

CONTENTS

PREFACE TO THE EIGHTH EDITION

v

PREFACE TO THE FIRST EDITION

vii

CONTRIBUTORS

viii



SECTION

I

General Principles

INTRODUCTION	<i>Leslie Z. Benet, Jerry R. Mitchell, and Lewis B. Sheiner</i>	1
1. PHARMACOKINETICS: THE DYNAMICS OF DRUG ABSORPTION, DISTRIBUTION, AND ELIMINATION	<i>Leslie Z. Benet, Jerry R. Mitchell, and Lewis B. Sheiner</i>	3
2. PHARMACODYNAMICS: MECHANISMS OF DRUG ACTION AND THE RELATIONSHIP BETWEEN DRUG CONCENTRATION AND EFFECT	<i>Elliott M. Ross</i>	33
3. PRINCIPLES OF TOXICOLOGY	<i>Curtis D. Klaassen</i>	49
4. PRINCIPLES OF THERAPEUTICS	<i>Alan S. Nies</i>	62

SECTION

II

Drugs Acting at Synaptic and Neuroeffector Junctional Sites

5. NEUROHUMORAL TRANSMISSION: THE AUTONOMIC AND SOMATIC MOTOR NERVOUS SYSTEMS	<i>Robert J. Lefkowitz, Brian B. Hoffman, and Palmer Taylor</i>	84
6. CHOLINERGIC AGONISTS	<i>Palmer Taylor</i>	122
7. ANTICHOLINESTERASE AGENTS	<i>Palmer Taylor</i>	131
8. ATROPINE, SCOPOLAMINE, AND RELATED ANTIMUSCARINIC DRUGS	<i>Joan Heller Brown</i>	150
9. AGENTS ACTING AT THE NEUROMUSCULAR JUNCTION AND AUTONOMIC GANGLIA	<i>Palmer Taylor</i>	166
10. CATECHOLAMINES AND SYMPATHOMIMETIC DRUGS	<i>Brian B. Hoffman and Robert J. Lefkowitz</i>	187
11. ADRENERGIC RECEPTOR ANTAGONISTS	<i>Brian B. Hoffman and Robert J. Lefkowitz</i>	221

SECTION

III

Drugs Acting on the Central Nervous System

12.	NEUROHUMORAL TRANSMISSION AND THE CENTRAL NERVOUS SYSTEM	<i>Floyd E. Bloom</i>	244
13.	HISTORY AND PRINCIPLES OF ANESTHESIOLOGY	<i>Sean K. Kennedy and David E. Longnecker</i>	269
14.	GENERAL ANESTHETICS	<i>Bryan E. Marshall and David E. Longnecker</i>	285
15.	LOCAL ANESTHETICS	<i>J. Murdoch Ritchie and Nicholas M. Greene</i>	311
16.	THE THERAPEUTIC GASES Oxygen, Carbon Dioxide, Helium, and Water Vapor	<i>Roderic G. Eckenhoff and David E. Longnecker</i>	332
17.	HYPNOTICS AND SEDATIVES; ETHANOL	<i>Theodore W. Rall</i>	345
18.	DRUGS AND THE TREATMENT OF PSYCHIATRIC DISORDERS	<i>Ross J. Baldessarini</i>	383
19.	DRUGS EFFECTIVE IN THE THERAPY OF THE EPILEPSIES	<i>Theodore W. Rall and Leonard S. Schleifer</i>	436
20.	DRUGS FOR PARKINSON'S DISEASE, SPASTICITY, AND ACUTE MUSCLE SPASMS	<i>Jesse M. Cedarbaum and Leonard S. Schleifer</i>	463
21.	OPIOID ANALGESICS AND ANTAGONISTS	<i>Jerome H. Jaffe and William R. Martin</i>	485
22.	DRUG ADDICTION AND DRUG ABUSE	<i>Jerome H. Jaffe</i>	522

SECTION

IV

Autacoids; Drug Therapy of Inflammation

	INTRODUCTION	<i>James C. Garrison and Theodore W. Rall</i>	574
23.	HISTAMINE, BRADYKININ, 5-HYDROXYTRYPTAMINE, AND THEIR ANTAGONISTS	<i>James C. Garrison</i>	575
24.	LIPID-DERIVED AUTACOIDS: EICOSANOIDS AND PLATELET-ACTIVATING FACTOR	<i>William B. Campbell</i>	600
25.	DRUGS USED IN THE TREATMENT OF ASTHMA The Methylxanthines, Cromolyn Sodium, and Other Agents	<i>Theodore W. Rall</i>	618
26.	ANALGESIC-ANTIPYRETICS AND ANTIINFLAMMATORY AGENTS; DRUGS EMPLOYED IN THE TREATMENT OF RHEUMATOID ARTHRITIS AND GOUT	<i>Paul A. Insel</i>	638

SECTION

V

Water, Salts, and Ions

27. AGENTS AFFECTING VOLUME AND COMPOSITION OF BODY FLUIDS
Gilbert H. Mudge and Irwin M. Weiner 682

SECTION

VI

Drugs Affecting Renal Function and Electrolyte Metabolism

- INTRODUCTION *Irwin M. Weiner* 708
28. DIURETICS AND OTHER AGENTS EMPLOYED IN THE MOBILIZATION OF
 EDEMA FLUID *Irwin M. Weiner* 713
29. AGENTS AFFECTING THE RENAL CONSERVATION OF WATER
Richard M. Hays 732
30. INHIBITORS OF TUBULAR TRANSPORT OF ORGANIC COMPOUNDS
Irwin M. Weiner 743

SECTION

VII

Cardiovascular Drugs

31. RENIN AND ANGIOTENSIN *James C. Garrison and Michael J. Peach* 749
32. DRUGS USED FOR THE TREATMENT OF ANGINA: ORGANIC NITRATES,
 CALCIUM-CHANNEL BLOCKERS, AND β -ADRENERGIC ANTAGONISTS
Ferid Murad 764
33. ANTIHYPERTENSIVE AGENTS AND THE DRUG THERAPY OF HYPERTENSION
John G. Gerber and Alan S. Nies 784
34. DIGITALIS AND ALLIED CARDIAC GLYCOSIDES
Brian F. Hoffman and J. Thomas Bigger, Jr. 814
35. ANTIARRHYTHMIC DRUGS *J. Thomas Bigger, Jr., and Brian F. Hoffman* 840
36. DRUGS USED IN THE TREATMENT OF HYPERLIPOPROTEINEMIAS
Michael S. Brown and Joseph L. Goldstein 874

SECTION

VIII

Drugs Affecting Gastrointestinal Function

37. AGENTS FOR CONTROL OF GASTRIC ACIDITY AND TREATMENT OF PEPTIC
 ULCERS *Laurence L. Brunton* 897
38. AGENTS AFFECTING GASTROINTESTINAL WATER FLUX AND MOTILITY,
 DIGESTANTS, AND BILE ACIDS *Laurence L. Brunton* 914

SECTION

IX**Drugs Affecting Uterine Motility**

39. OXYTOCIN, PROSTAGLANDINS, ERGOT ALKALOIDS, AND OTHER DRUGS;
Tocolytic Agents *Theodore W. Rall* 933

SECTION

X**Chemotherapy of Parasitic Infections**

- INTRODUCTION *Leslie T. Webster, Jr.* 954
40. DRUGS USED IN THE CHEMOTHERAPY OF HELMINTHIASIS
Leslie T. Webster, Jr. 959
41. DRUGS USED IN THE CHEMOTHERAPY OF PROTOZOAL INFECTIONS
Malaria *Leslie T. Webster, Jr.* 978
42. DRUGS USED IN THE CHEMOTHERAPY OF PROTOZOAL INFECTIONS (*Continued*)
Amebiasis, Giardiasis, and Trichomoniasis *Leslie T. Webster, Jr.* 999
43. DRUGS USED IN THE CHEMOTHERAPY OF PROTOZOAL INFECTIONS (*Continued*)
Leslie T. Webster, Jr. 1008
Leishmaniasis, Trypanosomiasis, and Other Protozoal Infections

SECTION

XI**Chemotherapy of Microbial Diseases**

44. ANTIMICROBIAL AGENTS
Merle A. Sande, Joan E. Kapusnik-Uner, and Gerald L. Mandell 1018
General Considerations
45. ANTIMICROBIAL AGENTS (*Continued*)
Gerald L. Mandell and Merle A. Sande 1047
Sulfonamides, Trimethoprim-Sulfamethoxazole, Quinolones, and Agents for
Urinary Tract Infections
46. ANTIMICROBIAL AGENTS (*Continued*)
Gerald L. Mandell and Merle A. Sande 1065
Penicillins, Cephalosporins, and other Beta-Lactam Antibiotics
47. ANTIMICROBIAL AGENTS (*Continued*)
Merle A. Sande and Gerald L. Mandell 1098
The Aminoglycosides

48. **ANTIMICROBIAL AGENTS** (*Continued*)
Merle A. Sande and Gerald L. Mandell 1117
 Tetracyclines, Chloramphenicol, Erythromycin, and Miscellaneous Antibacterial Agents
49. **ANTIMICROBIAL AGENTS** (*Continued*)
Gerald L. Mandell and Merle A. Sande 1146
 Drugs Used in the Chemotherapy of Tuberculosis and Leprosy
50. **ANTIMICROBIAL AGENTS** (*Continued*)
John E. Bennett 1165
 Antifungal Agents
51. **ANTIMICROBIAL AGENTS** (*Continued*)
R. Gordon Douglas, Jr. 1182
 Antiviral Agents

SECTION

XII**Chemotherapy of Neoplastic Diseases**

- INTRODUCTION *Paul Calabresi and Bruce A. Chabner* 1202
52. **ANTINEOPLASTIC AGENTS** *Paul Calabresi and Bruce A. Chabner* 1209

SECTION

XIII**Drugs Used for Immunosuppression**

53. **IMMUNOSUPPRESSIVE AGENTS** *Robert E. Handschumacher* 1264

SECTION

XIV**Drugs Acting on the Blood and the Blood-Forming Organs**

54. **HEMATOPOIETIC AGENTS: GROWTH FACTORS, MINERALS, AND VITAMINS**
Robert S. Hillman 1277
55. **ANTICOAGULANT, THROMBOLYTIC, AND ANTIPLATELET DRUGS**
Philip W. Majerus, George J. Broze, Jr., Joseph P. Miletich, and Douglas M. Tollefsen 1311

SECTION

XV**Hormones and Hormone Antagonists**

- INTRODUCTION *Ferid Murad* 1332
56. **ADENOHYPOPHYSEAL HORMONES AND RELATED SUBSTANCES**
Jeffrey A. Kuret and Ferid Murad 1334

57.	THYROID AND ANTITHYROID DRUGS	<i>Robert C. Haynes, Jr.</i>	1361
58.	ESTROGENS AND PROGESTINS	<i>Ferid Murad and Jeffrey A. Kuret</i>	1384
59.	ANDROGENS	<i>Jean D. Wilson</i>	1413
60.	ADRENOCORTICOTROPIC HORMONE; ADRENOCORTICAL STEROIDS AND THEIR SYNTHETIC ANALOGS; INHIBITORS OF THE SYNTHESIS AND ACTIONS OF ADRENOCORTICAL HORMONES	<i>Robert C. Haynes, Jr.</i>	1431
61.	INSULIN, ORAL HYPOLYCEMIC AGENTS, AND THE PHARMACOLOGY OF THE ENDOCRINE PANCREAS	<i>C. Ronald Kahn and Yoram Shechter</i>	1463
62.	AGENTS AFFECTING CALCIFICATION: CALCIUM, PARATHYROID HORMONE, CALCITONIN, VITAMIN D, AND OTHER COMPOUNDS	<i>Robert C. Haynes, Jr.</i>	1496

SECTION

XVI**The Vitamins**

	INTRODUCTION	<i>Robert Marcus and Ann M. Coulston</i>	1523
63.	WATER-SOLUBLE VITAMINS The Vitamin B Complex and Ascorbic Acid	<i>Robert Marcus and Ann M. Coulston</i>	1530
64.	FAT-SOLUBLE VITAMINS Vitamins A, K, and E	<i>Robert Marcus and Ann M. Coulston</i>	1553

SECTION

XVII**Dermatology**

65.	DERMATOLOGICAL PHARMACOLOGY	<i>Mary-Margaret Chren and David R. Bickers</i>	1572
-----	-----------------------------	---	------

SECTION

XVIII**Toxicology**

66.	HEAVY METALS AND HEAVY-METAL ANTAGONISTS	<i>Curtis D. Klaassen</i>	1592
67.	NONMETALLIC ENVIRONMENTAL TOXICANTS: AIR POLLUTANTS, SOLVENTS AND VAPORS, AND PESTICIDES	<i>Curtis D. Klaassen</i>	1615

APPENDIX I. PRINCIPLES OF PRESCRIPTION ORDER WRITING AND PATIENT COMPLIANCE INSTRUCTIONS	<i>Leslie Z. Benet</i>	1640
--	------------------------	------

APPENDIX II. DESIGN AND OPTIMIZATION OF DOSAGE REGIMENS; PHARMACOKINETIC DATA	<i>Leslie Z. Benet and Roger L. Williams</i>	1650
---	--	------

INDEX		1737
-------	--	------