

Bioscience and Technology

Department of Biotechnology

Bacterial infectious diseases remain the major healthcare problem for our country, as it is not well served by indigenous engineers and technocrats. We are still depended on cumbersome conventional microbiological and biochemical methods for the diagnosis and evaluation of treatment strategies. The currently available automated systems for diagnosis are completely outsourced from other countries thus increasing the monetary burden on the citizen of our country predominantly belonging to middle-income and lower middle-income group.

The bioscience and technology group of UPE was formed with an objective to develop low-cost methodologies and medical devices for quick and accurate identification of bacteria causing diseases and its antibiotic sensitivity report within 6 h of sample collection or one dose of antibiotic therapy. We developed a patented ready-to-use fluorescent bacterial culture medium optimized to suit the field conditions with significant fluorescence quenching by 4 h. The fluorescence of the medium reduced up to 90% by 6 h of incubation for a variety of clinical bacteria. Hence the wide fluorescence quenching range (from 20% - 90%) available during the growth period accommodates even large errors and variations typical of biological measurements and provide accurate results of antibiotic susceptibility.

THERMO SCIENTIFIC TSQ 8000 EVO TRIPLE QUADRUPOLE GC-MS/MS



Thermo Scientific gas chromatography mass spectrometry systems provide a complete solutions, simplify your laboratory workflows and enable high-throughput identification and resolution of small molecules, semi-volatiles and volatile compounds

**BIOCHEMISTRY ANALYSER WITH
SAMPLE PROCESSING SYSTEM
COMPRISING OF DIASYS BIOCHEMISTRY
ANALYSER AND TECAN EVO LIQUID HANDLING SYSTEM**



Respos 910 is a compact bench top biochemistry analyzer, determines the presence or absence of various biochemical and immunological parameters in serum, urine and CSF samples.

MALDI BIOTYPER - LT (BRUKER)

MALDI Biotyper systems provide high-speed, high-confidence identification, taxonomical type of bacteria, yeasts, and fungi. Classifications are based on a proteomic fingerprinting using high-throughput MALDI-TOF mass spectrometry.



MULTIMODE READER (TECAN)



Tecan freedom evo series is a liquid handling system offers optimized pipetting parameters for a broad range of liquid volumes, with fast liquid level detection, liquid availability check and preferential non-contact dispensing and it is mainly used for automated processing the samples for Biochemistry analyser and coating the antibiotics in 96 well plates.

DEPARTMENT OF MEDICAL PHYSICS

ADVANCED SPECTRAL MULTIPHOTON CONFOCAL LASER SCANNING SYSTEM

Multiphoton Optical Metabolic Imaging of Cells and Tissues for Diagnosis and Monitoring of Therapeutic Response in Cancer Management.

To study the optical metabolic imaging based on the fluorescence from endogenous fluorophores viz., Tryptophan, Collagen, NAD(P)H, FAD and Porphyrin under normal and cancerous condition.

To measure the Metabolic activity of normal and tumour cells using fluorescence imaging and FLIM.

Monitoring the tumour response to chemotherapy.

