Pharmacology Internship

Research Approaches that are allocated to Internship candidates in the field of Pharmacology

1. Molecular Pharmacology

Definition: Study of drug actions at the molecular level, focusing on receptors, enzymes, and signaling pathways.
Approaches: Molecular docking, protein crystallography, receptor-ligand binding assays.

3. Biochemical Pharmacology

Definition: Study of drug interactions with biological macromolecules, including enzymes and proteins.
Approaches: Enzyme kinetics, enzyme inhibition assays, protein purification techniques.

5. Pharmacokinetics

Definition: Study of drug absorption, distribution, metabolism, and excretion in the body.
Approaches: High-performance liquid chromatography (HPLC), mass spectrometry, compartmental modeling.

7. Systems Pharmacology

Definition: Integration of multiple data types to understand drug actions in the context of biological systems.
Approaches: Network analysis, computational modeling, pathway analysis.

8. Drug Discovery and Development

Definition: Identification and development of new therapeutic agents.
Approaches: High-throughput screening, virtual screening, medicinal chemistry.

10. Clinical Trials

Definition: Rigorous testing of drugs in human subjects to evaluate safety and efficacy.

Approaches: Randomized controlled trials, observational studies, adaptive trial designs.

12. Translational Pharmacology

Definition: Application of basic science findings to clinical practice and vice versa.
Approaches: Biomarker discovery, preclinical-to-clinical translation, personalized medicine.

14. Pharmacotherapy Optimization

Definition: Optimizing drug use and therapy regimens for individual patients.
Approaches: Therapeutic drug monitoring, dose individualization, clinical pharmacy services.

16. Pharmacokinetic-Pharmacodynamic (PK-PD) Modeling

Definition: Integration of drug kinetics and dynamics to optimize dosing regimens.
Approaches: PK-PD modeling software, population modeling, model-based drug development.

18. Nanomedicine in Pharmacology

Definition: Application of nanotechnology for drug delivery and targeting.
Approaches: Nanoparticle formulation, targeted drug delivery systems, nanoscale drug carriers.

20. Toxicology and Safety Assessment

Definition: Evaluation of drug safety, including acute and chronic toxicity.
Approaches: Animal toxicity studies, in vitro toxicology assays, risk assessment.

22. Pharmacopeial Studies

Definition: Analysis of pharmaceutical formulations according to pharmacopeial standards.
Approaches: Pharmacopeial monograph assays, stability testing, impurity profiling.

24. Pharmacology Education and Research Ethics

Definition: Advancing pharmacology education and ensuring research ethics.
Approaches: Curriculum development, ethical guidelines, research integrity training.