INDIAN INSTITUTE OF SCIENCE EDUCATION AND RESEARCH PUNE

CLARIFICATION ON TENDER NUMBER - IISER/PUR/0487/20

ITEM DESCRIPTION- TO PURCHASE A HIGH RESOLUTION MASS SPECTROMETER SYSTEM WITH ULTRA HIGH-PERFORMANCE LIQUID CHROMATOGRAHPY (LC-MS), SOFTWARE AND ACCESSORRIES AT IISER PUNE

Pre-Bid meeting was held on Friday 30th April 2021, at 3:00 PM and minutes of meeting is as under.

At the outset, the Committee welcomed all the Members and the representative of the Prospective Bidders and thereafter the indenting Officer to read out the clarification sought by the Prospective Bidders and replied thereto as detailed in Annexure-II

The representatives present were satisfied with the replies given and it was informed that the corrections/additons/clarifications given, as discussed during the Pre-Bid Conference would be hosted on the website of IISER Pune and all the Prospective Bidders are required to take cognizance of the proceedings of the Pre-Bid Conference before submitting their bids as stipulated in the Bidding Documents.

The other terms & conditions of the notice issued on our IISER website www.iiserpune.ac.in will remain unchanged. No more correspondence in this regard will be entertained

The meeting ended with vote of thanks by the Chair.

Sd/-

5.5.2021 Assistant Registrar (S&P)

ANNEXURE -II

IISER PUNE

PRE-BID FOR PROCUREMENT OF A HIGH RESOLUTION MASS SPECTROMETER SYSTEM WITH ULTRA HIGH-PERFORMANCE LIQUID CHROMATOGRAHPY (LC-MS), SOFTWARE AND ACCESSORRIES AT IISER PUNE

TECHNICAL QUERIES AND CLARIFICATION

TENDER NUMBER - IISER/PUR/0487/20 DATE: 5.5.21

S.No	Query/Clarification Sought	Clarification / Amendment
1	Page 20, Chapter 4, 1. Pump, point: Operating flow rate range to be 1 – 5000 μL/min in 1-μL increments	Amendment: Operating flow rate range to be 5 – 2000 μL/min or better, in 1-μL increments
2	Page 20, Chapter 4, 1. Pump, point: Flow rate precision: < 0.07% RSD	Amendment: Flow rate precision: < 0.08% RSD
3	Page 20, Chapter 4, 1. Pump, point: The chromatography system should be capable of being operated both as a HPLC & UHPLC by interchanging column chemistries.	Clarification: No change in this specification
4	Page 20, Chapter 4, 2. Autosampler, point: Sample capacity of over 100 vials of 1.5/2 ml	Amendment: Sample capacity of over 95 vials of 1.5/2 ml
5	Page 20, Chapter 4, 3. Mass Spectrometer, point: MS ionization source: Dual ionization source required: Electro-Spray Ionization (ESI) and Atmospheric Pressure Chemical Ionization (APCI) with orthogonal spraying for improved robustness equipped with self-cleaning heaters.	Amendment: MS ionization source: Dual ionization source required: Separate Electro-Spray Ionization (ESI) and Atmospheric Pressure Chemical Ionization (APCI) with orthogonal

		spraying for improved robustness equipped with self-cleaning heaters to function in both positive and negative modes.
6	Page 20, Chapter 4, 3. Mass Spectrometer, point: Flow rate range for source: 1 μL/min to 2000 μL/min or higher without flow splitting for better accuracy	Amendment: Flow rate range for source: 5 μL/min to 2000 μL/min or higher without flow splitting for better accuracy
7	Page 20, Chapter 4, 3. Mass Spectrometer, point: Expected Resolution: should be >40,000 for QTOF @ m/z 1000	Amendment: Expected Resolution: should be >40,000 for QTOF @ a single defined m/z within the m/z range 900 to 1100. Vendors must provide resolution for complete mass range for the QTOF in the technical document.
8	Page 20, Chapter 4, 3. Mass Spectrometer, point: Acquisition speed: High speed, with very high response time, and efficient fragmentation is expected. For MS and MS/MS acquisitions: ≥ 25 and ≥ 50 Hz for QTOF, @ at least 15,000 resolution @ 200 m/z is expected.	Amendment: Acquisition speed: High speed, with very high response time, and efficient fragmentation is expected. For MS and MS/MS acquisitions: ≥ 25 and ≥ 30 Hz for QTOF, @ at least 15,000 resolution @ 200 m/z is expected.
9	Page 21, Chapter 4, 3. Mass Spectrometer, point: Sensitivity: Full MS scan mode: 1 pg for known company MS standards, with S:N > 500:1 without compromising on speed or resolution. Automated calibration and tuning from a reference probe either intra or inter sample during batch sample analysis should be possible.	Amendment: Sensitivity: For 1 pg for known company MS standards (e.g. reserpine in positive ion mode), should be S:N > 500:1 for MS, and S:N > 1500:1 for MS/MS without compromising on speed or resolution. Automated calibration and tuning from a reference probe either intra or inter sample during batch sample analysis should be possible.

10	Page 21, Chapter 4, 3. Mass Spectrometer, point: Desolvation temperature: > 500 °C with complete temperature range should be controlled by instrument acquisition software. If vendor describes desolvation temperature in some other way or is absent from their instrument specification, factory certificate for the same must be provided	Amendment: Desolvation temperature: > 400 °C with complete temperature range should be controlled by instrument acquisition software. If vendor describes desolvation temperature in some other way or is absent from their instrument specification, factory certificate for the same must be provided
11	Page 21, Chapter 4, 3. Mass Spectrometer, point: Polarity switching: Positive and negative mode spectral acquisition should be possible in a single run	Amendment: Polarity switching: Positive and negative mode spectral acquisition should be possible in a single run using the same ionization source
12	Page 21, Chapter 4, 3. Mass Spectrometer, point: Upgradability: Upgradeable to ion mobility for separation of isobaric and co-eluting analytes (if possible, but this option should be mentioned in the technical document).	Clarification: No change in this specification. Upgradability of the instrument is a mandatory requirement. The vendor is expected to provide details of the nature and type of the upgradability. Cost for upgradation should be provided as an optional item/cost in the commercial bidding document.
13	Page 21, Chapter 4, 4. Workstations and Software Specifications, point: Software for discovery lipidomics applications as well as other related and relevant applications mentioned, that can perform both qualitative and quantitative analyses with statistical tests, should be provided and quoted. Software should have visual tools to help understand trends within datasets, and allow for the exclusion of outliers in the data for further analysis.	Amendment: Software for discovery lipidomics and metabolomics applications as well as other related and relevant applications mentioned, that can perform both qualitative and quantitative analyses with statistical tests, should be provided and quoted. Software should have visual tools to help understand trends within datasets, and allow for

		the exclusion of outliers in the data for further analysis. Vendor must provide perpetual licenses (including free upgrades for at least 5 years) of the plugins, add-ons and output file format converters to ensure that the machine's MS and MS/MS outputs can be used as an input for open-source non-targeted analysis platforms like XCMS, MSDial, MZMine, etc. and open-source structure analysis servers like Chemspider, MassBank, ChEBI, etc.
14	Page 21, Chapter 4, 4. Workstations and Software Specifications, point: The system should be quoted along with 3 offline data processing computers and 1 data acquisition computer. Minimum computer specifications for each computer: 64 GB RAM, 10 TB hard disk, Most recent version of Windows compatible with acquisition and offline data processing software, mouse, English keyboard, and a 24 inches screen. All software (and potential upgrades) should be compatible with the operating system.	Clarification: No change in this specification
15	Page 22, Chapter 4, 7. Accessories:	Amendment: This section has been amended as 'Accessories demonstration and user training'. Following clause has been added: The vendor must demonstrate the claimed LC, MS and software capabilities on site after the installation.

	Page 22, Chapter 4, 7. Accessories demonstration and user training, Point: Instrument operation and data analysis training at customer site to be included (at least two times per year).	Amendment: Instrument operation and data analysis training at customer site to be included (at least two times per year for 5 years).
16	Page 22, Chapter 4, 6. Warranty, point: Comprehensive Maintenance Contract (CMC) for at least 5 years (if not more) is expected for the entire system including all accessories and offline systems	Clarification: No change in this specification
17	Marking scheme of Chapter 4.	Clarification: 1) Marking scheme has been amended to separate the upgradability from the central instrumentation. 2) Marks for the various sections have also been modified.

AMENDED TECHNICAL SPECIFICATIONS AND MARKING SCHEME IS AS FOLLOWS:

Technical evaluation criteria with marks		
Sr. No.	**Technical requirement**	**Marks**
1.	**Pump** • Binary gradient pump with high pressure mixing, equipped with in line degasser technology • Operating flow rate range to be 5 – 2000 μL/min or better, in 1-μL increments. • Operating pressure should be 18000 psi or better. • Flow rate accuracy ± 1% • Flow rate precision: < 0.08% RSD • Composition accuracy: 0.5% or better • System delay volume < 200 µL, independent of system backpressure (with standard mixer). • The chromatography system should be capable of being operated both as a HPLC & UPLC by interchanging the column chemistries. • The HPLC/UHPLC system should have single point software-based control with MS. • Gradient precision of 0.15% RSD or ± 0.4 min SD whichever is greater. • Gradient profile: step and linear gradient at multiple levels • Capability to run columns from 1 – 10 µm particle size range.	30
1.	**Autosampler** • Injection volume: 0.1 to 20 µL (or better) in 0.1 µL increments. • Sample capacity of over 95 vials of 1.5/2 ml. • Sample carryover < 0.004% • Sample cooling range from 4 – 40 °C	30

2.	**Mass Spectrometer** • Technology required: Quadrupole Time of Flight (QTOF) • MS ionization source: Dual ionization source required: Dedicated Electro-Spray Ionization (ESI) and Atmospheric Pressure Chemical Ionization (APCI) with orthogonal spraying for improved robustness equipped with self-cleaning heaters in both positive and negative modes. • Flow rate range for source: 5 μL/min to 2000 μL/min or higher without flow splitting for better accuracy. • Expected Resolution: should be >40,000 for QTOF @ a single defined m/z within the m/z range 900 to 1100. Vendors must provide resolution for complete mass range for the QTOF in the technical document • Mass accuracy: < 2 ppm and < 1 ppm against external and internal calibration respectively for 12 hours of LC-MS/MS. • Scan modes: Full scan MS, and MS/MS or product ion scan or precursor ion scan with full scan mode. Q1 scan mode also should be possible. • Quadrupole mass range: at least 50 – 2000 or better. • Linear dynamic range: ≥ 4 orders of magnitude. • Acquisition speed: High speed, with very high response time, and efficient fragmentation is expected. For MS and MS/MS acquisitions: ≥ 25 and ≥ 30 Hz for QTOF, @ at least 15,000 resolution @ 200 m/z is expected. • The system should have a TOF mass range of 50 – 10,000 m/z for better or QTOF in high-resolution mode. • Sensitivity: For 1 pg for known company MS standards (e.g. reserpine in positive ion mode), should be S:N > 500:1 for MS, and S:N > 1500:1 for MS/MS without compromising on speed or resolution. Automated calibration and tuning from a reference probe either intra or inter sample during batch sample analysis should be possible. • Desolvation temperature: > 400 °C with complete temperature range should be controlled by instrument acquisition software. If vendor describes desolvation temperature in some other way or is absent from their instrument specification, factory certificate for the same must be provided	80

	• Polarity switching: Positive and negative mode spectral acquisition should be possible in a single run • Vacuum interlock system: An in-built system that allows source and (if possible) even capillary cleaning and maintenance while maintaining system vacuum • As an optional accessory, an integrated infusion device controlled by instrument acquisition software. • Data acquisition should be possible in data-dependent and data-independent modes. • Applications: Capable of performing both qualitative and quantitative lipidomic, metabolomics and small molecule analysis with high sensitivity, accuracy, precision, and reproducibility. • LC & MS: Have to be from the same vendor for seamless integration and better post-sales service.	
3.	**Upgradability** • Upgradeability of the quoted model to perform ion mobility for separation of isobaric and co-eluting analytes is a requirement. Options for the upgrades should be mentioned in the technical document. Cost for upgradation should be provided as an optional item/cost in the commercial bidding document.	10
4.	**Workstations Specifications** • Original and licensed universal perpetual software (including free upgrades for at least 5 years), 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 should be quoted. • Separate high configuration workstation should be quoted for off-line data processing. • The system should be quoted along with 3 offline data processing computers and 1 data acquisition computer. Minimum computer specifications for each computer: 64 GB RAM, 10 TB hard disk, Most recent version of Windows compatible with acquisition and offline data processing software, mouse, English keyboard, and a 24 inches screen. All software (and potential upgrades) should be compatible with the operating system.	40

5.	**Software and data analysis tools** • Software for discovery lipidomics and metabolomics applications as well as other related and relevant applications mentioned, that can perform both qualitative and quantitative analyses with statistical tests, should be provided and quoted. • Software should have visual tools to help understand trends within datasets, and allow for the exclusion of outliers in the data for further analysis. • Vendor must provide perpetual licenses (including free upgrades for at least 5 years) of the plugins, add-ons and output file format converters to ensure that the machine's MS and MS/MS outputs can be used as an input for open-source non-targeted analysis platforms like XCMS, MSDial, MZMine, etc. and open-source structure analysis servers like Chemspider, MassBank, ChEBI, etc.	50
6.	**Accessories demonstration and user training** • Prerequisite for MS: IISER Pune will provide empty space with electricity and AC connections. It will be the vendor's responsibility to install the equipment and the accessories, as well as the infrastructure and essential facility to run the instrument. It may include but not restricted to platforms, plumbing, wiring, cylinders, piping, gas generators, computer hardware and software installations, extra electrical wiring, switches, and so on, to bring the instrument to PQ level. • Suitable nitrogen generator should be supplied by the vendor, and quoted. The generator must have a trouble-free compressor with appropriate capacity to deliver sufficient gas (purity > 99.999%) required to run the system. • The vendor must also quote all the accessories for the smooth functioning of system. • The vendor must highlight the specification in their technical brochure sheet and mention compliance with proposed specifications. • The vendor must demonstrate the claimed LC, MS and software capabilities *on site* after the installation	30

	• Instrument operation and data analysis training at customer site to be included (at least two times per year for 5 years).	
7.	**Warranty** • Comprehensive Maintenance Contract (CMC) for at least 5 years (if not more) is expected for the entire system including all accessories and offline systems	30
	Total Marks	300

Minimum marks for qualification: 275

Changes in Critical Dates of Tender

Sr. No.	Particulars	Date	Time
3	Bid Submission Start Date	20/05/2021	18.00Hrs
4	Bid Submission Close Date	31/05/2021	15.00Hrs
5	Closing date & time for Submission of original Tender Fee	31/05/2021	15.00Hrs
6	Opening of Technical Bids	03/06/2021	15.00Hrs