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SUPPLEMENTAL/BID BULLETIN
No. CEFA-SB-2024-018

This Supplemental/Bid Bulletin No. CEFA-SB-2024-018 is issued by the BAI Special Bids and Awards Committee (SBAC) for the Cold Examination Facility for Agriculture (CEFA) to all participating bidders to clarify, amend and/or modify certain provisions and requirements for the various procurement projects.

All portions of the Bidding Documents affected by these amendments shall be made to conform the same. Amendments/inclusions/clarifications/revisions made herein shall be considered as integral part of the Bidding Documents.

Technical and Scientific Equipment
LIQUID CHROMATOGRAPHY TANDEM WITH MASS SPECTROMETER (LC-MS/MS) SYSTEM COMPLETE WITH ACCESSORIES

IB NO.	LOT NO.	AMENDMENTS/MODIFICATIONS		
		FROM	TO	SPECIFIC SECTION OF THE BIDDING DOCUMENT
CEFA-SB-2024-012	**2**	CEFA PR-SB-2024-070	**CEFA-SB-2024-070**	Section VI. Schedule of Requirements and Section VII. Technical Specifications
		Please refer to the attached updated technical specifications to be included in the bidding document posted on the PhilGEPS/BAI website.		

Please be guided accordingly.

MARIE BERNADETTE T. BONO, DVM
Vice-Chairperson, SBAC for CEFA

Received:

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Bidder/Authorized Representative
Date:_____

Annex A. Technical Specifications for 1 Liquid Chromatography tandem with Mass Spectrometer (LC-MS/MS) System complete with accessories

Item	Specifications
1-unit Liquid Chromatography tandem with Triple Quadrupole Mass Spectrometer complete with accessories	Ion Source The ion source is a dual-orthogonal design • Samples may be introduced by direct infusion, or the system may be interfaced directly to a UPLC or HPLC or GC system. • Positive and negative ionization capabilities must be included as standard on the instrument.VLD-42 • • Tool-free on ion source access to customer serviceable elements • Tool free source exchange • Plug and play probes • Optimized gas flow dynamics for efficient ESI desolvation (supporting LC flow rates up to 2mL/min) • With Vacuum isolation valve • Software control of gas flows and heating elements API Sources and Ionization Modes Electrosopray Ionization (ESI) included • Multi-mode source-tool-free (simultaneous ESI/APCI) included • Optional and can be upgradable to: • Atmospheric Pressure Chemical Ionization (APCI) probe • Atmospheric Pressure Gas Chromatograph (APGC) source • Dual-mode APCI/APPI source • nanoFlow ESI source • Atmospheric Solids Analysis Probe (ASAP) • Ion Key/MS source • Ion Source Transfer Optics- Off-axis ion optic, increases the efficiency of ion transfer from the ion source to the quadrupole MS analyzer. Mass Analyzer Two (2) high resolution, high stability quadrupole (MS1/MS2) plus pre-filter Collision Cell Travel wave enabled for optimal MS/MS performance at high data acquisition rates Detector- Low noise, Off-axis, long life photomultiplier Vacuum System

	• One split flow air cooled vacuum turbomolecular pump evacuating the source and analyzer • One vacuum backing pump •
	Additional Hardware Features 1. weight of the instrument must not exceed 100kg 2. infusion device must be integral to the instrument and must be controllable from the instrument software with at least 2 user-changeable sample vials should be built into the system 3. Electrical Safety/EMC Testing -CE and NRTL 4. Mass Range 2 – 2048 m/z 5. Scan Speed Up to 20,000 Da/s 6. Examples of achievable Acquisition Rates 20 scans per second (m/z 50 – 1000) 40 scans per second (m/z 50 – 500) 7. Mass Stability Mass drift is < 0.1 Da over 24-hour period 8. Linearity of Response 6 orders of magnitude from the limit of detection relative to sample concentration for a specified compound 9. Polarity Switching Time 15 ms to switch between positive and negative ion modes 10. MS to MS/MS Switching Time- 3 ms With the ability to switch between MS (full scan) and MS/MS (which includes MRM; product ion scanning; parent ion scanning; and neutral loss scanning) acquisition modes without compromising data quality in either mode 11. Ionization Mode Switching (ESI/APCI) 20 ms to switch between ESI and APCI MRM Acquisition Rate 555 MRM data points per second maximum acquisition rate 0.8 ms minimum dwell time per MRM channel 1 ms minimum inter-channel delay At MRM acquisition rate of 555 MRM data points per second there is no more than 25% loss in signal compared to 50 MRM data points per second 12. Inter-channel cross talk < 0.001% inter channel cross talk between two MRM transitions acquired using an MRM dwell time of 1 ms and an inter-channel delay time of 1 ms 13. Number of MRM Channels Over 32,000 MRM channels can be monitored in a single acquisition 14. Mass Resolution Automatic adjusted to desired resolution. (0.50 Da, 0.75 Da, 1.00 Da FWHM)

	15. MRM Sensitivity (ESI+) > 600,000:1 chromatographic signal-to-noise (using raw unsmoothed data of 1 pg on-column injection of reserpine, gradient separation, with LC mobile phase flow rate 0.4mL/min, MRM transition m/z 609>195) The Instrument Detection Limit (IDL) from 10 replicate injections has been calculated to be < 2.5fg reserpine 16. MRM Sensitivity (ESI-) > 200,000:1 chromatographic signal-to-noise (using raw unsmoothed data of 1 pg on-column injection of chloramphenicol, gradient separation, with LC mobile phase flow rate 0.8 mL/min, MRM transition m/z 321>152) The Instrument Detection Limit (IDL) from 10 replicate injections have been calculated to be < 2.5fg chloramphenicol 17. MRM Sensitivity (APCI+) > 30:1 chromatographic signal-to-noise (using raw unsmoothed data of 1 pg on-column injection of 17-α-hydroxyprogesterone, gradient separation, with mobile phase flow rate 0.8 mL/min, transition m/z 331>109)
	Software Specifications • Automatic System Start-up 1. System parameter checks and alerts 2. Integrated sample/ calibrant delivery system plus programmable divert valve 3. Automated mass calibration 4. Automated sample tuning 5. Automated MRM and SIR method development 6. UPLC-MS/MS System Check – automated on-column performance test • Quantification Method Database- Software includes database for storing and sharing user defined LC/MRM acquisition methods and associated processing methods for the targeted quantification of named compounds must be provided as standard • Automated MRM Acquisition Rate Assignment 1. Dwell Time 2. Inter-channel delay time 3. Inter-scan delay time • Auto dwell feature: 1. dynamically optimize MRM cycle times to accommodate retention time windows that either partially or completely overlap 2. greatly simplifies MRM method creation, irrespective of the number of compounds in a single assay, while at the same time ensuring the very best quantitative performance for every experiment • Automated MRM Acquisition Window Assignment

	1. scheduled using retention time windows to optimize the cycle time for each MRM channel monitored for a multiple MRM experiment 2. MRM retention time windows can overlap partially or completely if required 3. ensures that MRM data acquisition rates will be optimal for the quantification of all analytes in a given assay • Acquisition Modes 1. Full Scan MS 2. Product Ion Scan 3. Precursor Ion Scan 4. Constant Neutral Loss 5. Selected Ion Recording (SIR) 6. Multiple Reaction Monitoring (MRM) 7. Simultaneous full scan and MRM • Survey Scan Modes 1. Full scan MS triggered product ion scan 2. Precursor ion scan data must act as an automatic trigger for the collection of product ion spectra 3. Constant neutral scan data must act as an automatic trigger for the collection of product ion spectra • Product ion Confirmation- o MRM data act as an automatic trigger for the collection of product ion spectra, activated with a single check box • Simultaneous full scan and MRM- o Ability for quantitative UPLC/MRM acquisition to be performed at the same time as acquiring full scan spectra in positive ion mode and full scan spectra in negative ion mode
	Other Software Requirements 1. Must have database for rapid and easy access to chromatographic, MS acquisition, and processing methods for the development of analytical methods with at least 40 pre-defined analyses with information on over 1,000 compounds for LC-MS/MS analysis on veterinary drugs, antibiotics (including nitrofurans and associated metabolites), hormones, amphetamines, mycotoxins, pesticides, water soluble vitamins, and other compounds, such as melamine resin 2. must include a facility to automatically report on LC/MS/MS system performance by employing user-defined pass/fail criteria for compound retention time, peak area/height/width and signal-to-noise over a specified number of injections 3. must include automated monitoring of instrument vacuum, gas flows and voltages to warn the user of out-of-tolerance parameters

	4. application manager for the quantification of LC/MS and LC/MS/MS data must be available. It must have the ability of working with full scan, SIR/SIM or MRM data. 5. Data Acquisition, Peak Integration, Calibration, Quantification and QC calculations must be fully automated and can be performed in a multiple batch analysis mode 6. must have the ability to simultaneously process quantification data and acquire samples using the same software interface 7. must have the facility to generate a report for viewing or exporting to a third-party system. The report must be stored and reprocessed independently of the original raw data, which does not need to be carried out on the data acquisition PC
	UPLC Specifications • Total system band spread: ≤ 12 µL • Dwell volume (total system): ≤ 115 µL • Integrated leak management: Equipped with leak sensors and safe leak handling • Quantum synchronization: Equipped with injection synchronization between pump and autosampler to enhance retention time reproducibility • pH range Unattended operation: 1 to 12.5 • Cycle time: ≤ 30 s inject to inject
	Pump Specifications • Maximum operating pressure: 15,000 psi • Gradient delay volume: **≤90 µL** • Operating flow rate range: 0.001 to 2.000 mL/min in 0.001 mL increments • Number of solvents: Up to four in combination of two, A1 or A2 and B1 or B2 • Solvent degassing: Integrated 4 chambers vacuum degassing and 1 additional chamber for the autosampler purge solvent. Total of 5 vacuum degasser chamber. • Solvent blending: Equipped with automated online pH, ionic strength and organic modifier blending from pure solvents • Gradient formation: Equipped with high pressure mixing, binary gradient with capability to start gradient "At Injection" (default), "Before the Injection" (to decrease gradient delay), or After the Injection" (to increase gradient delay) • Gradient profiles: 11 gradient curves including, linear, step (2), concave (4), and convex (4) • Primary check valves: Equipped with an integrated and active pump intake valve • Pressure pulsation: ≤ 0.4% or 25 psi whichever is greater • Flow accuracy: **± 1.0% at 0.500mL/min**

	• Flow precision: **≤ 0.075% RSD or ± 0.01 min SD** whichever is greater using premixed solvents • Composition ripple: ≤ 1.0 mAu (≤ 0.1 mAU with optional 250 µL mixer) • Composition precision: **≤ 0.15% RSD or ± 0.01 min SD** whichever is greater • Composition accuracy: ± 0.5% absolute from 5% to 95% from 0.2 to 2.0 mL/min • Compressibility compensation: Automatic, no user intervention required • Priming/ Purging- Wet priming can run at flow rates up to 4mL/min • Pump seal wash- Equipped with an automated active wash system to flush the rear of the high-pressure seals and plungers • Flow ramping- Range: 0.01 to 30.0 min to reach 2.00 mL/min Default: 0.45 min to reach 2.00 mL/min (Automatic) • Primary wetted materials- Equipped with biocompatible and inert materials: Titanium, PPS, fluoropolymer fluoroelastomer, sapphire, ruby, zirconia, Nitronic 60, DLC, PEEK and PEEK blend • Mixing options- Standard: 50 uL Optional: 340 uL
	Autosampler Specifications • Injection volume range- 0.1 to 10.0 µL standard configuration and up to 1000.0 µL with optional extension loop • Dwell volume contribution- ≤ 20 µL (no loop installed) • Accuracy- ± 0.2 µL, averaged over 20 injections • Precision- ≤ 1 % RSD, 0.2 to 1.9 µL ≤ 0.5 % RSD, 2.0 to 4.9 µL ≤ 0.25 % RSD, 5.0 to 100 µL • Linearity- ≥ 0.999 • Number of sample plates Any two of the following: • 96 and 384 microtiter plate • 48 position 2.00 mL vial plates • 48 position 0.65 mL micro centrifuge tube plates • 24 position 1.50 mL micro centrifuge tube plates • Maximum sample capacity- 768 in two 384 well plates or 96 in 2 mL vial holders • Sample compartment temperature range- 4.0 to 40.0 ^{0}C settable in 0.1 ^{0}C increments • Temperature accuracy- ± 0.5 ^{0}C at sensor • Temperature stability- ± 1.0 ^{0}C at sensor • Sample manager heat time- **± 30 min ambient -40 ^{0}C** • Sample manager cool time- ≤ 60 min ambient -4 ^{0}C

	• Injection needle wash- Integrated, active and programmable • Minimum sample required- 3 µL residual using 2 mL total recovery vials • Sample carryover- ≤ 0.002 % caffeine (UV) ≤ 0.002 % sulphadimethoxine (MS) • Advance capabilities- Capable of auto-dilution, auto-addition • Primary wetted materials- Equipped with primary and secondary fluidic paths that are made of biocompatible and inert materials: Vespel SCP, PEEK blend, DLC, and HPS (High Performance Surface) technology
	Column Heater Specifications • Column capacity- Single column up to 4.6 mm internal diameter, up to 150 mm in length with filter or guard column • Column compartment temperature range- 20.0 to 90.0 ^{0}C settable in 0.1 ^{0}C increments • Column compartment temperature accuracy- ± 0.5 ^{0}C at sensor • Column compartment temperature stability- **± 0.3 ^{0}C at sensor** • Column compartment heat time- **≤ 15 min ambient -60 ^{0}C** • Solvent conditioning- Equipped with active pre-heating as standard; passive pre-heating • Column tracking- Equipped with a technology which documents the methods and usage of UHPLC columns, up to 50 sample sets, the minimum and maximum pressure and temperature, sample and injection totals for the column can be stored and accessed using UHPLC system console software. The tracking technology must be part of each individual column for traceability. • Primary wetted materials- The flow path in the column heater must have High Performance Surface technology
	Other Requirements • At least 10 good and working triple quad installations in the country • At least 4 certified technical support with at least 5 years of experience in handling MS Includes the following: 1. 1 unit 10 KVA UPS 2. 1 system Appropriate Computer system and software including printer with 2 extra inks and 21" Flat Monitor 3. 3 pcs Recommended UPLC columns for the analysis of veterinary drug and pesticides residues 4. 1 set Solvent filtration set-up 5. 2packs (100pcs/ pack) Nylon syringe filters 6. 2 packs (100pcs/ pack) PTFE Syringe filters 7. 1 box (100pcs/box) Disposable syringe without needles 8. 1pck Membrane filter, Nylon, 200/pk, 2 packs 9. 2 sets 1.5mL Screw cap vials (clear), 100pcs/set

	10. 2 sets 1.5mL Screw cap vials (amber), 100pcs/set 11. 4x1L Solvent Bottles 12. MS Reference Standards 13. n-Hexane, MS Grade, 4L/bottle 14. 2 packs x 3o pcs HLB Cartridge, 6cc 200mg 15. 1 unit Nitrogen Gas Generator complete with tubing 16. 1 filled tank Argon Gas with regulator and gas lines