
IBN/330-02/18 - To supply, deliver, install and commission one (1) unit of Fully Automatic Semi-Preparative Gel Permeation Chromatography (GPC) System with a recycle function that comes along with one column for analytical and one column for semi-preparative purposes.

PART 3

REQUIREMENT SPECIFICATIONS

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1. INTRODUCTION

- 1.1. The Institute of Bioengineering and Nanotechnology (IBN), Biomedical Medical Institutes (“BMSI”) would like to invite you to supply, deliver, install and commission one (1) unit of Fully Automatic Semi-Preparative Gel Permeation Chromatography (GPC) System with a recycle function that comes along with one column for analytical and one column for semi-preparative purposes, as shown, described in or inferred from the Specifications.

2. SCOPE OF WORK

Please refer to Annex A - Compliance to Requirements Specifications and complete the form.

Compliance to Requirement Specifications	Please fill in Yes or No and indicate your Remarks/Comments where applicable. Please attach additional sheets if there is insufficient space.	Remarks/Comments
A. SCOPE OF TENDER To supply, deliver, install and commission one (1) unit of Fully Automatic Semi-Preparative Gel Permeation Chromatography (GPC) System with a recycle function that comes along with one column for analytical and one column for semi-preparative purposes.		
B. DELIVERY DATE Within 4 weeks upon issue of letter of acceptance.		
C. COMPLETION DATE (INCLUSIVE OF INSTALLATION, ACCEPTANCE TESTS & TRAINING) Within 6 weeks upon issue of letter of acceptance.		
D. TECHNICAL SPECIFICATIONS The Fully Automatic Semi-Preparative Gel Permeation Chromatography (GPC) System should be capable of the following:		
1. Comes with a recycle unit and recycle assist software		
2. Solvent delivery unit:		
a) System should be able to deliver precise volumes of mobile phase		
b) Flow rate up to 20 ml/min		
c) Flow accuracy of $\pm 1.0\%$		
d) Operating pressure should be programmable (6000 psi or better)		
e) Should be able to operate at semi preparative scales		
3. Ultraviolet-Visible Spectroscopy (UV-Vis) detection (190 -700 nm or wider range) with ± 3 nm accuracy		
4. Refractive Index (RI) Detector:		
a) LED light source with Quartz cell of 10-15 μ L volume		
b) RI range should be 1.00 to 1.75 RIU		
c) Temperature control internal oven 30 to 80oC		
5. Column Holder, for holding one semi-preparative column (ID: 20 to 50 mm) and one analytical column		
6. Automatic column switching between semi-preparative and analytical columns		
7. Auto sampler:		
a) With injection volume of up to 5000 microliter		
b) Sampling vial capacity should be 80 or above		
c) Reproducibility should be better than 0.5%		
8. Fraction collector for sample collection and purification		
9. Guard column as well as one semi-preparative column and one analytical column to be included		
10. Polystyrene (PS) standard kit		
11. Computer:		
a) Hardware (minimum Core i5 processor, 500 HDD), comes with DVDRW and 8GB RAM		
b) Software: Windows based chromatography license version (compatible with the instrument) of GPC software for all detector, should offer extensive GPC calculations and should be able to give all possible outputs (e. g. Mn, Mw, Mz, Mp, Mv, polydispersity index etc.).		
c) Software upgrade should be free-of-charge in the subsequent years		
E. HEALTH, SAFETY AND ENVIRONMENT (HSE) REGULATORY REQUIREMENT		
1. Tenderer to consider the health and safety risks associated with the delivery / installation / commissioning of the material / equipment / service and provide control measures to ensure safe and complete commissioning of the equipment / works.		
2. Tenderer to, on behalf of the end-user, make submission for licenses necessary for the delivery / commissioning / operation of the material/equipment /service as deemed required by Singapore's Controlling Agencies or Singapore's Standards and Code of Practices (if applicable).		
3. Tenderer to be equipped with their own personal protective equipment (PPE) (e.g. LASER safety goggles, air-purifying respirator, chemical resistant suit and gloves, cut-resistant gloves, safety eyewear, safety shoes etc.) mentioned in the risk assessment, system installation / operation / maintenance manual, standard operating procedures, safety data sheets (SDS) and any other reference document made available.		

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4. Where tenders involve physical alteration of spaces, tenderer must ensure specifications are included to ensure engagement of a Qualified Person to carry out necessary authority submissions e.g. Fire Safety Certificate (FSC).		
F. OPERATING SYSTEM		
The Fully Automatic Semi-Preparative Gel Permeation Chromatography (GPC) System with a recycle function (with one column for analytical and one column for semi-preparative purposes) must meet minimum requirement for proper system control and preferably comes with latest configuration at the time of supply. The control software must be pre-installed and tested.		
Operating system: Microsoft Windows 7 or newer version that is compatible with the equipment.		
G. MANUAL		
Full set of operation and maintenance manuals (with detailed description of all system components in CD and printed formats).		
H. INSTALLATION		
1. The installation requirements must be compatible with the IBN laboratory at Biopolis on power, gas and environment. (Please specify details in the tender document).		
2. The installation must be carried out by a professional service engineer and acceptance test must be run after installation.		
3. The supplier should perform on-site installation (1 day) at no extra cost, and advise on the routine and preventive maintenance of the equipment.		
I. TRAINING		
1. On-site training (at least one day for dedicated users for at least five attendees) should be provided by supplier at location of IBN's choice. The basic training should include system operation and software application at no additional cost.		
2. In-depth training on software, different application optimization and in-house method development should be made available upon request. Please provide details of the training that you intend to provide:		
- Type:		
- Frequency and duration:		
- Venue:		
- Cost:		
- Training documents provided:		
- Maximum number of attendances:		
- Please state any dedicated applications and training courses that you are willing to supply to IBN at no additional cost.		
J. WARRANTY		
Full warranty (includes systems components) should apply for 12 months for equipment and 36 months for software from the completion of the commissioning date. It should cover the replacement and repair of components, which prove to be defective through fault of manufacturing or delivering, free-of-charge.		
Ongoing technical support must be available upon request no later than 48 hours for both equipment and software at no additional cost.		
To specify the maintenance services that will be provided during the warranty period for both equipment and software at no additional cost.		
Must have a local counterpart for repair and calibration services with prompt provision of services and response time.		
K. MAINTENANCE		
To include as an option for maintenance of the Fully Automatic Semi-Preparative Gel Permeation Chromatography (GPC) System with a recycle function (with one column for analytical and one column for semi-preparative purposes) after expiry of the warranty for:		
a) First year		
b) Second year		
c) Third year		
IBN reserves the right to award the maintenance contract upon expiry of warranty.		

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<u>Equipment Support</u> Please provide the following information:		
- Number and qualifications of engineers directly responsible for maintenance		
- Number of Preventive maintenance per year		
- Response time for unscheduled maintenance		
- Availability of parts and limits to price escalation		
- Maximum length of downtime before replacement equipment is supplied		
<u>Software Support</u>		
Please provide the following information:		
- Number and qualifications of software personnel directly responsible for servicing the system		
- Details of local software support operations		
- List current clients that will substantiate software support claims		
- Response time for unscheduled software maintenance		
- Policy for distribution of software new releases, enhancements and accompanying documents		
- Availability of software personnel for occasional consultation		
L. ACCEPTANCE TESTS Acceptance tests will be required prior to equipment handover to IBN. The awarded vendor must complete the following acceptance tests by the stated completion date in Section "C. COMPLETION DATE".		
Period for carrying out acceptance tests: 2 weeks		
Describe the type of acceptance tests that will be carried out:		
Recycle system should be tested and molecular weight should be checked with known sample. For molecular weight testing, we can provide our samples and compare the data obtained with the previous data.		
M. OTHERS		
1) Please indicate whether the equipment and works are subject to the following:		
a) export control laws or restrictions		
b) regulatory license		
2) Incoterms: Delivered Duty Paid (DDP) IBN		
3) Payment terms: Net 30 days upon full completion of equipment and works and receipt of invoice.		
4) Please ensure that the total price stated in the Price Schedule tallies with the price stated in the Form of Tender and GeBIZ.		