

SEMESTER-I
BIOLOGICAL EVALUATION OF DRUGS (PHCT001)

Credits: 4: Theory

Contact hrs per week: 4: Theory

I: Seminar

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Objective of the Course:

To make students familiar with methodology in Drug screening.

Student Learning Outcomes/Objectives:

At the end of the course, the student will be able to learn the basic techniques to evaluate drugs using various animal models for different pathological conditions.

Instructional Methods and Pedagogy:

Faculty member/s shall explain in a class room using black board and multimedia projector.

Outline of the Course:

Sr. No.	Unit	Minimum No. of Contact Hours	Approx. Weightage %
1	Drug discovery process	5	7
2	General Principles of screening	10	15
3	Bioassays of drug	5	8
4	Biological evaluation of drugs	40	70
Total		60	100 %

Detailed Syllabus

Theory:

- 1 New approaches in drug discovery. Combinatorial chemistry, High throughput screening, ultra high throughput screening, and high content screening, Technologies for high throughput screening Pharmacogenomics, Proteomics, Array technology, Invitro pharmacokinetic analysis, Correlation between invitro and invivo screens, Determination of errors in screening procedures. 5
- 2 General Principles of screening, Laboratory animals, Maintaining and handling of animals, Basic laboratory animal data, Breeding of lab animals, Animal strains and their applications, knock out and transgenic animals 10
- 3 Bioassays: Basic principles of bioassays of some official drugs, experimental models and statistical designs employed in biological standardization. Biological standardization of vaccines and sera with certain examples with reference to IP. Development of new bio assay methods. 5
- 4 Biological evaluation of drugs: 40

Screening and evaluation (including principles of screening , development of models for diseases : In vivo models / In vitro models / Cell line study techniques of the following:
 1. Parasympathomimetics, Parasympathetic blocking agents, Sympathomimetics, Sympathetic blocking agents, Ganglion stimulants and blockers, Neuromuscular stimulants and blockers.
 2. General and local Anesthetics, Sedatives and Hypnotics, Antiepileptics, Psychopharmacological agents, Analgesics, Antiinflammatory agents, Anti Parkinson's drugs, Anti Alzheimer, CNS Stimulants.
 3. Cardiotonics, Antihypertensive drugs, Antiarrhythmic drugs, Drugs used in Ischemic Heart Diseases, Drugs used in Atherosclerosis.
 4. Drugs used in Peptic Ulcer, Respiratory disorders, Hormone and Endocrine disorders. Antifertility agents and diuretics.
 5. Various models for Cataract, Glaucoma, Inflammatory Bowel Disease, Cancer, Infections.

Recommended Study material:

1. Screening methods in pharmacology (Vol: I & II)–R.A. Turner, Academic Press, New York, 1965.
2. Drug Discovery and Evaluation in Pharmacology assay: VogelLibrary of Congress Cataloging in Publication Data
3. Design and analysis of animal studies in pharmaceutical development, Chow, Shein, Ching, Chapman& Hall/CRC.
4. Evaluation of Drug Activity: Pharmacometrics D.R. Laurence, Academic Press, 1964.
5. Animal and Clinical pharmacologic Techniques in Drug Evaluation-Nodine and Siegler, Chicago: Year Book Medical Publishers, 1964
6. Pharmacology and Toxicology- Kale S.R.,6thedition, Nirali Prakashan, 2003.
7. Fundamentals of experimental Pharmacology. GhoshM.N.Scientific book agency, Calcatta.
8. GoyalR.K.Practicals in pharmacology. M/s B.S.ShahPrakashan, Ahmedabad.
9. Handbook of Experimental Pharmacology. Kulkarni S.K.,VallabhPrakashan, New Delhi.