

Liquid Chromatography - Mass Spectrometry (LC-MS/MS), Shimadzu LC-MS 8040 System (Triple Quadrupole coupled with Shimadzu HPLC)

Details of the instrument:

Model: Shimadzu LC-MS 8040

Mass range: 2 to 2000 m/z

Ionisation sources: Electrospray Ionisation (ESI) and Atmospheric Pressure Chemical Ionization (APCI)

LC: Quarternary pump HPLC with a PDA detector

Modes of analysis: Q1 Scan, Q3 Scan, Multiple reaction monitoring (MRM), Precursor Ion Scan, Product Ion Scan, Neutral Loss Scan

Research Services provided by SVKM's NMIMS, SPPSPTM:

- Molecular weight determinations of New Chemical Entities (NCEs), chemical intermediates (50-2000 daltons)
- Structural determination of NCEs, unknown impurities, metabolites, degradation products, etc.
- Impurity profiling of drugs, raw materials, formulations, etc.
- Sensitive and accurate estimations of drugs, drug intermediates, nutraceuticals, phytopharmaceuticals, different type of formulations, cosmetic products, etc.
- Analytical method development and validation with application of method to samples to meet regulatory requirements
- Bioanalytical method development and validation with application of method to samples to meet regulatory requirements
- Preclinical and clinical pharmacokinetic analysis of drugs, drug intermediates, different type of formulations, cosmetic products, etc.
- Drug metabolism studies – Metabolite identification, Phase I and II metabolic profiling, drug-drug interactions, drug-phytconstituents, drug-food interactions, etc.
- Efficacy and toxicity profiling of NCEs, environmental chemicals, herbal products, etc.
- Phytochemical investigations
- Fingerprinting of herbal medicines
- Biomarker analysis for disease profiling
- Therapeutic drug monitoring (TDM) and related applications

Advantages of LC-MS/MS:

- High sensitivity (pg/ml)
- High selectivity
- Multi-component simultaneous analysis
- Accurate qualitative analysis (structural elucidation – molecular mass, fragmentation, etc.)
- Accurate quantitative analysis (Analytical and Bio-analytical samples)

Main objectives of LC-MS/MS:

- Improve research output of the university by application of this technique to all fields of research (life and material sciences)
- To provide best research facilities to students and faculties of other universities and colleges, scientists and researchers from pharmaceutical, food, cosmetics, herbal, environmental and pesticide industries
- To provide hands-on-training workshop to students, faculties and industry personnel
- Develop new research methodologies