परिशिष्ट 'क'

REAL TIME PCR SYSTEM WITH COMPUTER SET AND UPS

	PCR System, Real Time
1	**Description of Function**
1.1	The purpose of a PCR (Polymerase Chain Reaction) machine is to make a huge number of copies of a gene. This is necessary to have enough starting template for sequencing. Real-time Polymerase Chain Reaction (PCR) is the ability to monitor the progress of the PCR as it occurs (i.e., in real time). Data is therefore collected throughout the PCR process, rather than at the end of the PCR.
2	**Operational Requirements**
2.1	A dedicated multicolor Real time PCR system with latest generation Peltier based 96 well plate tube in built PCR or support: a) gene expression analysis, b) pathogen quantitation, c) SNP Genotyping, d) Plus/minus assay that utilize internal positive control, e) Dissociation curve analysis, f) Multiplexing and complete end-point analysis, g) HRM software with the installation plate. It should be open system and tests can be performed with any Real Time PCR kit reagents.
3	**System Configuration**
3.1	PCR System, touch screen interface, Real Time complete system, Software, Computer Set, 2 hr Backup UPS and with complete accessories.
4	**Technical Specifications**
4.1	Sample capacity of 96 wells micro plate and 12 x 0.2 ml and (12 x 0.1ml) 8-tube strips (interchangeable).
4.2	System must have tungsten – halogen source or high-power broad spectrum LED source reporting wavelength range between 475-650 nm (minimum) for excitation and charge coupled device (CCD) camera for detection.
4.3	Must have minimum 5 or 6 detection channels 530, 560, 610, 640, 670 & 710 nm.
4.4	Detect Cy3, Cy5, FAM, JOE/VIC, NED, ROX, SYBR Green, TAMRA, Texas Red, VIC dyes.
4.5	Must have passive reference dye for the normalization of fluorescent reporter or Fluorescein reference dye. Software must have data acquisition of whole plate imaging irrespective of plate well selected.
4.6	Total reaction volumes for majority of the chemistries must be within 10-20 micro liter
4.7	Typical run time must be less than 40 minutes for 35 cycles.
4.8	Temperature range must be from 40-100^{O} C with an accuracy of +- 0.3^{O} C.
4.9	Programmable fast ramping rates from 0.1 – 20^{o} C/ second for ultra-rapid cycling
4.10	Must have a linear dynamic range up to 10x
4.11	Flexible system for developing chemistries with four-color hybridization probes, dual colour Taqman/Hydrolysis probes, Molecular beacons, Simple probes etc.
4.12	Multi-colour analyzing facility for four colours with Multiplexing capability having least cross talk.
4.13	Application software must include melting curve analysis for Tm, genotyping, absolute and relative quantification assays, qualitative analysis and nucleic acid quantification.
4.14	Software must also have the provision to check the compatibility of multiple nucleotides for multiplex PCR assays.
4.15	System must have Probe/Primer design software for designing the primer and Hybridization probes in a single run.
4.16	Analysis workstation must have latest branded minimum Pentium IV PC dual core/core i5, 6GB RAM, 500 GB HDD, DVD/CD RW with 19" flat LCD/LED monitor, LAN connectivity, USB 3 and with licensed windows operating system desktop based software with compatible laser color printer.
4.17	Data analysis option: bar chart, cluster gram, scatter plot, volcano plot and heat map, Multiple file for gene expression analysis for comparison of an unlimited number of Cq value, Allelic discrimination, End point analysis, Software should be compatible to transfer data into qbase PLUS software and should supply full version of q base Plus software, Automatically writes a temperature protocol based on user-input parameters, Data exports and imports in different formats
4.18	HRM Compatibility: Melt Analysis software should be present to analyze HRM experiments, qPCR and HRM analysis are seamlessly integrated

4.19	Licensed and authorized real Time PCR platform must be supplied along with licensing rights for software applications including relative quantification
5	**Accessories, spares and consumables**
5.1	All standard accessories, consumables and parts required for operating the equipment, including all standard tools and cleaning and lubrication materials, to be included in the offer, Bidders must specify the quantity of every item included in their offer (including items not specified above).
6	**Operating Environment**
6.1	The system offered shall be designed to be stored and to operate normally under the conditions of the purchaser's country. The conditions include power supply, Climate, Temperature, Humidity, etc.
6.2	Power supply: 220-240 VAC, 50Hz Single Phase fitted with appropriate plug. The power cable must be at least 3 meter in length.
6.3	UPS of suitable rating shall be supplied for minimum 2 hours backup for the entire system.
7	Standards and Safety Requirements
7.1	Must submit ISO13485:2003/AC:2007 for medical Devices AND
7.2	Must provide CE (93/42 EEC Directives) and USFDA approved product certificate
7.3	Shall meet IEC 61010-1 safety requirements for electrical equipment for measurement, control,and laboratory use.
8	**User Training**
8.1	Must provide user training (including how to use and maintain the equipment)
9	**Warranty** Should provide Comprehensive Maintenance Contract (CMC) for minimum 2 years, **If equipment cannot be maintained within 24 hours (In CMC period), machine (Real Time PCR machine) Should be replaced with brand new machine with in next 24 hrs on free of cost**.
9.1	Should Provide Annual Maintenance Contract (AMC) after CMC for minimum 2 years (AMC should be on free of cost).
10	**Maintenance Service During Warranty Period**
10.1	During warranty period (CMC and AMC) supplier must ensure preventive maintenance & corrective/breakdown maintenance whenever required.
11	**Installation and Commissioning**
11.1	The bidder must arrange for the equipment to be installed and commissioned by certified or qualified personnel: any prerequisites for installation to be communicated to the purchase in advance, in detail. The **bidder must provide live demonstration of equipment** (Real Time PCR machine) at Molecular Diagnostic Laboratory, Shree Birendra Hospital before the final approval of equipment's technical evaluation compliance. The bidder **must provide (5 feet x 3 feet x 2.5 feet) marble top table** at the time of installation of equipments.
12	**Documentation**
12.1	User (Operating) manual in English
12.2	Service (Technical/Maintenance) manual in English
12.3	List of important spare parts and accessories with their part numbers and costing.
12.4	Certificate of calibration and inspection from factory.

PCR TUBE SPIN MICRO CENTRIFUGE

	Micro Centrifuge
1	**Description of Function**
1.1	PCR tube Spin Micro centrifuge is a piece of equipment, generally driven by a motor that puts an object in rotation around a fixed axis, applying force perpendicular to the axis. The centrifuge works using the sedimentation principle, where the centripetal acceleration is used to separate substances of greater and less density.
2	**Operational Requirements**
2.1	Lightweight and Compact in size.
3	**System Configuration**
3.1	Micro centrifuge with speed variation.
4	**Technical Specifications**
4.1	Max. RCF: 21,300 × g > Max. speed: 15,060 rpm > Max. capacity: 24 × 1.5/2.0
4.2	Rotor F-32x0.2-PCR for Centrifuge 5420, for 32 × 0.2 mL PCR tubes or 4 × 8 PCR strips, incl. rotor lid.
4.3	Quick spin mode.
4.4	Lid interlocks system in rotor disc.
5	**Accessories, spares and consumables**
5.1	All standard accessories, consumables and parts required to operate the equipment, including all standard tools and cleaning and lubrication materials, to be included in the offer. Bidders must specify the quantity of every item included in their offer (including items not specified above).
6	**Operating Environment**
6.1	The system offered shall be designed to be stored and to operate normally under the conditions of the purchaser's country. The conditions include Power Supply, Climate, Temperature, Humidity, etc.
6.2	Power supply: 220 – 240 VAC, 50Hz fitted with appropriate plug. The power cable must be at least 3 metre in length.
7	**Standards and Safety Requirements**
7.1	Must submit ISO 13485:2003/AC:2007 **AND**
7.2	CE or USFDA approved product certificate.
7.3	Must comply with IEC/TR 61010-3-020: Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 3-020: Conformity verification report for IEC 61010-2-020:1992 Particular requirements for laboratory centrifuges".
8	**User Training**
8.1	Must provide user training (including how to use and maintain the equipment).
9	**Warranty**
9.1	Comprehensive warranty for 2 years after acceptance.
10	**Maintenance Service During Warranty Period**
10.1	During the warranty period supplier must ensure corrective/breakdown maintenance whenever required.
11	**Installation and Commissioning**
11.1	Supplier must accomplish proper commissioning of the equipment on site.
12	**Documentation**
12.1	User (Operating) manual in English
12.2	Service (Technical / Maintenance) manual in English
12.3	List of important spare parts and accessories with their part numbers and costing.
12.4	Certificate of calibration and inspection from factory.