

University of Delhi, South Campus
Central Instrumentation Facility

No. UDSC/CIF/APPS/2022

Date: 02.01.2023

Quotations are invited through GeM/ CPP portal (e-procurement) under 2-bid system for an automated protein purification system with FOR (INR price)/ USD for University of Delhi, South Campus. The quote should be inclusive of all taxes and duties for supplying and installation of the item as described below.

Name of the equipment: an automated protein purification system

Quantity: One

Technical Specifications for the automated protein purification system:

1. Inert biocompatible and automated purification system capable of performing all the chromatography techniques: Size exclusion, Affinity, Ion exchange, Hydrophobic interaction, and Reverse phase
2. The system must have IP21 protection code
3. Flow rate range should be from 0.001 to 25 ml/min with Accuracy: $\pm 1.2\%$, system should be capable of going to a flow of 50 ml/min as a packing flow rate for the system with pressure rating of 20 MPa without adding any additional modules on to the system. Pump Type - Piston pump, metering type
4. Pump head piston should be made up of Hydrophobic material for lifelong performance and inertness with the common chromatographic buffers.
5. System should come along with a 2 mm flow cell and have the provision of normalizing the absorbance of 5 MM flow cell and must be upgradable to optical path length 10 mm and cell volume 8 μL
6. System Viscosity range - 0.35 to 10 cP (5 cP above 12.5 mL/min)
7. System must have rotary type valve and must have options of using upto 12 valve.
8. Mixing principle of mixer - Chamber with a magnetic stirrer
9. Pump head piston should be made up of Hydrophobic material for lifelong performance and inertness with the common chromatographic buffers.
10. Accurate, automatic gradient formation from 0 to 100% gradient over the entire flow range of 1 to 25 ml/min.
11. The UV-monitor should be capable of detecting a wavelength of 190 to 700 nm in steps of 1 nm, up to three simultaneous wavelengths using LED technology with the operating time of at least 5000 hours.
12. System UV detector should have an absorbance range of -6 to 6AU with a resolution of 0.001 m Au crucial for sharp peaks and for samples in the negative spectra of the absorbance.
13. System should be supplied with a conductive monitor for conductivity measurement between 0.01ms/cm up to 999.9 ms/cm, with automated temperature compensation and flow restrictor. System should have built temperature sensor to correct variation due to temperature

14. The system should have capability to be integrated using I/O box with third party Detectors and Autosamplers simultaneously for increased application flexibility at the time of purchase or post-purchase.
15. The system should be fully modular system that can be further expanded to increase system capability and productivity
16. The system must come with a accessories/ assortment box including - Screw lids and cap membranes, Tubing cutter ,Syringe, 10ml – 1 ,Column clamp for 10-21 mm o.d. columns ,Multi-purpose holder , Purge kit – 1 ,Tubing connector 1/16" – 5 ,Union luer F - 1/16" ,Fingertight connector 1/16" , Fingertight connector 1/16" red (for connection of columns) , Ferrule for inlet tubing , Stop plug, 1/16" , Inlet filter holder kit , Inlet filter set – 1 ,Wrench 1/4" (6,3 mm) , Union, 1/16" F - 1/16" F , Online filter kit -1 and 500ul sample loop
17. The system should have a Valve that allows connection of one column along with bypass function to enable washing the system without any need to remove the column must be quoted along with the system. It should allow reverse flow through the column for fast and effective elution, sharper bands, and a concentrated target molecule eluent
18. The system should be supplied with an Outlet valve with at least 3 ports - to connect to waste, fraction collector and one outlet position for main system
19. The system should be accompanied with Dual plate Fraction collector that enables fraction collection in various deep-well plate formats, 96-well microplates, or tubes to be quoted along with the system with the appropriate rack holder for 0.5 ml tubes and microplate holder
20. The system should have a Buffer inlet selection valve that extends up to two buffer A inlets and two buffer B inlets must be quoted along with the system .Any A inlet should be able to be combined with any B inlet to generate gradients
21. The system should have Broad range conductivity monitor and online pH (1- 14) monitor
22. The system must be quoted along with sample loops of following capacity – 1 ml, 2 ml , 10 ml
23. The following columns must be included with the system –
 - i) Ready-to-use column, prepacked with precharged Ni Sepharose 6 Fast Flowfor scale-up purification of histidine-tagged proteins withhigh binding capacity, approx. 40 mg/mL resin. Should be in convenient and timesaving 20 mL prepacked HiPrep format
 - ii) Strong cation exchanger for preparative ion exchange chromatography separations in 20 mL column format prepacked with SP Sepharose High Performance chromatography resin. The resin shouldbe rigid, highly cross-linked beaded agarose with a mean bead diameter of 34 µm for high resolution separations
 - iii) 20 mL strong anion exchange chromatography column for high resolution small-scale protein purification packed with Q Sepharose High Performance strong quaternary ammonium anion exchange resin. Bead size must be 34 µm
 - iv) 5 columns of 5 ml of prepacked with Sulfoethyl (S) strong cation exchanger. Must be suitable for screening of selectivity, binding and elution conditions, and small-scale purifications
 - v) 5 columns of 5 ml packed with Q Sepharose High Performance strong quaternary ammonium anion exchange resin with small (34 µm) bead size
 - vi) 5 columns of 5 ml of high-performance immobilized metal affinity chromatography (IMAC) columns for His-tag recombinant protein purification

- vii) 5 columns of 1 ml prepacked with CM Sepharose Fast Flow, and is a weak cation exchanger for small-scale protein purifications as well as screening of binding and elution conditions
- viii) 5 columns of 1 ml prepacked with DEAE Sepharose Fast Flow, and is a weak anion exchanger for small-scale protein purifications as well as screening of binding and elution conditions
- ix) Pre-packed column with Superdex 200 pg resin for prep-scale high-resolution size exclusion chromatography of mAbs for samples up to 5 mL with XK column format 16/600. Should be capable to be used with standalone pump or chromatography system.

24. The system should come with a compatible software with:

- a. License base software with 21 CFR Complied.
- b. Should have intuitive user interface with an interactive process picture and simplified evaluation modules.
- c. Built in templates for all the existing columns with option to develop method for third party.
- d. Sharing of methods and results along with remote access capabilities to systems to save valuable time and resources.
- e. Scouting of up to 99 runs with individual parameters in single method.
- f. Method Queues for combining of different purification techniques.
- g. Software should perform real time control, data evaluation, watch commands, Scouting parameters, method queue, method wizard for easy programming, column library, with report generation option.
- h. Automatic data recovery after run is over should be possible.
- i. The system should be capable of being installed with Design of Experiment (DOE) software integrated with the System control software as a tool for experimental design for generating precise data in fewer experiments for time and cost-efficient method development

25. System should be supplied with cold cabinet. The following features must be included:

- a. The cabinet should be of minimum 1400 litres capacity and dimension
- b. Should have two multi-pane glass doors on aluminium frame with magnetic gaskets for proper sealing
- c. Should have adjustable temperature range of $2-8 \pm 1$ C
- d. Should have digital control system and audio/ visual display for temperatures outside the set range
- e. Should be positive airflow system for maintenance of temperature uniformity at all shelf levels
- f. Switching on of light inside linked to the door activated switch
- g. Should be mounted on heavy duty wheels for easy movement of the system
- h. The shelves should be retractable for adjusting depending on the height of the shelf
- i. The MOC should be SS-316 or SS-304
- j. Should come with at least 3-4 plug points
- k. Have necessary safety features like safety fuse for mains & compressor, safety thermostat to cut out the power supply to compressor upon failure of the controller

26. The system should come with a Compatible PC (i7) and UPS of 2kVa rating must be supplied along with system

27. Installation and training: Vendor must take care of on-site installation, demonstration, and training by a well-trained engineer. Required training for smooth operation of the instrument should be provided free of charge during and after installation
28. A list of at-least 10 academic user installations of the quoted equipment within the country should be enclosed
29. Original catalogue from the manufacturer with technical specifications and relevant application notes must be enclosed
30. Warranty: The automated purification system must carry a warranty of minimum of 5 years which would cover the entire system, accessories, and local items. The maximum downtime in case of repairs must be mentioned by the vender.
31. CMC: Additional five years of CMC (comprehensive maintenance contract) after completion of 5 years warranty must be included in bid. The CMC should include all machine parts.
32. The vendor must certify that relevant spare parts will be available for at least 10 years in future. The vendor must provide a certificate saying that prompt after-sales service such as regular maintenance, troubleshooting and fixing will be carried out by company-trained engineers

Important information:

1. The quotation should be addressed to the "Chief Executive Officer, Institute of Eminence, University of Delhi, Delhi-110007". The quote should be submitted with all terms and conditions and necessary documents latest by 17.01.2023
2. Quotations have to be submitted in a two-bid-system. The first part, Technical bid, should consist of all technical details and supporting documents with terms and conditions. The compliance sheet must be filled by the vender.
3. The second part, Financial bid, should contain item-wise pricing of items mentioned in the Technical bid. Both the quotation documents/ bids are to be submitted through GeM/ CPP portal of the Government of India only (e-procurement). Hard copies of bid will not accepted.
4. The bidder will have to quote all items together. Partial quotes will not be accepted. For each item, the make, model and technical specifications and quantity have to be mentioned clearly. Original brochure must be provided.
5. The quote should be valid for 90 days from the last date of submission of bid.
6. The tender fee of Rs. 1000 and EARNEST Fee applicable is 5.0 Lakh is applicable.



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