



Notice Inviting e-Tender

West Bengal Medical Services Corporation Limited
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Procurement, supply and installation of different medical equipment in the Hospital and
Medical College of the Government of West Bengal
(Submission of Bid through *online*)

Bid Reference No.: WBMSCL/NIT-182/2025

Dated-05.03.2025

2nd call of tender no. WBMSCL/NIT-072/2025, dated: 21.01.2025

Amendment-III

Schedule-III

Gas Chromatography with Tandem mass spectrometry

Indication: To diagnose inborn error of metabolism(IEM) by detecting specific compounds in various body fluids (blood, plasma, urine, CSF etc) as given below.

GCM S	IEM	Primary metabolite	Secondary metabolite	Chemical
1.Urine Organic acid assay	a) Defects of aromatic organic acid metabolism			
	Phenylketonuria	Phenylalanine	Phenylpyruvate	4-OH phenylpyruvate
	Tyrosinemia	Tyrosine	4-OH phenylpyruvate	4-OH phenylpyruvate
	Hawkinsinuria	Hawkinsin		
	Alkaptonuria	Homogentisic acid	Tyrosine	L-Tyrosine
	b) Defects of branched-chain amino acids			
			Branched chain keto acids	

metabolism				
Maple syrup urine disease	Leucine, isoleucine, valine			L-Leucine, L-isoleucine, L-valine
Dihydrolipoyl dehydrogenase (E3) deficiency			3-Hydroxyisovalerate	
Isovaleric acidemia	Isovalerylglycine		3-Hydroxyisovalerate	
	Methylcrotonylglycine		3-Hydroxypropionate	
3-methylcrotonyl-CoA carboxylase deficiency	Propionylglycine			
			Methylcrotonyl acid	
Multiple carboxylase deficiency	Methylglutaconic acid			Adipic acid
3-methylglutaconic aciduria (Barth Syndrome)	3-Hydroxy 3-methyl glutarate		3-Methylglutaconate, Adipate	
				DL- Lactic acid
3-OH-3-methylglutaric aciduria	Propionylglycine		3-Hydroxyglutarate, lactate	
3-oxo thiolase deficiency			3-Hydroxypropionate	
Propionic acidemia	Methylmalonic acid			
Methylmalonic acidemia				
Malonyl-CoA decarboxylase deficiency			Glutarate	Glutaric acid
c) Defects of dibasic amino acid metabolism	3-Hydroxyglutarate			
Glutaric aciduria type 1				
2-Ketoadipic aciduria			Hydroxy-	

	<p>d) Defects of Fatty acid Oxidation/Pyruvate/Krebs Cycle/Mitochondrial respiratory chain</p> <p>Long-, medium-, and short-chain acyl-coA dehydrogenase deficiency</p> <p>multiple acyl-CoA dehydrogenase deficiency (Glutaric aciduria type II)</p> <p>Lactic acidemia (pyruvate carboxylase deficiency, pyruvate dehydrogenase deficiency, multiple carboxylase deficiency. defects in oxidative phosphorylation)</p>	Adipate, suberate	<p>derivatives and glycine conjugates of medium chain fatty acids</p> <p>Lactate</p>	Adipic acid, Suberic acid
		Glutarate	3-Hydroxybutyrate, 2-hydroxybutyrate, pyruvate, 2-methyl, 3-hydroxy butyrate, glycine, alanine, 4-hydroxy phenyl lactate, 2-hydroxyisovalerate.	Glutaric acid, DL- Lactic acid
		Lactate		L-Alanine 3-Hydroxybutyric acid
		2-ketoglutarate	Lactate, pyruvate, glycine	
			Glutaric acid	2-ketoglutarate
	2-ketoglutarate dehydrogenase deficiency		3,4-Dihydroxy butyric acid, 2,4-dihydroxy butyric acid, 4,5-dihydroxyhexanoic acid	
	Fumarase deficiency	5-Oxoproline		
	e) Other organic acidurias			
	5-Oxo-prolinuria (Pyroglutamic aciduria)	2-Hydroxyglutaric acid		L-Pyroglutamic acid, DL- Lactic acid
		4-Hydroxybutyrate		Glycine

Sl. No.	Description	Specification
1	Instrument Composition	
	Gas Chromatography with accessories	1 set
	Inlet	2 Sets (One Inlet zone with SSL and PTV combined source)
	Mass Spectrometer with accessories	1 set
	Capillary columns with accessories	1 set of each specified column
	Software for automatic control of the system, data acquisition and processing	1 set (Original windows based software with license)
	Vacuum pump for MS with accessories	1 set
	Electron Capture Detector (ECD)	1 set
	Auto sampler	1 set <ul style="list-style-type: none"> Automated liquid sampler with minimum 100 vials capacity or better Capability to run priority samples Capable of accommodating upto six different syringe capacities Must support upto 100 μL syringes Are reproducibility better than 0.5% RSD Injection volume- should be selectable between 1 and 10 μL or more Upto 4 diifferent washing solvents can be used Programming-sequence and repition programmable from work station software
1.	Gas Chromatograph	<ul style="list-style-type: none"> Fully Automated, Microprocessor controlled GC with extensive self-diagnostic facility, Intuitive user Touch screen-basedinterface with control PC for easy control of the system and real time signal display. Should be with Programmable / Electronic Pneumatic Control and monitors for all Carrier, Injector, Split Vent, Detector and Auxiliary gases electronically. Auto shut down of instrument in case of leak detection in carrier gas Auto adjustment of carrier gas flow to compensate for variations in ambient temperature land pressure. Split/Splitless Injector Suitable for all capillary columns from (50μm to 530μm i.d.) and should support large volume

		concurrent solvent condensation injection <ul style="list-style-type: none"> • 2 injector and ECD mounting facility • Capillary column mounting capable to hold two capillary columns of different diameters of (50μm to 530μm)
	Column Oven	<ul style="list-style-type: none"> • Should have an operating range of few degrees above ambient to 450⁰ • Maximum Heating Rate: 120°C/min or better; Maximum Number of Ramps to facilitate better analysis of environmental pollutant. Operating Range: Ambient + 3°C to 450°C or better • Oven cool-down (22°C ambient): 450°C to 50°C in <4 min • EPC Pressure Range: 0-140psi or more • EPC/AFC controlled for all injectors and detectors.
	Flame ionization Detector: Qty 1	<ul style="list-style-type: none"> • Should be compatible with Capillary column and packed column Flameout detection and automatic re-ignition • Minimum Detectable Level (MDL): < 1.4pg C/s or better • Linear dynamic range: > 10⁷ or more
	Electron capture detector (ECD): Qty 1	<ul style="list-style-type: none"> • Minimum detectable level: < 5 fg/ml. Lindane or less • Maximum operating temperature should be 350 degree or more • Linear dynamic range > 5 X 10⁴with Lindane or more • Data rates 300 Hz to 500 Hz or more
2.	Mass Spectrometer	
	Ion Source	<ul style="list-style-type: none"> • Easy to clean, easy to maintain with suitable facility to carry out helium ion bum in source before the main quadrupoleor equivalent technology to remove metastable helium. • Should have dual filaments in all ionization modes. Source with Programmable heating at 350⁰Cor better • It should have accurate regulation of emission current 300 μA to 350μA or more with improved regulation at low current. • It should have Integrated, dual filament assembly mounted with the same geometry with improved filament lifetime and effective regulation of emission current across the available emission current range. • Tim User definable electron energy should be adjustable from 0-150 eV mode. • It should have constant calibration gas pressure for optimum system tuning. • should be programmable up to 350 Deg Cor more. • The system should have suitable technology to prevent neutrals to gain entry into the main analytical quadrupole. • <u>Optional Features</u> The systems should have vacuum probe interlock to remove the source without releasing vacuum to enable the users to save additional time during ion source maintenance, change of source, changing of GC colour in without breaking vacuum, /Switching to Direct Insertion Probe without the

		need to vent the MS
	Quadrupole Mass Analyzer	<ul style="list-style-type: none"> • Mass Range: 2-1000 u or more • Resolution: Unit mass resolution maintained over the entire mass range. EI sensitivity 5000:1 or more (<u>Guaranteed & to be demonstrated during installation. The supporting specification to be available in Company WEBSITE</u>) • Scan speed: 20000 u/s or better • It should utilize new generation discrete dynode electron multiplier integrated with linear-log electrometer with maximum linear output • Mass Stability: ± 0.1 u/24 hours or more
	Vacuum System	<ul style="list-style-type: none"> • It should have high-capacity turbo molecular pump with air-cooled high vacuum pump, with control and safety interlocks integrated into the system to achieve the desired function level as described • It should have ability to perform automated leak check using a metered amount of air as reference. • Automated and vent free ion source cleaning
	Instrument Control	<ul style="list-style-type: none"> • It should have scan modes like full scan, SIM, and alternating full scan/SIM. It should have ability to alternate between full scan MS and SIM target analysis on successive scans. • In full scan/SIM mode,. • System should be Field upgradeable: • Upgradation with advanced source to achieve an IDL < 1.5 fg & S/N 20,000:1 for highly sensitive application
	Standard Installation Specifications (Not typical one)	<ul style="list-style-type: none"> • In EI mode 1 μL of 1 pg/μL octafluoronaphthalene (OFN) will produce the minimum signal noise for m/z 272 when scanning 50-300 u : (5,000:1 with He
	Instrument detection limit	<ul style="list-style-type: none"> • Instrument detection limit: 2 fg or less
	Column:	<ul style="list-style-type: none"> • Suitable Capillary Column for alcohol, Forensic Toxicological analysis, Volatile Organic compound analysis by MS each (preferably 30m or more). Should Support Rapid- MS columns, Urine analysis
	Software	<ul style="list-style-type: none"> • Related original and latest windows based upgradable Software with license • Software controls all GC, auto sampler and MS functions. Should allow fully automated quantitative and qualitative analyses with standard data handling and reporting. • The system should be able to EI scan and SIM scan. • The original latest version NIST Mass spectral library (including Metabolomics library)
	Consumables:	<ul style="list-style-type: none"> • Consumables for liquid auto sampler, Vial (500 nos), GC, MS, columns, MS filaments - Qty 4, ferrules, liners, septas, gloves, alumina, syringes and start up kits etc should be quoted • For the first 100 sample derivation, extraction, purification cartridges reagent, standard at least 200 analyses as per need more deuterate standard must be provided with the machine. • Deuterated labeled and unlabelled standards necessary for detection of analytes /metabolites mentioned in page in 1.
	Local Indispensable	<ul style="list-style-type: none"> • True On-line 10 KVA UPS with 30 minutes' battery backup (EMERSON /Power one make)

	accessories:	<ul style="list-style-type: none"> • UHP Grade Helium Gas(Qty-2) with Double Stage SS Diaphragm Regulator- 1set FOR GCMS • UHP Grade Hydrogen Gas(Qty-2) with Double Stage SS Diaphragm Regulator 1 set (FOR FID) • UHP Grade Zero Air Gas(Qty-2) with Double Stage SS Diaphragm Regulator 1 set (FOR FID) • UHP Grade Nitrogen Gas(Qty-2) with Double Stage SS Diaphragm Regulator 1 set (FOR GC/FID) • Suitable PC and Laser Jet Printer -Qty 1 • Gas purification panel for all required gases and 10μL liquid -2Nos
	Installation	<ul style="list-style-type: none"> • Supply, installation and commissioning of the instrument including gas manifold at IPG MER Kolkata • Required Standard and Chemicals to be provided at the time of installation.
	Calibration	<p>To be done in a year.</p> <p>It is essential that the vendors should specify the system performance parameters clearly and all the specifications quoted should be available in their original company brochure and product data sheet. Any claims of specifications that are not documented in the company brochure will not be accepted. Pointwise compliance sheets must be enclosed with the tender along with supporting documents/certificates otherwise the offer shall be technically rejected</p>
	Training	Adequate hands on training to be provided by the supplier as and when required
	Special Note	<p>All specifications offered Needs to be supported with original literature as well as the same literature needs to be available in the website of the manufacturing company,</p> <p>The offer to be made in details with all technical specification, item details with part no's.</p> <p>AH supporting technical literatures complying the technical specification need to be attached along with the order,</p> <p>Extensive Training to be provided at installation site with a qualified application specialist.</p>
Certification: The system should be CDSCO Certificate/Registration/License of the manufacturer as applicable		
MANDATORY TERMS & CONDITIONS		It is essential that the vendors should specify the system performance parameters clearly and all the specifications quoted should be available in their original company brochure and product data sheet. Any claims of specifications that are not documented in the company brochure will not be accepted. Pointwise compliance sheets must be enclosed with the tender along with supporting documents/certificates otherwise the offer shall be technically rejected