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In 1913, the University of Michigan first outlined a graduate program offering M.A., M.S., Ph.D. and D.Sc. degrees in a joint effort between the Graduate Department (now the Horace H. Rackham School of Graduate Studies) and the Pharmacy Department (now College of Pharmacy). As a discipline, Medicinal Chemistry in the United States started with the appointment of Dr. F. F. Blicke as Assistant Professor of Pharmaceutical Chemistry in 1926. Prof. Blicke initiated the first graduate education program in Pharmaceutical Chemistry, focusing on synthetic organic chemistry. The program expanded in the 1950s to include analytical aspects and pharmaceuticals. After Prof. Blicke's retirement in 1960, his former student, Prof.

Medicinal Chemistry

Concept, Basics & Introduction

PCI Syllabus

- What is Medicinal Chemistry
- Why it is included in syllabus
- What kind of knowledge we get from it
- What should be the point of view while studying it

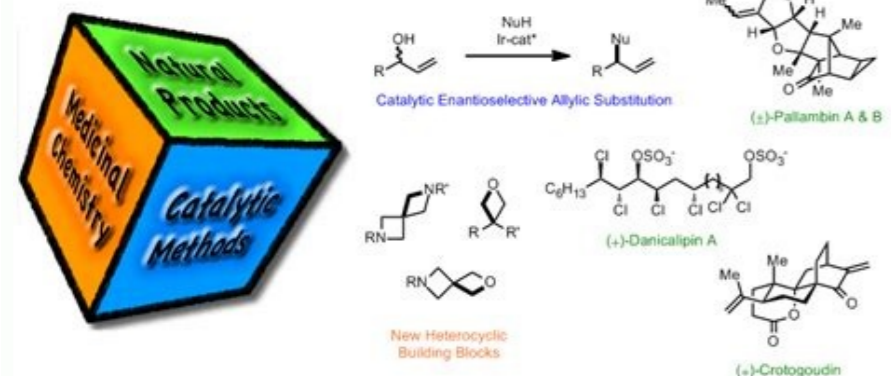


J. coronary heart disease review pdf H. Burkhalter returned to the College and argued for an independent graduate education program in Medicinal Chemistry. Along with the support of Graduate School Dean Alfred Sussman and the participation of a core group of interdepartmental faculty (within and outside of the College of Pharmacy), in 1967 Prof. Burkhalter established the Interdepartmental Program in Medicinal Chemistry (Med Chem IDP). The Med Chem IDP was established to train students in a broad range of chemically-based disciplines so that its graduates are able to apply the rigor and methods of the physical sciences to drug discovery research. Subsequently, in 1973 Prof. Raymond Counsell and in 1977 Prof. Leroy B. Townsend were appointed as Director of the Med Chem IDP. The Med Chem IDP is administered by the Horace H. Rackham School of Graduate Studies with direct oversight by the College of Pharmacy.



In 1999, in response to the significant growth of the College of Pharmacy under previous Dean Ara G. howl's moving castle piano notes pdf Paul, then Dean George L. Kenyon initiated a process of departmentalization of the College of Pharmacy. Prof. James K. artesania latina sopwith camel instructions.pdf Coward was the first Chair of the Department of Medicinal Chemistry and Director of the Med Chem IDP. The Department of Medicinal Chemistry is the administrative component of the College of Pharmacy that oversees the Medicinal Chemistry faculty, research scientists and postdoctoral fellows (e.g., recruitment, mentoring, evaluation), has responsibility for the medicinal chemistry Pharm.D. and Ph.D. courses and seminar program, and coordinates the participation of medicinal chemistry faculty in College-level committees and other administrative duties. The Department of Medicinal Chemistry is the home for the Med Chem IDP Ph.D. program, which serves to administer the Med Chem Ph.D. program, with responsibility for graduate student recruitment, training/mentoring, progression and graduation. The Med Chem IDP includes all faculty from the Department of Medicinal Chemistry as well as select faculty from the Department of Pharmaceutical Sciences in the College of Pharmacy and a variety of schools (e.g., Literature, Science and the Arts, Medical School) and departments at Michigan (e.g., Biological Chemistry, Biophysics, Chemistry, Pathology, Pharmacology, Radiology). Approximately half of the Med Chem IDP faculty have their primary appointments outside of the Department of Medicinal Chemistry. These faculty currently mentor ~20% of the Med Chem Ph.D. students and are fully engaged in the Med Chem Ph.D. program in many other ways including seminar attendance, recruitment of students, teaching in our graduate courses, and serving on candidacy and dissertation committees. There is an annual meeting of the Med Chem IDP faculty to review the status of the IDP and the students.

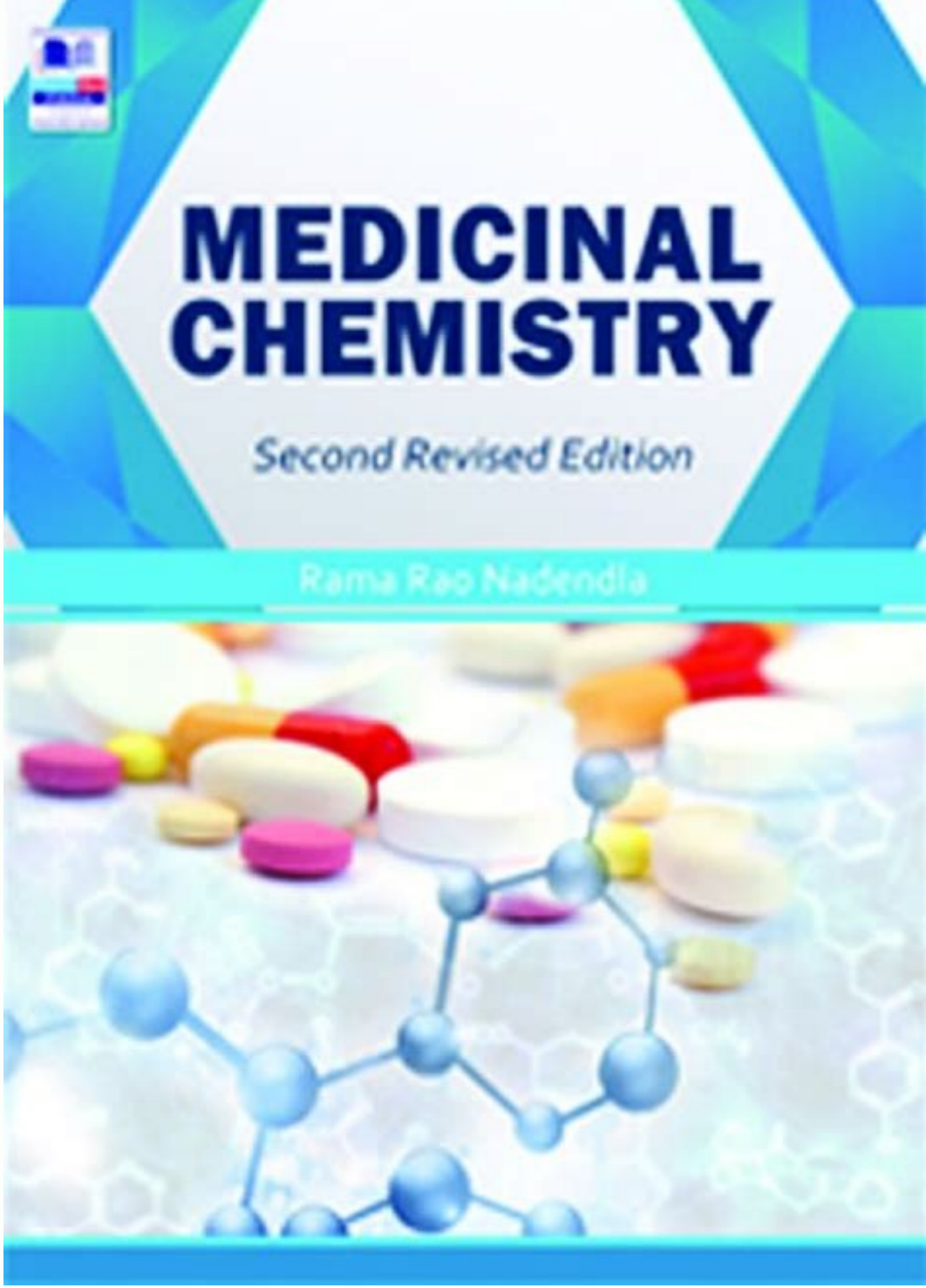
Page 1 TEXTBOOK OF MEDICINAL CHEMISTRY Volume II "This page intentionally left blank" TEXTBOOK OF MEDICINAL CHEMISTRY Volume II V. Alagarsamy M Pharm, PhD, FIC, DOMH Professor and Principal MNR College of Pharmacy, Sangareddy Gr. Hyderabad ELSEVIER A division of Reed Elsevier India Private Limited Textbook of Medicinal Chemistry, Volume II Alagarsamy ELSEVIER A division of Reed Elsevier India Private Limited Mosby, Saunders, Churchill Livingstone, Butterworth Heinemann and Hanley & Belfus are the Health Science imprints of Elsevier. [lisarolabotryva.pdf](#) © 2010 Elsevier All rights reserved. No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical including photocopying, recording, or any information storage and retrieval system without the prior written permission from the publisher and the copyright holder. ISBN: 978-81-312-2190-7 Medical knowledge is constantly changing. As new information becomes available, changes in treatment, procedures, equipment and the use of drugs become necessary. The authors, editors, contributors and the publisher have, as far as it is possible, taken care to ensure that the information given in this text is accurate and up-to-date. However, readers are strongly advised to confirm that the information, especially with regard to drug dose/usage, complies with current legislation and standards of practice. Please consult full prescribing information before issuing prescriptions for any product mentioned in the publication. Published by Elsevier, a division of Reed Elsevier India Private Limited Registered Office: Gate No. 3, Building No. A-1, 2 Industrial Area, Kalkaji, New Delhi-110019 Corporate Office: 14th Floor, Building No. 10B, DLF Cyber City, Phase II, Gurgaon-122002, Haryana, India Commissioning Editor: Nimisha Goswami Development Editor: Subodh K. Chauhan Manager Publishing Operations: Sunil Kumar Manager Production: N.C. Pant Typeset by Televijay Technologies (P) Ltd., Chennai. Printed and bound at Rajkamal Electric Press, Kundli, Haryana. Preface Medicinal chemistry emerged as a specialized area due to the development in chemistry and biology, hence it is considered as a highly interdisciplinary science combining a wide variety of subjects such as organic chemistry, pharmacology, biochemistry, toxicology, pharmacognosy, molecular biology, genomics, pro- teomics, computational chemistry, physical chemistry and statistics. Now, the growth of medicinal chem- istry has reached a stage where the activity-guided synthesis of compounds is possible rather than screening of synthesized compounds for different biological activities. This fi eld also penetrates into the areas of gene therapy and biochemistry-based virtual drug receptors with the help of computer-aided molecular model- ling techniques.



This book is an upshot of my vision to discover the best book on medicinal chemistry, which deals about the concise description of diseases, clear classification of drugs with their chemical structures, synthesis of each drug with different routes, mode of action, metabolism, physical and pharmacological properties along with their therapeutic uses, assay technique, dose, official dosage forms and summary of structure-activity relationship (SAR) studies. Swathing the entire features of medicinal chemistry, first of its kind, is the unique feature of this book. It facilitates the students to understand the subject more easily and interestingly. While writing this book, I felt that the book will bring about a re-orientation in the teaching and learning process of medicinal chemistry. Academic community in India is faced with scarcity of books to cater to their needs. Numerous foreign writers' books deal well about basics and pharmacological aspects related to medicinal chemistry, but lack two major requirements, i.e. synthesis and clear classification of drugs used. [apex_legends_esp_hack.pdf](#) Some Indian authors filled this lacuna to a certain extent by including the synthesis, but failed to give a clear classification of drugs with their chemical structure. For this, the content of this book has been carefully tailored to cater the needs of the academicians belonging to all Indian universities, pharmaceuticals, clinical and industrial pharmacists by incorporating the missing links between general synthetic organic chemistry and medicinal chemistry. This Textbook of Medicinal Chemistry is presented in two volumes. Volume II consists of six sections. The first section is devoted to drugs acting on inflammation and allergy. Sections II to V deal about the drugs acting on different systems of human body such as respiratory system, digestive system, blood and endocrines. Section VI is dedicated to chemotherapy, where detailed discussion from the history of development of antibiotics to the recent drugs approved for HIV infection is provided. In all these sections, chemical, pharmacological, biochemical and toxicological aspects of organic medicinal compounds are described elaborately. vi Preface We hope that this special volume will be a good source of information and reference for not only graduate and postgraduate students but also basic and applied researchers in this field. Moreover, it will also be of interest to a wide range of scientists, including organic chemists, biochemists, pharmacologists and clinicians, who are interested in drug research.



I welcome suggestions and constructive criticism from all corners of scientific community. V. Alagarsamy Acknowledgements I wish to place on record my heartfelt thanks to everyone who have made this book possible, especially my beloved teachers from first standard to doctoral programme guides, Dr Rajani Giridhar and Dr M.R. Yadav. I am immensely grateful to Dr B. Suresh and Dr R.K. Goyal for inspiring and initiating me to write the book. I am grateful to Shri M.N. Raju, Chairman, and Mr Ravi Varma, Director, MNR Educational Trust, Hyderabad, for providing constant encouragement and moral support to achieve this goal. I express my sincere appreciation to my students, Dr V. call of cthulhu rulebook anyflip Raja Solomon (postdoctoral researcher, Laurentian University, Canada), Mr J.C. Hanish Singh, Mr P. Parthiban, Mr S. Thiru Senthil Murugan and Ms J. Rajeshwari, for helping me author this book. I also thank my colleagues, especially, Mr S. Sathesh Kumar, Mr B. Subba Rao, Mr R. Chandrasekar and Mr M. Shahul Hameedh, for their untiring support in making this book. The friendly interaction I had experienced with the Elsevier team, Ms Ritu Sharma, Ms Nimisha Goswami, Mr Subodh K. Chauhan, and Televijay Technologies Project Manager Ms Usha K. Nair, offered a plenty of energy to eliminate the fatigue during the preparation of this book.



If the author gets such a cooperative and energetic publication team, publishing any number of books will not be a difficult task. I thank them wholeheartedly for helping me reach this target and am requesting them to continue their service to the author community in the same intensity. The stimulation I got from my father, mother, sister, brothers and wife to reach this target is more than analgesics, and the patience and cooperation extended by my children, Aish and Abhi, made me think of the goal without any diversion. To express my thankfulness, I pray The Almighty to bless my children with teachers like those I got in my life so that they too are inspired by their teachers and dedicate to the field of medicinal chemistry and, in turn, serve for the suffering humanity. V. Alagarsamy "This page intentionally left blank" Contents Preface v Acknowledgements vii SECTION I Drugs Acting on Inflammation/Allergy 1 Chapter 1 Antihistamines 3 • Structure-Activity Relationship—H1 Receptor Antagonists • Classification • Synthesis and Drug Profile Chapter 2 Prostaglandins 46 • Functions of PGs • Biosynthesis • Synthesis and Drug Profile Chapter 3 Analgesics, Antipyretics, and NSAIDs 56 • Classification • SAR of Salicylates; Synthesis and Drug Profile; SAR of p-Amino Phenol Derivatives; SAR of 3,5-Pyrazolidine Diones; SAR of Anthranilic Acid Derivatives; SAR of Aryl Alkanolic Acid Derivatives; SAR of Indole Acetic Acid Derivatives; SAR of Oxicams SECTION II Drugs Acting on Respiratory System 107 Chapter 1 Expectorants and Antitussives 109 • Introduction to Respiratory System • Expectorants and Antitussives • Classification • Synthesis and Drug Profile Section III Drugs Acting on Digestive System 119 Chapter 1 Antulcer Agents 121 • Classification • Synthesis and Drug Profile • SAR of H2-Receptor Antagonists x Contents Chapter 2 Antidiarrhoeals 137 • Synthesis and Drug Profile SECTION IV Drugs Acting on Blood and Blood-Forming Organs 143 Chapter 1 Coagulants 145 • Classification • Anticoagulants; 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Overview in the notes of Medicinal Chemistry 2, we have given two types of notes namely Handwritten notes and Standard notes. Medicinal Chemistry 2 notes are created to help students comprehend the basic concepts of the physical and functional properties of drugs. The subject concentrates on the connection between the properties and the structures of the drugs as well as the importance of physical properties as well as how drugs can be processed. The curriculum additionally focuses on the ways that chemically synthesized substances can be found in all areas. Friends In Medicinal Chemistry 2 as per the syllabus copy of PCI B Pharm 5th semester, there are a total of 5 units in this subject. Check this: B Pharma 5th Semester all Study Material PDF FreeDownload Medicinal Chemistry 2 All Units Notes PDFs FREEClick on the following download buttons below the names of the units to download Medicinal Chemistry 2 both Handwritten and Standard Notes. In the Medicinal Chemistry 2 Notes Pdfs, the following chapters are explained in detail. UNIT-1 Handwritten Notes Standard Notes Antihistaminic ingredient: Histamine, receptors & their distribution throughout the human body. H1-antagonists: Dimenhydrinate, Diphenhydramine hydrochloride, Clemastine fumarate, Diphenylpyraline hydrochloride, Doxylamine succinate, Tripelennamine hydrochloride, Meclizine hydrochloride, Chlo cyclizine hydrochloride, Buclizine hydrochloride, Chlorpheniramine maleate, Triprolidine hydrochloride, Phenindamine tartrate, Promethazine hydrochloride, Trimipramines tartrate, Cyproheptadine hydrochloride, Azatadine maleate, Arteriole, Loratadine, Cetirizine, Levocetirizine Cromolyn sodium. H2-antagonists: Ranitidine, Cimetidine, Famotidine. Gastric Proton pump inhibitors: Lansoprazole, Omeprazole, Rabeprazole, Pantoprazole. Anti-neoplastic agents: The agents that are alkylating: Cyclophosphamide, Mechlorethamine, Melphalan, Chlorambucil, Busulfan, and Thiotepe. Antimetabolites: Thioguanine, Mercaptopurine, Fluorouracil, Fluoridine, Cytarabine, Methotrexate, Azathioprine. Antibiotics: Daunorubicin, Dactinomycin, Doxorubicin, Bleomycin. Plant products: Vinblastine sulfate, Etoposide, Vincristine sulfate. Miscellaneous: Mitotane, Cisplatin. UNIT-2 Handwritten Notes Standard Notes Anti-anginal: Vasodilators: Isosorbide dinitrate, Amyl Nitrite, Pentaerythritol Tetranitrate, Dipyridamole, Nitroglycerin. Calcium channel blockers: Bepridil hydrochloride, Verapamil, Diltiazem hydrochloride, Nifedipine, Felodipine, Amlodipine, Nimodipine. Diuretics: Inhibitors of carbonic anhydrase: Methazolamide, Acetazolamide, Dichlorphenamide. Thiazides: Hydrochlorothiazide, Chlorothiazide, Cycotamine, Hydro flumethiazide. Loop diuretics: Bumetanide, Furosemide, Ethacrynic acid. Potassium-sparing Diuretics: Triamterene, Spironolactone, Amiloride. Osmotic Diuretics: Mannitol. Anti-hypertensive Agents: Captopril, Timolol, Enalapril, Lisinopril, Benazepril hydrochloride, Quinapril hydrochloride, Clonidine hydrochloride, Methyldopa hydrochloride, Guanethidine monochlate, Guanabana acetate, Sodium nitroprusside, Minoxidil, Diazoxide, Reserpine, Hydralazine hydrochloride. UNIT-3 Handwritten Notes Standard Notes Anti-arrhythmic Drugs: Procainamide hydrochloride, Quinidine sulfate, Quinidine phosphate, Disopyramide phosphate, Phenytoin sodium, Lidocaine hydrochloride, Tocainide hydrochloride, Mexiletine hydrochloride, Lorcaidine hydrochloride, Amiodarone, Sotalol. Anti-hyperlipidemic agents: Lovastatin, Clofibrate, Cholestyramine, & Colestipol. Coagulant & Anticoagulants: Aceto menadione, Menadione, Warfarin, Anisidine, clopidogrel. Drugs used in Congestive Heart Failure: Digitoxin, Digoxin, Bozeman, and Tionesta. UNIT-4 Handwritten Notes Standard Notes Drugs acting on Endocrine system: Stereochemistry, Nomenclature, & metabolism of steroids. Sex hormones: Testosterone, Progesterones, Nandrolone, Oestrinol, Oestradiol, Oestrione, Diethylstilbestrol. Drugs for erectile dysfunction: Tadalafil Sildenafil. Oral contraceptives: Norgestrel, Mifepristone, Levonorgestrel. Corticosteroids: Hydrocortisone, Cortisone, Betamethasone, Prednisolone, Dexamethasone. Thyroid, & antithyroid drugs: L-Thyroxine, L-Thyronine, Propylthiouracil, Methimazole. UNIT-5 Handwritten Notes Standard Notes Antidiabetic agents: Insulin & its preparations. Sulfonylureas: Chlorpropamide, Tolbutamide, Glipizide, Glimiperide, Biguanides: Metformin. Thiazolidinediones: Rosiglitazone Pioglitazone. Meglitinides: Nateglinide, Repaglinide. Glucosidase inhibitors: Voglibose Acarbose. Local Anesthetics: SAR of Local anesthetics. Benzoic Acid derivatives: Hexylcaine, Cocaine, Mepivacaine, Cyclomethacaine, and Piperocaine. Amino Benzoic acid derivatives: Butamben, Benzocaine, Procaine, Butacaine, Propoxycaine, Tetracaine, Benoxinate. Lidocaine. 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