Time-of-Flight High Resolution Mass Spectrometer (HRMS), compatible with UHPLC/UPLC speed in both MS and MS/MS modes and having the following specifications	
Ionization Source:	<ul style="list-style-type: none"> • ESI and APCI with Static Probes, easily interchangeable without venting the vacuum. • The source must operate along with reference spray to facilitate automated accurate mass measurements within single LCMS experiment. The instrument should be capable of internal reference mass correction for MS and MS/MS operation without losing sensitivity. • The ionization must be done both in a positive & negative mode. • Fast polarity switching between positive and negative modes and should be under software control. • The ion source must be of dual orthogonal design. The cleaning of the source should be done without venting the system and facility to Vacuum Interlock should be provided.
Mass Analyser	<p>Mass Resolution: $\geq 50,000$ (FWHM) at $\sim m/z$ 1000 (Proof of Statement must be provided)</p> <p>Mass Accuracy: ≤ 1 ppm in MS and MS/MS modes or better (internal calibration)</p> <p>Quadrupole isolation for MS/MS: m/z 3,000 or better</p> <p>QTOF Mass range: up to m/z 30,000 or better</p> <p>Mass Analyser should have Separate Collision Cell</p> <p>Spectral acquisition rate in both MS and MS/MS modes should be 30 spectra per second or better. (Proof of Statement must be provided)</p> <p>Linear dynamic Range: ≥ 4 orders or above</p> <p>Sensitivity: The sensitivity in full scan mode in both MS and MS/MS Modes should be $\geq 100:1$ for 1pg of reference standard on column or equivalent</p>
Scan modes & Capability:	<p>Full scan MS and full scan MS/MS modes with high-resolution accurate mass detection.</p> <ul style="list-style-type: none"> • Simultaneous MS and MS/MS scanning

	<ul style="list-style-type: none"> • Data independent acquisition (DIA) for unbiased identification and quantitative analysis or equivalent • Selected Ion Monitoring (SIM) with high-resolution accurate-mass detection
Vacuum system	High efficiency vacuum system with suitable Turbomolecular pump followed by rotary mechanical pumps must be provided.
Temperature Stability	Need to maintain 1ppm mass accuracy even at temperature of 15-35 deg centigrade
Nitrogen Generator	<p>Noise free Nitrogen gas generator (purity > 99.999 %) with inbuilt compressor and appropriate reservoir.</p> <p>Other required gas cylinders (eg. Helium/Nitrogen) with branded pressure regulators, tubing and filters should be supplied.</p> <p>The Maximum gas output pressure must be 100 psi.</p> <p>The Maximum outlet Flow Rate must be 32 L/min.</p>
Syringe Pump	A suitable syringe pump to introduce samples directly into the mass spectrometer.
Software	<p>The software should have capabilities to perform the following functions:</p> <ul style="list-style-type: none"> • Automated mass calibration, auto tuning, resolution and sensitivity check should be performed by software. • The data processing software must incorporate an elemental composition calculator as standard. • Software tools to address screening, component identification and structure elucidation tools. • The software should be capable of providing true isotopic patterns and fragment ions. • Deconvolution software for the determination of molecular weights of high molecular weight compounds • The model offered by the vendor should have capability to demonstrate the above-mentioned parameter like fast LC, high resolution, high mass accuracy in one single run.
Computer & Workstation:	<p>A Workstation should be provided for controlling the mass spectrometer, the LC and the auto-sampler with data acquisition & for data processing and analysis with following specification:</p> <ul style="list-style-type: none"> • Latest PC with Windows 10 Pro operating systems with, 32 GB RAM, 1 TB SSD, 4 TB HDD.

	<ul style="list-style-type: none"> • 24" flat screen monitor • 1 colour laser printer. • All hardware and software including drivers, monitor, device interfaces cards/network must be preinstalled and preconfigured on the computer provided.
<p>II. Ultra High Performance Liquid Chromatograph (UHPLC/UPLC) or equivalent capable of handling both small and large molecules and the system should provide an integrated configuration for solvent and sample management with the following specifications.</p>	
<p>Pump & Solvent System</p>	<ul style="list-style-type: none"> • must be a Quaternary / binary pump designed for UHPLC/UPLC with vacuum degassing capability of solvents • Operating pressure: 11,000 psi or higher • Flow rate: 0.010 - 2.00 ml/min or better in 0.001 mL increments • Flow precision: ≥ 0.075 % RSD or better • Flow accuracy: +/- 0.01.0% of the set value or better • Injection volume: 0.1μl to 10 μl or higher • Effective system delay volume: ≤ 350 μl (Independent of back pressure) & with standard mixer for higher sensitivity • Composition range: 0.01 -100 % in 0.1 % increment • Mobile phase Accessories, inline filters, plus dampers, mixers and filters • The instrument should have in-built Vacuum degasser facility with minimum four lines and should be efficient to remove dissolved air online.
<p>Column Thermostat</p>	<ul style="list-style-type: none"> • Column Temperature Control should be 10 °C to 80 °C, with 0.1 °C increments or better • Temperature stability should be ± 0.1 °C • Temperature precision to be 0.05 °C • Should have 2 independent Temperature zones while using short columns. • Column capacity – 4 columns up to 30 cm and 4.6 mm ID • Warm up time from ambient – 40 °C should be less than 6 min. • Should have column pre-heater.
<p>Detector</p>	<p>Should quote suitable PDA /DAD detector.</p> <ul style="list-style-type: none"> • Wavelength range: 190 to 800 nm should be covered by single

	<p>deuterium lamp or better.</p> <ul style="list-style-type: none"> • The sampling/data rate and filter time constants should be independent to maximize resolution and sensitivity. • Must have standard analytical flow cell with a 10 mm path length and a volume of 500 nL or less for optimal peak dispersion of UHPLC separations. • It must optimize lamp performance automatically and without user intervention & should compensate for lamp degradation over time without the need to frequently replace the lamp. • Optical Bandwidth: 1.2 nm or less. • Wavelength accuracy: Better than or equal to ± 1 nm. • Sampling rate: 80 points per second or higher. • It must have a linear range that does not deviate by more than 5% up to 2.0 AU. • Noise: $\pm 3\mu\text{AU}$ & Drift of less than or equal to 1×10^{-3} AU/hour/$^{\circ}\text{C}$ or better. • The photodiode array detector must be able to collect up to 8 independent data channels simultaneously.
UHPLC/UPLC Columns	C18 (5 Nos), C8 (3 Nos), Silica (2 Nos) and Amino (2 Nos) columns with particle size $\leq 2\mu\text{m}$.
Autosampler	<ul style="list-style-type: none"> • Capable of holding 120 vials or more of 2 ml and above capacity • Sample Temperature: 4-40$^{\circ}\text{C}$, programmable in 1 $^{\circ}\text{C}$ increments • Sample delivery precision should be $< 0.5\%$ RSD • Sample Carry over $< 0.005\%$ or less • Injection needle wash should be Programmable • Injection volume precision ≤ 0.3 RSD • The vendor should provide the 1000 number of sample vials
Warranty:	Comprehensive 3 years minimum from the day of functional installation including nitrogen generator, along with all the consumable parts of the LC and HRMS system.
Installation	<ul style="list-style-type: none"> • Installation must be done at user site with no extra cost. • Onsite Application/maintenance training for staff members during installation should be provided. • Proof of Performance documents must be provided with the Compliance sheet. The vendors must submit/upload all the Technical Data Sheets as per their claim in original & authenticated. The specification sheets should also be

	<p>available in the public portal.</p> <ul style="list-style-type: none"> • All related expenses to supply instrument up to the Lab has to be borne by the supplier.
Training	<ul style="list-style-type: none"> • Training for two staff members for the operation and maintenance at vendor's authorized technical centre. The cost related to travel, boarding and lodging should be provided by the vendor. • The vendor should also organize training-cum- workshops for 5 days per year, for the first 2 years.
Standards	Necessary standards and reagents for installation should be provided
Spares and Consumables	Essential spares for routine maintenance and additional consumables required should be quoted separately
Other requirements	<ul style="list-style-type: none"> • The vendor should issue an undertaking that the availability of spare parts for at least 10 years from the date of successful installation. • The quoted system should be compatible with free software upgrade.

Optional Items:

Additional Workstation	Additional workstation for data processing should be provided.
Training	Training for two staff members for the operation and maintenance at vendor's authorized technical centre. The cost related to travel, boarding and lodging should be provided by the vendor.