Ref:- AIIMS/R/CS/Micro/18/88/Tender/2206; Dated 18/01/2019

Revsied Technical Specifications- MALDI-TOF MS

1. Fully automated with suitable software, work stations and full available database for full microbial identifications including bacterial (Gram Positive, Gram Negative, aerobic, anaerobic), Fungal (Yeast and molds), Mycobacterial (MTB complex and NTM) and filamentous bacteria.
2. The system should also be capable of doing basic protein analysis such as Molecular weight profiling, dendrogram production, biomarker analysis, and SNP studies.
3. Instrumentation –
    - 3.1 The instrument should be fully automated working on the principle of matrix assisted laser desorption ionization – time of flight (MALDI-TOF) mass spectrometry technology.
    - 3.2 Should have linear time of flight (TOF) measurement.
    - 3.3 Should have oil free vacuum pumps for easy maintenance.
    - 3.4 Should be equipped with nitrogen laser preferably 337 nm with repetition rate upto1-60 Hz.
    - 3.5 Should be FDA approved and have CE and IVD certifications.
    - 3.6 Should have Automated Monitoring of Contamination level of Optics and should have automated cleaning of Optics using IR laser to reduce the downtime
4. Software –
    - 4.1 Should be windows based, easy to use and versatile.
    - 4.2 Result should be directly displayed as species of microbes.
    - 4.3 Should be capable of doing in-depth analysis with bioinformatics tools for sub typing and dendrogram.
    - 4.4 Should have taxonomic trees against reference spectra concerning taxonomic relationship.
    - 4.5 IVD approved software and kits for Direct ID from Blood culture without a need for subculture.
    - 4.6 IVD approved software and kits for Resistance patterning for Carbapenem and Cephalosporin group of antibiotics.
    - 4.7 Direct ID of MRSA & KPC strains without any additional sample processing
5. Analytical parameters
    - 5.1 Capable of identifying microbes upto species level.
    - 5.2 Sensitive enough to detect low amount of cells ~ 10^5 cells.
    - 5.3 Capable of denoting taxonomical classification
    - 5.4 Capable of denoting mixed population (at least 2 species) in a mixed culture.
6. Database
    - 6.1 Should be integrated with a ready to use reference library.
    - 6.2 The reference library provided should be up to date.
    - 6.3 The database should have automatic regular updates when available.
    - 6.4 Database should have an open architecture to allow customize in-house library generation.

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6.5 Microbial Database should have IVD approved database of minimum 2500 microbial Species & 7500 microbial strains.

6.6 Mycobacteria database should have at least 160 Mycobacteria Species & 800 Mycobacteria Strains or more. The Mycobacteria database & the instrument should be compatible with existing MGIT System for direct analysis form MGIT culture.

7. Custom library
   - 7.1 System should have software capability to generate database for new microbial species by the user at his laboratory itself.
   - 7.2 Should help AIIMS to add at least 50 numbers of new microbial species or strains in along with Sequencing.
8. Workstation –
   - 8.1 Suitable windows operating system with minimum configuration of i7 processor, 8GB RAM, 1TB hard disc space, MHz digitizer, DVD rewriter with other accessories. High resolution LED colour monitor.
   - 8.2 Colour laser printer with wireless printing facility and one set extra balck and all colour catridge must be provided.
   - 8.3 Original latest MS Office software for one computer and an antivirus with 3 years validity must be provided.

9. Should provide any upgradation and update of system and software (if any) free of cost for next 5 years from the date of installation.

10. Must provide the accessories, consumables and miscellaneous items
    - 10.1 Essential reusable MALDI target plates.
    - 10.2 Matrix and standards for mass calibration and barcode scanner.
    - 10.3 All consumables required for installation and demonstration of system.
    - 10.4 All necessary consumables for processing of 500 aerobic bacteria, 100 anaerobic bacteria, 100 Mycobacteria, 100 yeasts, 100 fungus and 50 filamentous bacteria.

11. Should be easily connected with the existing fully automated AST system (Vitek -2), if not the case, then should provide a fully automated antibiotic sensitivity system (FDA approved) with necessary consumables for 500 strains using that machine.
12. Full list of installations with models in medical colleges and hospitals with full details of contact persons to be provided.
13. 5 years of comprehensive warranty.
14. Should address the break down with 24 hours by an onsite visit. Vendor must undertake to ensure service and repair in this regard.
15. CMC for subsequent 5 years.
16. To provide all the required electrical accessories (including compatible online UPS), required ACs, for instrument running.
17. Provide onsite training to the staff mandatorily.
18. Complete expense covered advance level training at the Factory Training centre to be provided for 1 person.

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