



Institute of Advanced Study in Science and Technology
विज्ञान एवं प्रौद्योगिकी उच्च अध्ययन संस्थान

An Autonomous Institute Under the Department of Science & Technology, Govt. of India
Vigyan Path Garchuk, Paschim, Boragaon, Guwahati, Assam 781035

NOTICE INVITING EXPRESSION OF INTEREST (EOI)

for

High-Resolution Mass Spectrometry–Mass Spectrometry (HRMS-MS) System

Advt. No. 599 (EOI)

Date: 4/08/2026

Expression of Interest (EOI) is invited on behalf of the Director, IASST, Guwahati, from specialized AGENCIES/VENDORS having experience in manufacturing/ importing and supplying “**High-Resolution Mass Spectrometry–Mass Spectrometry (HRMS-MS) System**”. The agencies that submit the EOI and further qualify for execution of work will be shortlisted for the issuance of tender documents for execution of work.

The AGENCIES/VENDORS may be called to visit the IASST and present their product specification before finalization of the tender document (NIQ/NIT).

- The last date & time for submission of the EOI document at IASST, Guwahati, is on or before 5. 00 P.M of 24.08.2026.
- Estimated cost put to the project is approximately **₹ 600.00 Lakhs**
- The application forms duly filled in with all supporting documents along with a Demand Draft of Rs. 1000.00 (One thousand) only, (Non-refundable) as processing fees in favor of Director, IASST, Guwahati-35, enclosed in a sealed cover, should reach the undersigned on or before 24/08/2026 by 5.00 PM.
- The preliminary technical specification is provided with **Annexure-I attached**.
- IASST authority reserves the right to accept or reject any or all the application without assigning any reason thereof. The Institute is not bound to accept the lowest bidder.



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EOI TO BE SUBMITTED TO:

Registrar

Institute of Advanced Study in Science and Technology (IASST)

Vigyan Path, Guwahati, PIN- 781035 Assam, India



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Technical Specifications for Procurement of High-Resolution Mass Spectrometry–Mass Spectrometry (HRMS-MS) System -Pre-Bid Tender Call

The proposed HRMS-MS system should be a state-of-the-art, high-resolution, accurate-mass analytical platform suitable for advanced qualitative and quantitative analysis in natural products, and allied research applications. The system should comprise an Ultra High-Performance Liquid Chromatography (UHPLC) unit coupled with a High-Resolution Tandem Mass Spectrometer (HRMS-MS/MS) along with all essential accessories, software, installation, training, warranty, and post-installation support.

MASS SPECTROMETER

1. The system should be based on High-Resolution Accurate Mass (HRAM) technology capable of performing both qualitative and quantitative analyses.
2. The instrument should preferably be equipped with Orbitrap/Quadrupole-Time of Flight (Q-TOF) mass analyzer technology.
3. The mass resolution, sensitivity, stability etc. should be as per following details:
 - i. $\geq 40,000$ FWHM at m/z 200 for full scan analysis.
 - ii. Higher resolution modes should be available.
 - iii. MS/MS sensitivity: $\geq 1000:1$ Signal-to-Noise (S/N) ratio for 1 pg reserpine (or equivalent standard) on-column.
 - iv. Mass accuracy: ≤ 1 ppm RMS with internal calibration.
 - v. Mass stability: $\leq 1-2$ ppm over 24–48 hours without recalibration.
 - vi. Long-term mass drift specification should be provided.



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4. Mass accuracy should be ≤ 2 ppm with internal calibration for both MS & MS/MS modes on 10 consecutive repeat measurements using a suitable reference mass (Supporting documentary evidence needs to be provided, and if requested, the vendor must demonstrate the resolution in their application labs).
5. MS-Sensitivity: A concentration of 1 pg reserpine and 1 pg chloramphenicol on the column should give $S/N > 1000:1$ and $S/N > 750:1$ or better in positive and negative polarity mode, respectively. The said sensitivity should be achievable in both resolution and sensitivity modes (Supporting document proof to be provided).
6. MS/MS-Sensitivity: A concentration of 1 pg reserpine and 1 pg chloramphenicol on the column should give $S/N > 3000:1$ in positive and negative polarity mode, respectively.
7. The mass range should cover at least m/z 0–2000 or better.
8. Scan speed should be adequate for UHPLC applications without compromising sensitivity or resolution.
9. The system should include a high-performance collision cell with multiple fragmentation modes such as CID/HCD or equivalent.
10. The instrument should have automatic calibration and tuning functionality.
11. The detector should provide high sensitivity, wide dynamic range, and long operational stability.

ION SOURCE:

1. The system should be supplied with:
 - a. Electrospray Ionization (ESI) source with positive and negative ion switching capability.



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- b. APCI/APPI source may be quoted as optional accessories.
2. The ion source should support rapid polarity switching.
3. The source should be compatible with low-flow and standard-flow LC applications.
4. The system should include source housing with efficient de-solvation and contamination-resistant design.

Ionization Source:

- A vacuum lock should be available to facilitate source and capillary cleaning without breaking the vacuum.
- The system should be provided with ESI and APCI sources employing nitrogen.
- A provision of a dual inlet should be provided to pass a reference standard and a test sample to achieve maximum accuracy.
- The source should be able to operate in positive as well as negative polarity modes/simultaneously in a single run.
- The desolvation or/ sheath gas temperature should be at least 400 °C or higher, with adjustable settings suitable for both polar and nonpolar analytes.

ION GUIDE

- ✓ Multipole ion guides (hexapole, octopole, stacked-ring ion guides, etc.).
- ✓ Ion guides should ensure high ion transmission efficiency and reduced neutral gas interference.

Modes of operation:

The following acquisition modes must be available:

- MS Scanning.



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- MS/MS product Ion Scanning.
- CID or equivalent fragmentation mode.
- Simultaneous MS & MS/MS scanning. The software should be capable of data acquisition, with high- and low-collision-energy data acquired simultaneously to provide fragmentation data for all detectable molecular ions.
- TOF- MRM/PRM mode for performing quantitation at sub-ppb levels or better.
- DDA. Data acquisition should be possible by setting thresholds for ion intensity during MS/MS acquisition.
- DIA mode: The acquisition of data should be possible by setting m/z windows for MS/MS fragmentation of all the ions detected in the respective windows.
- The acquisition software should allow for automated DDA, DIA, MS/MS, and data-directed acquisitions.

Operating/acquisition software:

The software should be user-friendly & have the capabilities to perform the following functions:

- Integrated sample or calibrant delivery system with divert valve, Automated mass calibration.
- The software should also have the capability for assigning structures by taking fragment ion spectra into account and automatically calculating fragments based on algorithms.
- The software should be able to define adducts present in the sample for automatic compound ion deconvolution.
- Should have an approach to co-detection of ions for consistent peak picking across all runs.



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- The system should perform data-directed analysis (DDA); Data Independent Analysis (DIA), Multiple Reaction Monitoring (MRM)/ Parallel Reaction Monitoring (PRM) acquisitions.
- The software should be capable of data-independent acquisitions whereby high and low collision energy data are acquired simultaneously to provide fragmentation data for all detectable molecular ions. The mass spectrometer must be capable of operating in both DIA modes in combination with a scanning quadrupole mass filter and ultra-fast detection system.
- The system should provide quantitative MS/MS data at fast LC speeds from a data-independent acquisition (DIA) method, even when compounds have perfect coelution and samples are complex, to provide better depth of coverage in proteomics experiments for protein identifications.
- Algorithms to perform relative quantitation of isotopically labelled samples.

Data analysis software:

- Two copies (one each for acquisition and data analysis workstation) with perpetual license of each software tool for metabolomics, biopharma, fluxomics and proteomics applications should be quoted.
- The software should include stable isotope tracing workflows (e.g., ^{13}C , ^{15}N) for fluxomics.
- The system should enable relative and absolute quantitation of metabolic fluxes in metabolic pathways.
- Availability of dedicated deconvolution software. Support for molecular weight determination from multiply charged spectra. Automated peak deconvolution, isotope pattern analysis, and charge-state assignment. Compatibility with qualitative and quantitative workflows.



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UHPLC SYSTEM: UHPLC with an inbuilt degasser unit, autosampler with auto rinsing and thermostat functionalities, column oven, and photo-diode array detector (PDA).

1. The UHPLC system should include:
 - a. Quaternary solvent delivery system.
 - b. Autosampler with temperature control.
 - c. Column oven with temperature programmability and thermostat control.
 - d. Degasser and solvent tray.
2. The UHPLC should support pressures of at least 15,000 psi or higher.
3. Flow rate range should be suitable for analytical and semi-micro applications.
4. Injection precision should be less than 0.5% Relative Standard Deviation (RSD).
5. Carryover should be minimal and within acceptable international standards.

Photo Diode Array (PDA) detector:

- Photo Diode Array Detector should be supplied with this UHPLC system
- It should have a wavelength range of 190-800 nm
- Slit width should be 1nm and 8 nm with wavelength accuracy of 1nm
- Detector noise should be 0.7×10^{-5} AU & Drift should be 0.9×10^{-3} AU/h
- Detector linearity should be 2.5 AU
- Detector should have a flow cell of 13 μ L or lower capacity with 10mm path length.
- 1024 diode configuration with 100 HZ data rate



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COMPUTER SOFTWARE AND DATA PROCESSING other accessories

1. High-end workstation with latest configuration compatible with the instrument software. Laser printer and UPS backup should be included.
2. The system should be supplied with licensed software for:
 - a. Instrument control
 - b. Data acquisition
 - c. Quantitative and qualitative analysis
 - d. Statistical analysis
 - e. Spectral library search
 - f. Metabolomics/proteomics workflow support.
3. Library and Database The system should include an upgraded and comprehensive spectral library/database for small molecules, metabolites, pharmaceuticals, natural products, and related compounds. The library should support regular updates and compatibility with the supplied software platform.
4. **UPS:** Compatibility with the total power requirement of the instrument. Comprehensive warranty coverage for the UPS and batteries, including replacement terms.

Additionally, The software should support automated report generation and export in standard formats. Software should support network operation and multi-user access. Vendor should provide lifetime software compatibility support and updates during warranty period.

GAS GENERATOR AND UTILITIES



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1. Suitable Nitrogen Generator compatible with the HRMS-MS system should be supplied and installed with 5 Years of CMC.
2. All necessary gas lines, fittings, regulators, tubing, and accessories required for complete operation should be included.
3. Vendor should specify power requirements, environmental conditions, and laboratory utility requirements.

INSTALLATION, TRAINING, AND WARRANTY

1. Complete installation, commissioning, calibration, and validation of the system should be carried out by the vendor.
2. On-site operational and application training should be provided for scientists, technical staff, and students.
3. Minimum warranty period should be:
 - a. 5 years' comprehensive warranty from the date of successful installation and acceptance. 5-years dedicated manpower support for technically handling the samples and analysis (5 days a week in office hours). Additional price for another 5-year AMC need to quote separately.
 - b. Vendor should ensure availability of specialist technical support within 48 hours of complaint registration.
 - c. Vendor should provide preventive maintenance visits during warranty period.

ELIGIBILITY AND EXPERIENCE OF VENDOR

1. The vendor should have prior experience in installation and maintenance of similar HRMS-MS systems in reputed research institutions/universities/national



laboratories. The copy of the last 5 Years of PO received and installation report for the same.

2. The vendor should provide complete details of after-sales service infrastructure and application support team available in India.
3. The bidder must submit a declaration certifying that the quoted price for the item shall not be higher than the price quoted and/or supplied against any Purchase Order issued during the current financial year to any other Institute, University, Organization, or Government Agency in India for the same item with identical specifications, terms, and conditions.

COMPLIANCE AND DOCUMENTATION:

1. The vendor must provide a point-by-point compliance statement against all technical specifications.
2. Product brochures, technical literature, catalogues, and all relevant supporting documents must be enclosed with the bid. The specifications mentioned in the GeM portal, OEM brochure/catalogue, and the OEM official website for the quoted product must be identical and consistent in all respects.
3. The complete cost breakup of the HRMS-MS system, including optional accessories, consumables, installation, taxes, and warranty, should be clearly indicated.
4. The tender proposal should comply with all applicable Government of India procurement guidelines and institutional rules.

Format for Expression of Interest

1. Name of the company/business firm:



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2. Date of incorporation and Registration No.:
3. Proprietors:
4. Registered Address:
5. GST and PAN Nos.:
6. Area of business:
7. Annual turnover (last three financial years):
8. IT return (last three financial years):
9. Brief write-up (1000 words)

(Write up should include why the company is interested in this technology and their plan of action for technology transfer/ collaborating with IASST to further develop and commercialize the technology.)

(Signature of the proprietor)

Date:

Place:

*NB: Please submit all the copies of all the relevant documents