



Document 2022/101/25306 - GENERAL (modified version of 2022/25304/101) - File No. 2022/101/4378
Approved by Registrar on 11/11/2022 15:00:19

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KUFOS HQRS,Panangad, Ernakulam



KERALA UNIVERSITY OF FISHERIES & OCEAN STUDIES
കേരള ഫിഷറീസ്-സമുദ്രപഠന സർവ്വകലാശാല

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No. GA7/4378/2022
11.2022

Panangad, Dated .

E- TENDER NOTICE

E- tenders are invited for the Supply of “LC-MS/MS for PMMSY Aquatic Referral Lab for Quality Testing and Disease Diagnosis,KUFOS, Panangad” with specification as per attached documents.

The Tender should be submitted as e- tender in the e- procurement portal of Kerala Government with detailed specification, Tender fee of Rs.25,500/- and EMD of Rs.1,70,000/-, by means of e- Payment. The GST amount of the tender fee @18% should be remitted to the GST department directly by the bidder. More details will be available in the Office of Dr. Devika Pillai, PI & Director of Research , KUFOS Panangad, on all working days with the permission of undersigned. As per DSIR registration, necessary exemption can be availed for customs & excise duties for the purchase. Our GST Regn. No. is: 32AAAGK0031Q1ZL.

All the terms and conditions applicable to University/Government quotations/Tenders are applicable to this Tender also. Right to accept the Tender in full or in part or to reject without assigning any reason is reserved to the undersigned.

REGISTRAR

To : Firms/Programmer to Publish on the Website
Copy to: Dean FFS/Dr. Devika Pillai, PI, PMMSY Project through Dean FFS/ SF/ Spare



LC-MSMS Tender Specification

LC-MS/MS	<ul style="list-style-type: none"> • A compact High resolution Triple Quadrupole based LC-MS/MS equipment for qualitative and quantitative estimation of different contaminants (Pesticides, Mycotoxins, antibiotics etc) analysis with user friendly software with warranty of 3 years and 3 years CMC and AMC additionally at the frozen rates as on the date of purchase • Instrument should meet the global food regulations like EU/USFDA/ Japan/FSSAI, etc. • Should include basic system operating software, accessories and supporting instruments to carry out experiments with warranty of 3 years and 3 years CMC and AMC additionally at the frozen rates as on the date of purchase. • Data analysis licenses (5) should be provided with free upgrades and support for 5 years. • The quoted model should be the latest one and should not be the discontinued model and confirmation letter from OEM should be enclosed for the same stating service support for next 8-10 years • The system should be modular so that both HPLC and MS/MS system can function independently • Certificate of safety to be provided for a validity period of 5 years
Mass Stability	0.1 Da over 24 hours
Dynamic range	Should be 6 orders of magnitude or better
Mass analyzer	<p>Quadrupole Analyzer:</p> <ul style="list-style-type: none"> • The instrument should be configured with a quadrupole mass filter for the efficient transmission of ions in MS mode and selection of precursor ions for MS-MS analysis



	<ul style="list-style-type: none"> The Quadrupole mass range 5 – 2000 m/z or better The Analyzer should have more than one aspect for the efficient ion separation with maximum resolution
Sensitivity	<p>Lower detection and highest sensitivity</p> <ul style="list-style-type: none"> Sensitivity of the instruments: In ESI +ve 1 pg/µl of Reserpine sensitivity should be >5,00,000:1 or more Sensitivity of the instruments: In ESI -ve 1 pg/µl of Chloramphenicol sensitivity should be >5,00,000:1 or more <p>Or</p> <ul style="list-style-type: none"> IDL ESI+ve should be < 2.5fg IDL ESI-ve should be < 2.5 fg <p>Documentary evidence to be submitted along with quotation. For ten injections, % RSD should be < 5%. Chromatogram to be provided, with details of mobile phase, Column and injection volume. Statistical treatment used to determine S/N ratio is to be specified along with raw data.</p>
Scan speed	Should have the scan speed of 17,000 amu per sec or better
Ionization	<ul style="list-style-type: none"> Electrospray with Co axial flow based design to cover flow rates upto 2ml/min Ionization Source capable of handling complex food matrix and should have dedicated ESI and APCI sources Source Desolvation Temperature should be 500°C or better.
Interface & Ion guide	<ul style="list-style-type: none"> Interface should maintain cleanliness of ion optics and capable of handling large batches of complex samples. Capable of handling large batches of complex sample matrix like fish feeds, Fish and fishery products, Agriculture products (Fruits & Vegetables) etc. over a long period of time without performance degradation. Cleaning of source should be done without venting the system and facility to vacuum interlock.



	<ul style="list-style-type: none">Interface capable of ambient temperature operation and without complex apertures to maintain structural integrity of thermallylabile and fragile molecules.
MRM	<ul style="list-style-type: none">Minimum MRM dwell time 1ms or betterMRM Transition 500 or better in a single time period , with no loss in sensitivity for Co-eluting component at any point of time
Polarity switching time	<ul style="list-style-type: none">+ve / -ve polarity switching time within the source should be 10 ms or lower
Integrated Fluidic Device (to minimize space and tubing)	<ul style="list-style-type: none">An infusion device must be integral to the instrument or equivalent and must be controllable from the instrument software.
Quad Resolution	<ul style="list-style-type: none">Unit mass resolution
Collision cell	<ul style="list-style-type: none">Specially designed collision cell to allow use of very low dwell times (1 milliseconds) without sacrificing sensitivity and eliminate cross talk to enable Multiple MRM Transition studies within a single run .
Vacuum System	<ul style="list-style-type: none">Robust high efficiency multistage vacuum system with minimum maintenance and utility with low noise level.Vacuum read backs must be digitally monitored and controlled through software to ensure fail-safe operation in the event of power failure.All accessories required for the proper functioning of the vacuum system should be supplied.High vacuum pumpThe system should have vacuum safety features to prevent damage to the instrument in case of failure.
Gas Control	<ul style="list-style-type: none">All gases must be controlled by the software.Gas generators with inbuilt compressor of reputed brand compatible to the LC MSMS model/make shall be quoted, capable of supplying Nitrogen with the required purity, pressure, and flow rate as required for LC MS/MS instruments at a time should be provided. It should be complete, with all necessary accessories.Collision Gas:-Should include Gas cylinder, gas manifold, gas filter and all accessories for connection of gas cylinder for installation and working of LC MSMS.
Operating modes	Mass spectrometer should have the following scan options: <ul style="list-style-type: none">Full scanSelected Ion monitoring/ recording (SIM/SIR)Product ion scanPrecursor ion scanNeutral loss scan



	<ul style="list-style-type: none"> • Multiple Reaction Monitoring (MRM) Time managed MRM • + ve/ -ve polarity switching time between alternate MRM scans : 10 ms or less • Automatic and manual tuning / Optimization
<p>Detector</p>	<p>A high sensitivity, high throughput detector which provides near simultaneous detection of positive and negative ions without the need for high-voltage switching & stabilization time</p> <p>Long life (with minimum 5 years warranty) highly efficient electron multiplier or photomultiplier detector.</p>
<p>Multi gas Generator (Nitrogen Generator)</p>	<p>Should be supplied with the multi gas generator system which should be sufficient enough to deliver the gases (purity > 99.999%) required to run the system</p> <p>Highly reputed brand of generator with inbuilt compressor with low noise should provided</p> <p>Should be covered under five years comprehensive warranty with at least two preventive maintenance along with PM kit each year. Satisfactory performance certificate should be given every six month of preventive maintenance visit</p>
<p>High Performance Liquid Chromatography System</p>	<p>The HPLC system and the MS should be controlled by the single software</p> <p>Pump:</p> <ul style="list-style-type: none"> • High pressure Quaternary Gradient mixing piston pump with individually driven pistons • Active plunger back-wash with integrated wash pump • Automated self-priming with integrated prime pump and automatic purge valve • Automated purging with safe pressure relief • Facility to select two solvents per pump module (A/B) • Integrated 5 channel vacuum degassing • Operating flow range should be 1- 2000.0 µL/min or better with 1µl increments • Capability to handle pressure range of 18000 psi or better • Gradient delay volume 50 µL or better • Flow precision ≤ 0.075% RSD or better • Flow accuracy ± 1% or better • Gradient composition accuracy ± 0.5% or better • Gradient composition precision ≤ 0.15% RSD or better <p>Autosampler:</p> <ul style="list-style-type: none"> • 100 or better vial (2ml) capacity • Injection volume is programmable from 0.1 to 50 µL or above • Injection precision <0.3% or better



	<ul style="list-style-type: none"> • Injection carry over < 0.005 % or better • Operating temperature range: 4⁰C to 40⁰C <p>Column Oven:</p> <ul style="list-style-type: none"> • 5°C to 85°C with 1°C increment • Temperature accuracy better than 0.1°C • Temperature stability better than 0.1°C • Temperature reproducibility better than 0.1°C
<p>Columns</p>	<ul style="list-style-type: none"> • C 18 Column with Sub 3 microns for antibiotic residue analysis -3 Nos • C 8 Column with sub 3 microns- 2 Nos • Column suitable for Polar Pesticides- 1No • Guard Column suitable for the application may also be provided
<p>System Controller and Operating system</p>	<p>Software must be Multitasking type. It must acquire and process the data simultaneously</p> <ul style="list-style-type: none"> • Application manager must be compatible with data of full scan, SIM/SIR or MRM • Data Acquisition, Peak Integration, Calibration, Quantification and QC calculations must be fully automated • The Quantification method editor must be viewable in page view or spreadsheet. • Application manager must allow to monitor the molecular ion and up to 04 (four) Confirmatory ions or better. • Must be capable of performing the following functions and should be upgradable: • Workstation must be able to control the MS, acquire, store, process and reproduce the data by the same computer. • Workstation must be able to control all LC modules including Detector. • It must be able to regulate the gas pressure and flow during the data acquisition and append to the relevant data file. • Software must have automated calibration and Quantitative optimization. • Automated MS to MS/MS switching during a single run with user selectable criteria • Perform alternating positive/negative scans in one run • Automated Quantitation and reporting of acquired samples. • Data may be processed as it is being acquired • Remote diagnostics that can perform instrument diagnostics, monitor all operating and electrical parameters, and allow remote tuning capability in real time • Data bases or Method packages for Residue Pesticides, Antibiotics/Veterinary Drugs, Mycotoxins and Environmental must be included
<p>Power requirements</p>	<ul style="list-style-type: none"> • 100 to 240 VAC with line frequency 50 to 60 Hz • 100 kVA Genset (maybe quoted separately with warranty, as optional)



Warranty	<ul style="list-style-type: none">• 3 years and 3 years CMC and AMC additionally at the frozen rates as on the date of purchase• 5 years for the multi gas Generator
UPS	<ul style="list-style-type: none">• 15 KVA UPS with 1 hour back up to be supplied along with the instrument. It should be with isolation transformer.• Warranty 3 years for UPS and batteries
Printer	<ul style="list-style-type: none">• LaserJet multi-function printer to be supplied
Computer	<ul style="list-style-type: none">• Intel core i7 8th or latest Generation processor with intel UHD Graphics, 32GB DDR4 RAM, 2TB SSHD hard drive, USB 2 and USB 3.1 ports 2 each, 27 inch monitor and with Original OS
User List	<ul style="list-style-type: none">• Details should be provided about at least 5 installations in India in reputed institutions (FSSAI organizations, IITs, IISC and Govt. Laboratories) in the last 5 years. Contact person Name, E-Mail id, Phone no & institution Name should be provided.• Vendor should enclose minimum 5 Performance certificates from reputed Govt Organization like FSSAI , EIA for the quoted model.
Pre installation requirement	<ul style="list-style-type: none">• Complete technical details of pre-installation requirements should be furnished along with the technical bid
Installation/ Commissioning	<ul style="list-style-type: none">• Installation. Complete interfacing of the system with its subsystems and commissioning is to be carried out by the vendor's factory-trained engineers, followed by a demonstration of the system's performance.• Back up equipment support for testing must be available at the supplier's facility during the equipment breakdown.• The warranty shall commence only upon successful completion of the Acceptance Test or Commissioning.• The supplier must demonstrate that it has a proven appropriate set-up and capability to provide after-sales service efficiently and effectively. The supplier should have in house facility a similar system to that proposed in this tender for training purpose.• The tenderer must have a local dedicated team; consisting of engineers and application engineers from direct factory/manufacturer/distributor for optimum support of the system.



	<ul style="list-style-type: none"> The system should be easy to use and vendor should be ready to give at least 10 Years technical support.
Instrument performance Verification /IPV (IQ,PQ)	<ul style="list-style-type: none"> To be done free of cost with traceable calibration standard for the first 3 years (at installation & at every maintenance visit of each year) with PM kits Documents, PM Kits and calibration standards etc to be supply along with instrument at every PM visit free of cost during warranty period OQ/IPV Should be done free of cost with supply of PM kits and Calibration standard during warranty period Satisfactory performance certificate should submit to the laboratory after calibration of LCMSMS before one month of warranty period expired with supply and fixation of PM kits of HPLC and MS system
Man power and training	<ul style="list-style-type: none"> Users of the equipment should be provided with minimum 2 months training on Method development, optimization and trouble shooting
Other accessories	<ul style="list-style-type: none"> CRM Standards (ISO : 17034 compliant) for LC amenable pesticides (50 numbers) and Antibiotics (chloramphenicol, nitrofurantoin metabolites, tetracyclines, sulphonamides, β-lactams, fluoroquinolones)towards method execution to be provided with minimum 1 year validity. 10000 vials compatible vials to the quote model/make of LCMSMS and auto sampler shall be supplied
Training for operation	<ul style="list-style-type: none"> The supplier must provide training for the users of the instruments at site as well as at the supplier's application laboratory, after installation and commissioning at free of cost. Details of training program must be attached with the tender. Application support for method development for antibiotic, pesticides, mycotoxins analysis should be provided during warranty and AMC period, whenever required free of cost. The instrument supplier has to demonstrate on site validation as per the laboratory / regulatory requirement / protocols at least for four parameters , as selected / preferred by the lab
After sales support	<ul style="list-style-type: none"> The vendor should have a technical service team for the equipment
Availability of Service centre	<ul style="list-style-type: none"> Service centre should be in India with a turnaround time of 48 hours after registration of complaint /Service support.Details should be furnished along with technical bid
<ul style="list-style-type: none"> All accessories required for trouble free installation, demonstration and operation of the system during the warranty period should be quoted 	