Amendment No. 01 to Bidding Document

Project Title: Procurement of Laboratory Equipment Supply, Installation, and Commissioning
Bid Reference No.: SLIBTEC/PROC/326/NCB/G&S/Procurement of Laboratory Equipment Supply, Installation and Commissioning
Date of Issue: 19th June 2026

Subject: Amendment to Bidding Document – Changes to Specifications

This Amendment No. 01 is hereby issued to amend the specifications contained in the original Bidding Document issued on 14th June 2026 in accordance with the provisions outlined in that document. It is recommended that all bidders pay attention to the following modifications:

1. **Section Affected**

   Section V – Technical Specifications

2. **Amended Specification**

   The amendments are here in yellow.

Item #	Specification	Requirements	Priority	Bidder's Response (Yes/No)	Remarks
01	Equipment	FPLC			
	Make	Please specify			
	Model	Please specify			
	Country of Manufacture	Please specify	C		
	Country of Origin	Please specify	C		
	Manufacture Year	Please specify			

	System Overview	Fully automated Fast Protein Liquid Chromatography (FPLC) system suitable for purification of proteins, peptides and biomolecules from microgram levels to tens of grams of target product from multiple samples. The specifications listed below represent the **minimum functional and performance requirements** for a research-grade Fast Protein Liquid Chromatography (FPLC) system intended for purification and analytical characterization of proteins, antibodies, and biomolecules. Equipment offered by bidders may vary in design; however, systems proposed must meet or exceed the **minimum specifications described below.** Equivalent or superior systems from **any internationally recognized manufacturer** will be accepted. The system must be supplied as a **fully integrated turnkey solution**, including pumps, detectors, fraction collector, software, installation, training, and required accessories for immediate operation.	C		
		2. The system must be modular, scalable, bench-top, and supplied as a complete plug-and-play turnkey solution.	C		
		3. The system should run with an automatic pressure control option, enabling modulation of the flow rate upon reaching the set pressure and continuing the run without pausing the system.	C		
		4. The system should include all types of connectors, filters, ferrules, Teflon and peek tubing, sample loops all other accessories.	C		
		5. There should not be any siphoning effect due to gravity before the gradient formation.	C		

	Pumping and Fluid Delivery	1. The system should have two pumps with 4 pump heads of hydrophobic material, which could tolerate harsh chromatographic buffers such as 8 M urea buffer and 6 M guanidinium hydrochloride with low pulsation. This is essential for the purification of denatured proteins and complex enzyme characterization where harsh cleaning-in-place (CIP) protocols are mandatory. Or an equivalent system, if an equivalent system is included, it should be justified by the manufacturer how the system is equivalent or better compared to the system mentioned in the document.	C		
		2. Minimum flow range 0.001–25 mL/min or higher and have built-in support for column packing at a higher flow rate up to 50 ml/min to ensure packing efficiency. The maximum operating pressure range should be 0 - 20 MPa (200 bar). Integrated pressure monitoring with automatic alarms is mandatory.	C		
		3. The system must have an in-line mixer equipped with a magnetic stirrer to ensure accurate mixing of buffers. A mixer volume should be less than 1.5 mL to avoid sample dilution.	C		
	Detection and Monitoring	1. The FPLC system should have a multi-wavelength detector which enables simultaneous monitoring of any three different wavelengths in the range of 190-700 nm and monitoring at 214 nm, 254 nm and 280 nm is mandatory.	C		
		2. The following UV-Vis parameters should be available: a.) Noise of less than 0.1 mAU with a resolution of 0.001 mAU and minimum UV linearity of ±2.0% across the UV range. b.) Lamp with no requirement of warm-up time. c.) Lamp life should be of minimum 5000 hr. d.) Lamp should not cause any heat-up of the system detector to avoid sample degradation.	C		

		3. The system should have optical fiber-based light for a high signal-to-noise ratio, and automatically switching off the lamp in stand-by mode ensures a long lamp lifetime. Or an equivalent system, if an equivalent optical-based system is included, it should be justified by the manufacturer how the system is equivalent or better compared to the system mentioned in the document.	C		
		4. UV detector should have an absorbance range from -6 to +6 AU with an optical path length of 2 mm. This high absorbance range is required to prevent signal saturation during high-concentration monoclonal antibody capture runs.	C		
		5. The system must have a Conductivity Monitor of range 0.01 mS/cm to 999.99 mS/cm with an accuracy of ± 0.01 mS/cm with an in-built temperature sensor to correct variation due to temperature.	C		
		6. The conductivity monitor should be integrated with an automated temperature and flow compensation system.	C		
		7. Inline pH detection using pH electrodes & detector and an inline conductivity detector for salt gradient monitoring should be available. Real-time chromatogram display and data acquisition is available.	C		
	Column Handling and Valves	1. A multi-position column selection valve enabling automated column switching is mandatory.	C		
		2. The system should have a column control valve which should allow the system to run in column bypass mode for efficient washing and cleaning of the system without removing the column and reverse flow for increased application flexibility and cleaning of the column.	C		
		3. System must support low dead-volume PEEK (Polyether Ether Ketone) tubing and fittings. Column mounting should be direct and tool-free.	C		

		4. System should have the capability of an outlet valve having at least 3 outlet ports, one going to the Fraction collector, one to waste, and one to collect in separate vials/vessels.	C		
		5. System should have the option to be integrated with third-party detectors like fluorescence detectors, RI and autosamplers simultaneously for increased application flexibility at the time of purchase or post-purchase.	C		
	Chromatography Column Compatibility	The system must be fully compatible with affinity chromatography, ion exchange chromatography, size exclusion chromatography, hydrophobic interaction chromatography, desalting columns, and empty columns for custom resin packing.	C		
	Columns	**General Requirement (MANDATORY)**			
		All chromatography columns listed below must be supplied together with the FPLC system.	C		
		The FPLC system must feature native mounting and fluidic ports designed to interface directly with the specified high-resolution analytical columns to maintain the Manufacturer's Performance Guarantee for peak symmetry and resolution, the fluidic path must be as short and direct as possible. Columns must be prepacked and ready-to-use. The connection interface between the column and the FPLC system must ensure a zero-dead-volume flow path without the use of secondary external adapters or specialized thread modifications This is Critical for High-Resolution SEC: any unwept volume (dead volume) introduced by adapters causes extra-column band broadening. This ruins the resolution required for precise molecular weight estimation and aggregate quantification.	C		

		Columns must be suitable for plug-and-play operation, reusable, and compatible with standard aqueous buffer systems.	C		
		Bed volumes must be appropriate for laboratory-scale protein purification (analytical to preparative).	C		
		Columns must be supplied with storage instructions and recommended cleaning/regeneration protocols.	C		
		Capture/ Affinity			
		1. Protein A affinity column — 1 mL (×1) Rationale: Primary capture for monoclonal antibodies; small 1 mL format is economical and high-capacity for lab scale.	C		
		2. IMAC (metal-chelate) column (Ni^{2+} or equivalent) — 1 mL (×1) Rationale: Purification of His-tagged recombinant proteins; 1 mL is sufficient for development and prep runs.	C		
		3. Ligand-specific affinity column (e.g., GST/biotin-binding equivalent) — 1 mL (×1) Rationale: For tagged proteins or special purifications where tag-specific capture is needed.	C		
		4. Protein G or Protein L affinity column — 1 mL (×1, optional if diverse IgG subclasses expected) Rationale: Alternative capture for antibodies with poor Protein A binding.	C		
		Intermediate / Polishing (Ion Exchange)	C		
		5. Strong anion exchange (Q-type) column — 1–5 mL (recommend 1 mL for minimal set) (×1) Rationale: Intermediate purification / host-cell protein removal; 1 mL for scouting, 5 mL if throughput higher.	C		
		6. Strong cation exchange (S-type) column — 1–5 mL (recommend 1 mL) (×1) Rationale: Charge-based polishing, isoform separation.	C		

		7. High-resolution IEX column (analytical / semi-prep) — 1–3 mL (×1) Rationale: Method development and high-resolution troubleshooting (small bed volume for sharp peaks).	C		
		Polishing / Size Exclusion	C		
		8. Analytical SEC column (small, high-resolution) — 24–30 mL bed volume (×1) Rationale: Aggregate analysis and molecular size estimation (typical analytical SEC like 10/300 GL ≈ 24 mL).	C		
		9. Preparative SEC column (polishing / aggregate removal) — 120–200 mL bed volume (recommend 120 mL) (×1) Rationale: Preparative polishing and buffer exchange at higher sample loads	C		
		Auxiliary / Specialty	C		
		10. Hydrophobic interaction chromatography (HIC) column — 1–5 mL (recommend 1 mL) (×1) Rationale: Separation based on surface hydrophobicity—useful for removing impurities or isoforms.	C		
		11. Mixed-mode / multimodal column — 1–5 mL (recommend 1 mL) (×1) Rationale: Useful for "difficult" proteins where single-mode resins fail.	C		
		Buffer Exchange / Desalting	C		
		12. Desalting / buffer-exchange column (fast) — 5–10 mL (recommend 5 mL) (×1) Rationale: Quick buffer swaps for analytical or small prep volumes.	C		
		13. High-capacity desalting column (preparative) — 20–50 mL (recommend 20 mL) (×1) Rationale: Preparative buffer exchange for larger batches.	C		

		Method Development / Custom Packing	C		
		14. Empty column — small diameter (packable) **—** adjustable 5–20 mL (×1) Rationale: Pack custom resins for scouting or special chemistries.	C		
		15. Empty column — medium diameter (packable) **—** adjustable 20–100 mL (recommend 50 mL) (×1) Rationale: Scale-up and method transfer packing.	C		
		Essential Extras (to be supplied with the column set) · Column end fittings and mounting adapters (system-compatible) — set · Column storage/transport clamp(s) — 2 pcs · Column storage solutions (preservative) — as per column chemistry (small bottles) · Column packing/adapter kit (for empty columns) — 1 kit · Spare frits and sealing kits — 1 set per column type	C		
	Fraction Collection and Sample Handling	1. Fraction collector with the Drop-sensing synchronization technology which minimizes spillage by timing fraction changes between drops and should allow use of a variety of racks that can accommodate various deep-well plate formats (24-, 48-, and 96-well), 96-well microplates, and tubes (0.5,1.5, 2 mL and 50 mL).	C		
		2. It can be used in time, volume or peak recognition mode with programmable volume-based and peak-based fractionation. Sample injection loops and/or sample pump must be included.	C		
	Software and Data Management	Software must allow method creation, gradient programming, real-time monitoring and data analysis. Software gives real-time control of the chromatography system-both manual and programmed. Software must have predefined methods for different chromatography	C		

		techniques and also a library of predefined phases for creating or editing your own methods. Data must be exportable in standard formats.			
		1. The software must feature an intuitive, real-time graphical system status display (dynamic flow-path) that allows for both manual and programmed control of all modules.	C		
		2. The software must include a library of pre-validated templates for common chromatography techniques (Affinity, IEX, SEC, HIC) and a database of standardized resin parameters to facilitate rapid method creation. It should have sharing of methods and results along with remote access capabilities to systems to save valuable time and resources.	C		
		3. The software must support automated programming assistants for step-by-step method development.	C		
		4. The system must allow for automatic data recovery in the event of power or communication failure and be fully compliant with 21 CFR Part 11 or equivalent international standards for electronic records and signatures.	C		
		5. Should include logic-based "If-Then" safety triggers (conditional commands) to monitor parameters like pressure, pH, and conductivity.in the control software to ensure that various parameters like pH, conductivity, pressure, etc. are in the acceptable range upon execution of an action by the operator.	C		
		6. The control software must be compatible with, or feature integrated modules for, Statistical Experimental Design (e.g., Design of Experiments - DoE) to optimize purification conditions with minimal experimental runs.	C		

		7. The bidder must guarantee free software patches and firmware updates within the purchased version to ensure ongoing compatibility with modern operating systems.	C		
		8. Software should be GLP and 21 CFR part 11 compliant.	C		
		9. The software should have option of remote operating and visualizing the runs.	C		
		10. Software and updates should be provided free of charge	C		
	Desktop Computer Workstation for FPLC Instrument Control and Data Analysis	The supplier shall provide a brand-new, unused desktop computer workstation suitable for operation, control, monitoring, and data analysis of a Fast Protein Liquid Chromatography (FPLC) system and compatible chromatography software. **Minimum Technical Specifications** 1. **Processor:** Intel® Core™ i5 processor (13th Generation or later) or equivalent. 2. **Memory (RAM):** Minimum 16 GB DDR4/DDR5 RAM, expandable to at least 32 GB. or equivalent. 3. **Storage:** o Primary Drive: Minimum 512 SSD NVMe Solid State Drive (SSD). o Secondary Drive: Minimum 1 TB SATA Hard Disk Drive (HDD) for data storage and backup. 4. **Operating System:** Genuine, licensed Microsoft Windows 11 Pro 64-bit operating system pre-installed. 5. **Office Software:** Genuine, licensed Microsoft Office 2024 (latest available version), including Microsoft Word, Excel, PowerPoint, Outlook, and Access.	C		

		6. **Graphics:** Integrated graphics or dedicated graphics card with minimum 4 GB. 7. **Network Connectivity:** o Integrated Gigabit Ethernet (10/100/1000 Mbps). o Wi-Fi 6 or higher. o Bluetooth 5.0 or higher. 8. **Ports and Interfaces:** o Minimum four (04) USB 3.0/3.2 ports. o Minimum one (01) USB-C port. o HDMI and/or DisplayPort outputs. o Audio input/output ports. 9. **Monitor:** (Same brand) o Minimum 24-inch LED monitor. o Full HD (1920 × 1080) resolution or higher. o Height-adjustable stand preferred. 10. **Keyboard and Mouse:** (Same brand) o USB wired keyboard. o USB optical mouse. 11. **Power Protection:** o Compatible with UPS systems. 12. **Compatibility:** Fully compatible with chromatography data acquisition, instrument control, and analysis software supplied with the FPLC system. 13. **Warranty:** Minimum two years comprehensive manufacturer warranty with local technical support. 14. **Condition:** The equipment shall be supplied brand new and from the manufacturer's current product range. The workstation shall be capable of supporting FPLC instrument control, chromatography data processing,	C C C C		

		protein purification analysis, report generation, and routine laboratory data management without performance degradation.			
	Power and Backup Power – UPS	Should be working with Sri Lanka electrical setting, 230 V 50 Hz. Dedicated online UPS with sufficient capacity to support the entire FPLC system, detectors, fraction collector and PC. Minimum backup time of 30–45 minutes under full operational load. Automatic voltage regulation and surge protection are mandatory.	C C		
	Refrigeration for system	General Requirement: A dedicated refrigeration solution shall be supplied to maintain the FPLC system, chromatography columns, and chromatography buffers at controlled low temperature to ensure protein stability, column longevity, and reproducibility of chromatographic performance.	C		
		1. Refrigerated Environment for FPLC System			
		The bidder shall supply a laboratory-grade refrigerated cabinet / cold enclosure / cold room–compatible housing suitable for accommodating the entire FPLC system**,** including: Pump module, Detectors, Column valve, Mounted chromatography columns, Fraction collection tubing (where applicable)	C		
		The refrigeration system shall maintain a stable operating temperature range of 4–8 °C during FPLC operation.	C		
		The refrigeration system shall be designed to allow:			
		· Continuous operation of the FPLC without condensation-related damage	C		
		· Adequate airflow and ventilation for instrument electronics	C		

		· Safe routing of tubing, power, and communication cables	C		
		Temperature stability shall be **±1 °C or better** under continuous operation	C		
		Integration and Turnkey Requirement	C		
		The refrigeration solution shall be fully compatible with the supplied FPLC system and shall not require third-party modification.			
		All necessary accessories, including:	C		
		Shelving Column holders or racks Cable/tubing access ports shall be supplied as part of the turnkey package.	C C C		
		The bidder shall confirm that operation of the FPLC system at 4–8 °C does not void warranty and is supported by the manufacturer.	C		
	Consumables and Accessories	Initial supply of tubing, fittings, connectors, column storage solution and cleaning reagents must be provided.	C		
	Installation, Training and Validation	1. On-site installation, commissioning, user training and application training must be provided by only manufacturer's service engineer and application specialist.	C		
		2. manufacture site application training should be given for 2 SLIBTEC recommended persons for optimal usage of the equipment. Advanced application training at the manufacturer's facility is essential to ensure institutional capacity building and adherence to international bioprocessing standards			
		3. Installation Qualification (IQ) and Operational Qualification (OQ) documentation must be supplied. Performance Qualification (PQ) should be done and provided by the manufacture after installation.	C		
	Compliance	Should have CE, IEC 61010 compliance	C		

	Warranty and Service	Comprehensive warranty for a minimum period of 3 years. Preventive maintenance during the warranty period must be free of charge (every 6 months). Availability of spare parts for at least 10 years must be guaranteed. The services should be done by a certified technician specifically for FPLC and training certificates should be attached. If there is no trained technician with the supplier for FPLC the manufacturer should be responsible for the services. If calibrations are needed, should be provided on request.	C C C		
	Turnkey Requirement	The complete system, including FPLC, columns, UPS, refrigerator, software, accessories and training must be supplied as a single integrated turnkey package and be fully operational upon commissioning.	C		
	Manufacturer Requirements	The manufacturer must: • Have **at least 10 years of experience** in chromatography systems. • Have **peer-reviewed publications** citing use of their FPLC systems. • Provide **international service support.** • Provide **local or regional service support** for Sri Lanka.	C		

Item #	Specification	Requirements	Priority	Bidder's Response (Yes/No)	Remarks
03	Equipment Name	Incubator 37°C with inbuild orbital shaking platform			
	Make	(Please specify)			
	Model and Model year	(Please specify)			
	Country of origin	(Please specify)			
	General	Inner bladder of mirror stainless steel, four corners rounded, easy for cleaning, space between shelves adjustable.	C		
		Microcomputer-based smart controller, temperature control of high prevision and reliability, protection against excessive temperature, sensor failure, creepage, over-current, etc., sound & light alarming, timing function.	C		
		Forced hot air circulation design to ensure temperature uniformity in the operating chamber. Silicon rubber sealing and double- layer observation window, making observation easy.	C		
		Multi-section control system for speed, temperature, and time. Multiple experimental modes for speed, temperature, and time can be configured simultaneously, with the operation mode automatically switching during use.	C		
	Auxiliary features	ultra-low speed initiation, adjustable startup velocity, over-speed automatic safeguard, timing monitor, parameter storage, power-failure recovery, refrigeration compressor overload protection with delayed restart,audible and visual alarms for high/low temperature limits, automatic shutdown when the door is opened, set-parameter	C		

		verification, temperature monitoring, and ambient temperature calibration			
	Rotary shaking oscillation mechanism	Forced-convection circulation mode	C		
	Shaking Speed Range	30–300 rpm	C		
	Speed accuracy	±1 rpm	C		
	Orbital diameter	25mm	C		
	Plate swing amplitude	Customizable	C		
	Power requirement	220-240 VAC, ~50 Hz	C		
	Display	LCD,			
	Energy consumption	Below 700 W	C		
	Stackable	Yes			
	Chamber Capacity	150 L or better (not more than 200L)	C		
	Temperature Range Ambient	5℃ to 70℃ (±5℃)	C		
	Temperature Stability	0.2℃ or better	C		
	Display Resolution	0.1	C		
	Uniformity at 37℃	±0.8 or better	C		
	Heated to 37℃	30min	C		
	Test Hole	Yes, Ø5mm			
	Max # of Shelves	10			
	# of Shelves	2	C		
	Flask Capacity (Maximum)	The incubator shaker shall be equipped with a heavy-duty orbital shaking platform capable of	C		

		accommodating interchangeable clamps and holders for various vessel types, including 1.5 mL and 2.0 mL microcentrifuge tubes, 15 mL and 50 mL conical centrifuge tubes, T-25, T-75, and T-175 tissue culture flasks, and Erlenmeyer flasks of 250 mL, 500 mL, 1000 mL, and 2000 mL capacity. The platform shall accommodate a minimum of 48 × 50 mL centrifuge tubes, 96 × 15 mL centrifuge tubes, 100 × 1.5/2.0 mL microcentrifuge tubes, 10 × T-25 flasks, 5 × T-75 flasks, 4 × T-175 flasks, 12 × 250 mL Erlenmeyer flasks, 9 × 500 mL Erlenmeyer flasks, 4 × 1000 mL Erlenmeyer flasks, or 2 × 2000 mL Erlenmeyer flasks. All necessary clamps, racks, and holders for the above vessel types shall be supplied with the system.			
	Max. Load per Shelf	20Kg	C		
	External Dimension (WxHxD)	800*1100*600 mm (Approx)	C		
	Timer	1~9999 min/h or continuous	C		
	UPS stabilizer	Online UPS with stabilizer capable of backup for 30 min or better	C		
	Certification	EN 12469, ISO 9001	C		
	Documentation	Manufacture product catalogues with the requested information	C		
	Standards	Should have to have applicable international standard certificates - EN 12469/ ISO 9001	C		
	Warranty	should provide a warranty for the entire equipment for 2 years or more Maintenance of the equipment should be carried out every 06 months free of charge during the warranty period	C C		

3. Instructions to Bidders

- The bidder's submission must acknowledge this amendment, which will be considered a part of the Bidding Document.
- As mentioned above, bidders must base their offers on the updated specifications.
- Unless otherwise specified, all other terms and conditions of the original Bidding Document are still in effect.