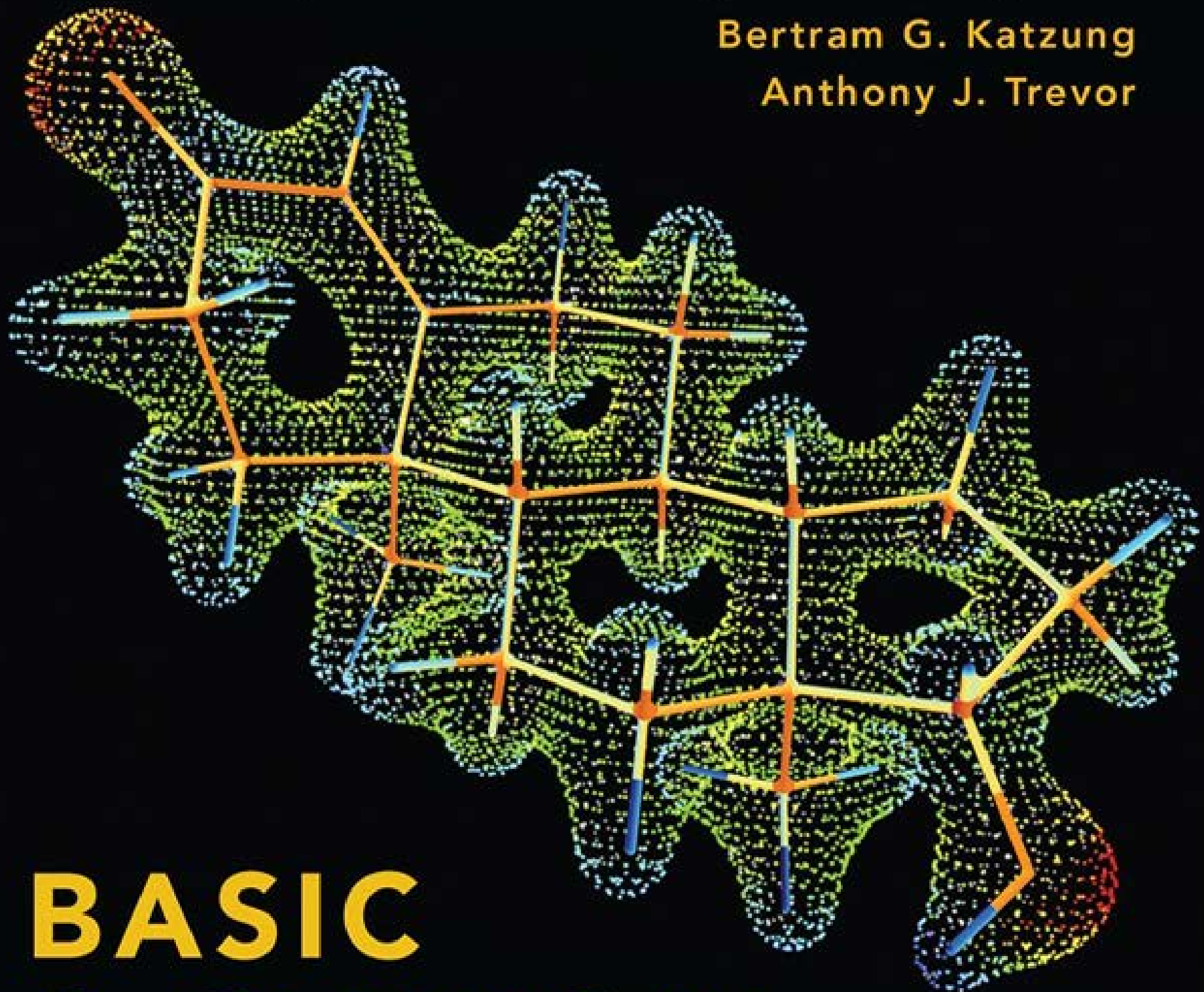


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# **BASIC & CLINICAL PHARMACOLOGY**



13th Edition

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# SCHEDULE OF CONTROLLED DRUGS<sup>1</sup>

## SCHEDULE I

(All nonresearch use illegal under federal law.)

### Flunitrazepam (Rohypnol)

#### Narcotics:

Heroin and many nonmarketed synthetic narcotics

#### Hallucinogens:

LSD

MDA, STP, DMT, DET, mescaline, peyote, bufotenine, ibogaine, psilocybin, phencyclidine (PCP; veterinary drug only)

#### Marijuana

#### Methaqualone

## SCHEDULE II

(No telephone prescriptions, no refills.)<sup>2</sup>

#### Opioids:

Opium

Opium alkaloids and derived phenanthrene alkaloids: codeine, morphine (Avinza, Kadian, MSContin, Roxanol), hydrocodone and hydrocodone combinations (Zohydro ER, Hycodan, Vicodin, Lortab), hydromorphone (Dilaudid), oxymorphone (Exalgo), oxycodone (dihydrocodeinone, a component of Oxycontin, Percodan, Percocet, Roxicodone, Tylox)

Designated synthetic drugs: meperidine (Demerol), methadone, levorphanol (Levo-Dromoran), fentanyl (Duragesic, Actiq, Fentora), alfentanil (Alfenta), sufentanil (Sufenta), remifentanil (Ultiva), tapentadol (Nycynta)

#### Stimulants:

Coca leaves and cocaine

Amphetamines: Amphetamine complex (Biphetamine), Amphetamine salts (Adderall), Dextroamphetamine (Dexedrine, Procentra), Lisdexamfetamine (Vyvanse), Methamphetamine (Desoxyn), Methylphenidate (Ritalin, Concerta, Methylin, Daytrana, Medadate), Above in mixtures with other controlled or uncontrolled drugs

#### Cannabinoids:

Nabilone (Cesamet)

#### Depressants:

Amobarbital (Amytal)

Pentobarbital (Nembutal)

Secobarbital (Seconal)

## SCHEDULE III

(Prescription must be rewritten after 6 months or five refills.)

#### Opioids:

Buprenorphine (Buprenex, Subutex)

Mixture of above Buprenorphine and Naloxone (Suboxone)

The following opioids in combination with one or more active non-opioid ingredients, provided the amount does not exceed that shown:

Codeine and dihydrocodeine: not to exceed 1800 mg/dL or 90 mg/ tablet or other dosage unit

Opium: 500 mg/dL or 25 mg/5 mL or other dosage unit (paregoric)

#### Stimulants:

Benzphetamine (Didrex)

Phendimetrazine (Bontril)

## Depressants:

Schedule II barbiturates in mixtures with noncontrolled drugs or in suppository dosage form

Barbiturates (butabarbital [Butisol], butalbital [Fiorinal])

Ketamine (Ketalar)

## Cannabinoids:

Dronabinol (Marinol)

**Anabolic Steroids:** Fluoxymesterone (Androxy), Methyltestosterone (Android, Testred, Methitest), Nandrolone decanoate (Deca-Durabolin) Non US, Nandrolone phenpropionate (Durabolin) Non US, Oxandrolone (Oxandrin), Oxymetholone (Androl-50), Stanozolol (Winstrol), Testolactone (Teslac), Testosterone and its esters

## SCHEDULE IV

(Prescription must be rewritten after 6 months or five refills; differs from Schedule III in penalties for illegal possession.)

## Opioids:

Butorphanol (Stadol)

Difenoxin 1 mg + atropine 25 mcg (Motofen)

Pentazocine (Talwin)

## Stimulants:

Armodafinil (Nuvigil)

Diethylpropion (Tenuate) not in US

Modafinil (Provigil)

Phentermine (Ionamin, Adipex-P)

## Depressants:

Benzodiazepines: Alprazolam (Xanax), Chlordiazepoxide (Librium), Clonazepam (Klonopin), Clorazepate (Tranxene), Diazepam (Valium), Estazolam (ProSom), Flurazepam (Dalmane), Halazepam (Paxipam), Lorazepam (Ativan), Midazolam (Versed), Oxazepam (Serax), Prazepam (Centrax), Quazepam (Doral), Temazepam (Restoril) Triazolam (Halcion)

Chloral hydrate (Somnote)

Eszopiclone (Lunesta)

Lacosamide (Vimpat)

Meprobamate (Equanil, Miltown, etc)

Methobarbital (Mebaral)

Methohexital (Brevital)

Paraldehyde

Phenobarbital

Zaleplon (Sonata)

Zolpidem (Ambien)

## SCHEDULE V

(As any other nonopioid prescription drug)

Codeine: 200 mg/100 mL

Difenoxin preparations: 0.5 mg + 25 mcg atropine

Dihydrocodeine preparations: 10 mg/100 mL

Diphenoxylate (not more than 2.5 mg and not less than 0.025 mg of atropine per dosage unit, as in Lomotil)

Ethylmorphine preparations: 100 mg/100 mL

Opium preparations: 100 mg/100 mL

Pregabalin (Lyrica)

Pyrovalerone (Centroton, Thymergix)

<sup>1</sup>See <http://www.usdoj.gov/dea/pubs/scheduling.html> for additional details.

<sup>2</sup>Emergency prescriptions may be telephoned if followed within 7 days by a valid written prescription annotated to indicate that it was previously placed by telephone.

a LANGE medical book

# Basic & Clinical Pharmacology

Thirteenth Edition

Edited by

**Bertram G. Katzung, MD, PhD**

*Professor Emeritus  
Department of Cellular & Molecular Pharmacology  
University of California, San Francisco*

Associate Editor

**Anthony J. Trevor, PhD**

*Professor Emeritus  
Department of Cellular & Molecular Pharmacology  
University of California, San Francisco*



New York Chicago San Francisco Athens London Madrid  
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# Contents

Preface

Authors

## SECTION I

### BASIC PRINCIPLES

---

**1. Introduction: The Nature of Drugs & Drug Development & Regulation**

Bertram G. Katzung, MD, PhD

**2. Drug Receptors & Pharmacodynamics**

Mark von Zastrow, MD, PhD

**3. Pharmacokinetics & Pharmacodynamics: Rational Dosing & the Time Course of Drug Action**

Nicholas H. G. Holford, MB, ChB, FRACP

**4. Drug Biotransformation**

Maria Almira Correia, PhD

**5. Pharmacogenomics**

Jennifer E. Hibma, PharmD, & Kathleen M. Giacomini, PhD

## SECTION II

### AUTONOMIC DRUGS

---

**6. Introduction to Autonomic Pharmacology**

Bertram G. Katzung, MD, PhD

**7. Cholinoceptor-Activating & Cholinesterase-Inhibiting Drugs**

Achilles J. Pappano, PhD

**8. Cholinoceptor-Blocking Drugs**

Achilles J. Pappano, PhD

**9. Adrenoceptor Agonists & Sympathomimetic Drugs**

Italo Biaggioni, MD, & David Robertson, MD

**10. Adrenoceptor Antagonist Drugs**

David Robertson, MD, & Italo Biaggioni, MD

## SECTION III

### CARDIOVASCULAR-RENAL DRUGS

---

**11. Antihypertensive Agents**

Neal L. Benowitz, MD

**12. Vasodilators & the Treatment of Angina Pectoris**

Bertram G. Katzung, MD, PhD

**13. Drugs Used in Heart Failure**

Bertram G. Katzung, MD, PhD

**14. Agents Used in Cardiac Arrhythmias**



Joseph r. Hume, PhD, & Augustus O. Grant, MD, PhD

**15. Diuretic Agents**

Ramin Sam, MD, David Pearce, MD, & Harlan E. Ives, MD, PhD

SECTION **IV**

**DRUGS WITH IMPORTANT ACTIONS ON SMOOTH MUSCLE**

---

**16. Histamine, Serotonin, & the Ergot Alkaloids**

Bertram G. Katzung, MD, PhD

**17. Vasoactive Peptides**

Ian A. Reid, PhD

**18. The Eicosanoids: Prostaglandins, Thromboxanes, Leukotrienes, & Related Compounds**

Emer M. Smyth, PhD, & Garret A. FitzGerald, MD

**19. Nitric Oxide**

Samie R. Jaffrey, MD, PhD

**20. Drugs Used in Asthma**

Joshua M. Galanter, MD, & Homer A. Boushey, MD

SECTION **V**

**DRUGS THAT ACT IN THE CENTRAL NERVOUS SYSTEM**

---

**21. Introduction to the Pharmacology of CNS Drugs**

John A. Gray, MD, PhD, & Roger A. Nicoll, MD

**22. Sedative-Hypnotic Drugs**

Anthony J. Trevor, PhD

**23. The Alcohols**

Susan B. Masters, PhD, & Anthony J. Trevor, PhD

**24. Antiseizure Drugs**

Roger J. Porter, MD, & Brian s. Meldrum, MB, PhD

**25. General Anesthetics**

Helge Eilers, MD, & Spencer Yost, MD

**26. Local Anesthetics**

Kenneth Drasner, MD

**27. Skeletal Muscle Relaxants**

Marieke Kruidering-Hall, PhD, & Lundy Campbell, MD

**28. Pharmacologic Management of Parkinsonism & Other Movement Disorders**

Michael J. Aminoff, MD, DSc, FRCP

**29. Antipsychotic Agents & Lithium**

Charles DeBattista, MD

**30. Antidepressant Agents**

Charles DeBattista, MD

**31. Opioid Agonists & Antagonists**

Mark A. Schumacher, PhD, MD, Allan I. Basbaum, PhD, & Ramana K. Naidu, MD

### **32. Drugs of Abuse**

Christian Lüscher, MD

## SECTION VI

# **DRUGS USED TO TREAT DISEASES OF THE BLOOD, INFLAMMATION, & GOUT**

---

### **33. Agents Used in Cytopenias; Hematopoietic Growth Factors**

James L. Zehnder, MD

### **34. Drugs Used in Disorders of Coagulation**

James L. Zehnder, MD

### **35. Agents Used in Dyslipidemia**

Mary J. Malloy, MD, & John P. Kane, MD, PhD

### **36. Nonsteroidal Anti-Inflammatory Drugs, Disease-Modifying Antirheumatic Drugs, Nonopioid Analgesics, & Drugs Used in Gout**

Nabeel H. Borazan, MD, & Daniel E. Furst, MD

## SECTION VII

# **ENDOCRINE DRUGS**

---

### **37. Hypothalamic & Pituitary Hormones**

Roger K. Long, MD, & Hakan Cakmak, MD

### **38. Thyroid & Antithyroid Drugs**

Betty J. Dong, PharmD, FASHP, FCCP, & Francis S. Greenspan, MD, FACP

### **39. Adrenocorticosteroids & Adrenocortical Antagonists**

George P. Chrousos, MD

### **40. The Gonadal Hormones & Inhibitors**

George P. Chrousos, MD

### **41. Pancreatic Hormones & Antidiabetic Drugs**

Martha S. Nolte Kennedy, MD, & Umesh Masharani, MBBS, MRCP (UK)

### **42. Agents That Affect Bone Mineral Homeostasis**

Daniel D. Bikle, MD, PhD

## SECTION VIII

# **CHEMOTHERAPEUTIC DRUGS**

---

### **43. Beta-Lactam & Other Cell Wall- & Membrane-Active Antibiotics**

Daniel H. Deck, PharmD, & Lisa G. Winston, MD

### **44. Tetracyclines, Macrolides, Clindamycin, Chloramphenicol, Streptogramins, & Oxazolidinones**

Daniel H. Deck, PharmD, & Lisa G. Winston, MD

### **45. Aminoglycosides & Spectinomycin**

Daniel H. Deck, PharmD, & Lisa G. Winston, MD

### **46. Sulfonamides, Trimethoprim, & Quinolones**

Daniel H. Deck, PharmD, & Lisa G. Winston, MD

### **47. Antimycobacterial Drugs**

Daniel H. Deck, PharmD, & Lisa G. Winston, MD

**48. Antifungal Agents**

Don Sheppard, MD, & Harry W. Lampiris, MD

**49. Antiviral Agents**

Sharon Safrin, MD

**50. Miscellaneous Antimicrobial Agents; Disinfectants, Antiseptics, & Sterilants**

Daniel H. Deck, PharmD, & Lisa G. Winston, MD

**51. Clinical Use of Antimicrobial Agents**

Harry W. Lampiris, MD, & Daniel S. Maddix, PharmD

**52. Antiprotozoal Drugs**

Philip J. Rosenthal, MD

**53. Clinical Pharmacology of the Antihelminthic Drugs**

Philip J. Rosenthal, MD

**54. Cancer Chemotherapy**

Edward Chu, MD, & Alan C. Sartorelli, PhD

**55. Immunopharmacology**

Douglas F. Lake, PhD, & Adrienne D. Briggs, MD

SECTION **IX**

**TOXICOLOGY**

---

**56. Introduction to Toxicology: Occupational & Environmental**

Daniel T. Teitelbaum, MD

**57. Heavy Metal Intoxication & Chelators**

Michael J. Kosnett, MD, MPH

**58. Management of the Poisoned Patient**

Kent R. Olson, MD

SECTION **X**

**SPECIAL TOPICS**

---

**59. Special Aspects of Perinatal & Pediatric Pharmacology**

Gideon Koren, MD

**60. Special Aspects of Geriatric Pharmacology**

Bertram G. Katzung, MD, PhD

**61. Dermatologic Pharmacology**

Dirk B. Robertson, MD & Howard I. Maibach, MD

**62. Drugs Used in the Treatment of Gastrointestinal Diseases**

Kenneth R. McQuaid, MD

**63. Therapeutic & Toxic Potential of Over-the-Counter Agents**

Robin L. Corelli, PharmD

**64. Dietary Supplements & Herbal Medications**

Cathi E. Dennehy, PharmD, & Candy Tsourounis, PharmD

**65. Rational Prescribing & Prescription Writing**

Paul W. Lofholm, PharmD, & Bertram G. Katzung, MD, PhD

**66. Important Drug Interactions & Their Mechanisms**

John R. Horn, PharmD, FCCP

**Appendix: Vaccines, Immune Globulins, & Other Complex Biologic Products**

Harry W. Lampiris, MD, & Daniel S. Maddix, PharmD

Index

# Preface

The thirteenth edition of *Basic & Clinical Pharmacology* continues the important changes inaugurated in the eleventh edition, with extensive use of full-color illustrations and expanded coverage of transporters, pharmacogenomics, and new drugs. Case studies accompany most chapters and answers to questions posed in the case studies appear at the end of each chapter. As in prior editions, the book is designed to provide a comprehensive, authoritative, and readable pharmacology textbook for students in the health sciences. Frequent revision is necessary to keep pace with the rapid changes in pharmacology and therapeutics; the 2–3 year revision cycle of the printed text is among the shortest in the field and the availability of an online version provides even greater currency. The book also offers special features that make it a useful reference for house officers and practicing clinicians.

Information is organized according to the sequence used in many pharmacology courses and in integrated curricula: basic principles; autonomic drugs; cardiovascular-renal drugs; drugs with important actions on smooth muscle; central nervous system drugs; drugs used to treat inflammation, gout, and diseases of the blood; endocrine drugs; chemotherapeutic drugs; toxicology; and special topics. This sequence builds new information on a foundation of information already assimilated. For example, early presentation of autonomic nervous system pharmacology allows students to integrate the physiology and neuroscience they have learned elsewhere with the pharmacology they are learning and prepares them to understand the autonomic effects of other drugs. This is especially important for the cardiovascular and central nervous system drug groups. However, chapters can be used equally well in courses and curricula that present these topics in a different sequence.

Within each chapter, emphasis is placed on discussion of drug groups and prototypes rather than offering repetitive detail about individual drugs. Selection of the subject matter and the order of its presentation are based on the accumulated experience of teaching this material to thousands of medical, pharmacy, dental, podiatry, nursing, and other health science students.

Major features that make this book particularly useful in integrated curricula include sections that specifically address the clinical choice and use of drugs in patients and the monitoring of their effects—in other words, clinical pharmacology is an integral part of this text. Lists of the trade and generic names of commercial preparations available are provided at the end of each chapter for easy reference by the house officer or practitioner writing a chart order or prescription.

## Significant revisions in this edition include:

- Addition of a chapter on pharmacogenomics, an area of increasing importance in all aspects of pharmacology. The drug development and regulation material previously covered in [Chapter 5](#) has been incorporated into [Chapter 1](#).
- A generic name–trade name table appears at the conclusion of most chapters, providing a rapid reference for these names.
- Many revised illustrations in full color provide significantly more information about drug mechanisms and effects and help to clarify important concepts.
- Major revisions of the chapters on sympathomimetic, diuretic, antipsychotic, antidepressant, antidiabetic, anti-inflammatory, and antiviral drugs, prostaglandins, nitric oxide, hypothalamic and pituitary hormones, central nervous system neurotransmitters, immunopharmacology, and toxicology.
- Continued expansion of the coverage of general concepts relating to newly discovered receptors, receptor mechanisms, and drug transporters.
- Descriptions of important new drugs released through August 2014.

An important related educational resource is *Katzung & Trevor's Pharmacology: Examination & Board Review*, tenth edition (Trevor AJ, Katzung BG, & Masters SB: McGraw-Hill, 2013). This book provides a succinct review of pharmacology with approximately one thousand sample examination questions and answers. It is especially helpful to students preparing for board-type examinations. A more highly condensed source of information suitable for review purposes is *USMLE Road Map: Pharmacology*, second edition (Katzung BG, Trevor AJ: McGraw-Hill, 2006).

This edition marks the 32th year of publication of *Basic & Clinical Pharmacology*. The widespread adoption of the first twelve editions indicates that this book fills an important need. We believe that the thirteenth edition will satisfy this need even more successfully. Spanish, Portuguese, Italian, French, Indonesian, Japanese, Korean, Turkish, and Ukrainian translations are available. Translations into other languages are under way; the publisher may be contacted for further

information.

I wish to acknowledge the prior and continuing efforts of my contributing authors and the major contributions of the staff at Lange Medical Publications, Appleton & Lange, and McGraw-Hill, and of our editors for this edition, Donna Frassetto and Rachel D'Annunzio Henriquez. I also wish to thank Alice Camp and Katharine Katzung for their expert proofreading contributions.

Suggestions and comments about Basic & Clinical Pharmacology are always welcome. They may be sent to me in care of the publisher.

Bertram G. Katzung, MD, PhD  
San Francisco  
December, 2011

# Authors

**Michael J. Aminoff, MD, DSc, FRCP**

Professor, Department of Neurology, University of California, San Francisco

**Allan I. Basbaum, PhD**

Professor and Chair, Department of Anatomy and W.M. Keck Foundation Center for integrative Neuroscience  
University of California, San Francisco

**Neal L. Benowitz, MD**

Professor of Medicine and Bioengineering & Therapeutic Science, University of California, San Francisco, San Francisco

**Italo Biaggioni, MD**

Professor of Pharmacology, Vanderbilt University School of Medicine, Nashville

**Daniel D. Bikle, MD, PhD**

Professor of Medicine, Department of Medicine, and Co-Director, Special Diagnostic and Treatment Unit, University of California, San Francisco, and Veterans Affairs Medical Center, San Francisco

**Nabeel H. Borazan, MD**

Department of Medicine, University of California, Los Angeles

**Homer A. Boushey, MD**

Chief, Asthma Clinical Research Center and Division of Allergy & Immunology; Professor of Medicine, Department of Medicine, University of California, San Francisco

**Adrienne D. Briggs, MD**

Clinical Director, Bone Marrow Transplant Program, Banner Good Samaritan Hospital, Phoenix

**Hakan Cakmak, MD**

Department of Medicine, University of California, San Francisco

**Lundy Campbell, MD**

Professor, Department of Anesthesiology and Perioperative Medicine, University of California San Francisco, School of Medicine, San Francisco

**George P. Chrousos, MD**

Professor & Chair, First Department of Pediatrics, Athens University Medical School, Athens

**Edward Chu, MD**

Professor of Medicine and Pharmacology & Chemical Biology; Chief, Division of Hematology-oncology, Deputy Director, University of Pittsburgh Cancer Institute, University of Pittsburgh School of Medicine, Pittsburgh

**Robin L. Corelli, PharmD**

Clinical Professor, Department of Clinical Pharmacy, School of Pharmacy, University of California, San Francisco

**Maria Almira Correia, PhD**

Professor of Pharmacology, Pharmaceutical Chemistry and Biopharmaceutical Sciences, Department of Cellular & Molecular Pharmacology, University of California, San Francisco

**Charles DeBattista, MD**

Professor of Psychiatry and Behavioral Sciences, Stanford University School of Medicine, Stanford

**Daniel H. Deck, PharmD**

Associate Clinical Professor, School of Pharmacy, University of California, San Francisco; infectious Disease Clinical Pharmacist, San Francisco General Hospital

**Cathi E. Dennehy, PharmD**

Professor, Department of Clinical Pharmacy, University of California, San Francisco School of Pharmacy

**Betty J. Dong, PharmD, FASHP, FCCP**

Professor of Clinical Pharmacy and Clinical Professor of Family and Community Medicine, Department of Clinical Pharmacy and Department of Family and Community Medicine, Schools of Pharmacy and Medicine, University of California, San Francisco

**Kenneth Drasner, MD**

Professor of Anesthesia and Perioperative Care, University of California, San Francisco

**Helge Eilers, MD**

Professor of Anesthesia and Perioperative Care, University of California, San Francisco

**Garret A. FitzGerald, MD**

Chair, Department of Pharmacology; Director, Institute for Translational Medicine and Therapeutics, Perelman School of Medicine at the University of Pennsylvania, Philadelphia

**Daniel E. Furst, MD**

Carl M. Pearson Professor of Rheumatology, Director, Rheumatology Clinical Research Center, Department of Rheumatology, University of California, Los Angeles

**Joshua M. Galanter, MD**

Department of Medicine, University of California, San Francisco

**Augustus O. Grant, MD, PhD**

Professor of Medicine, Cardiovascular Division, Duke University Medical Center, Durham

**John A. Gray, MD, PhD**

Assistant Professor, Department of Neurology, Center for Neuroscience, University of California, Davis

**Francis S. Greenspan, MD, FACP**

Clinical Professor Emeritus of Medicine and Radiology and Chief, Thyroid Clinic, Division of Endocrinology Department of Medicine, University of California, San Francisco

**Nicholas H. G. Holford, MB, ChB, FRACP**

Professor, Department of Pharmacology and Clinical Pharmacology, University of Auckland Medical School Auckland

**John R. Horn, PharmD, FCCP**

Professor of Pharmacy, School of Pharmacy, University of Washington; Associate Director of Pharmacy Services Department of Medicine, University of Washington Medicine, Seattle

**Joseph R. Hume, PhD**

Emeritus Chairman of Pharmacology and Professor of Pharmacology & Physiology; University of Nevada School of Medicine, Reno, NV 89557

**Harlan E. Ives, MD, PhD**

Professor Emeritus of Medicine, Department of Medicine, University of California, San Francisco

**Samie R. Jaffrey, MD, PhD**

Associate Professor of Pharmacology, Department of Pharmacology, Cornell University Weill Medical College, New York



York City

**John P. Kane, MD, PhD**

Professor of Medicine, Department of Medicine; Professor of Biochemistry and Biophysics; Associate Director Cardiovascular Research Institute, University of California, San Francisco

**Bertram G. Katzung, MD, PhD**

Professor Emeritus, Department of Cellular & Molecular Pharmacology, University of California, San Francisco

**Gideon Koren MD, FRCPC, FACMT**

Director, The Motherisk Program Professor of Pediatrics, Pharmacology, Pharmacy and Medical Genetics The University of Toronto; Professor of Medicine, Pediatrics and Physiology/Pharmacology and the Ivey Chair in Molecular Toxicology The University of Western Ontario

**Michael J. Kosnett, MD, MPH**

Associate Clinical Professor of Medicine, Division of Clinical Pharmacology and Toxicology, University of Colorado Health Sciences Center, Denver

**Marieke Kruidering-Hall, PhD**

Academy Chair in Pharmacology Education; Associate Professor, Department of Cellular and Molecular Pharmacology, University of California, San Francisco

**Douglas F. Lake, PhD**

Associate Professor, The Biodesign Institute, Arizona State University, Tempe

**Harry W. Lampiris, MD**

Professor of Clinical Medicine, UCSF, Interim Chief, ID Section, Medical Service, San Francisco VA Medical Center

**Paul W. Lofholm, PharmD**

Clinical Professor of Pharmacy, School of Pharmacy, University of California, San Francisco

**Christian Lüscher, MD**

Departments of Basic and Clinical Neurosciences, Medical Faculty, University Hospital of Geneva, Geneva Switzerland

**Daniel S. Maddix, PharmD**

Associate Clinical Professor of Pharmacy, University of California, San Francisco

**Howard I. Maibach, MD**

Professor of Dermatology, Department of Dermatology, University of California, San Francisco

**Mary J. Malloy, MD**

Clinical Professor of Pediatrics and Medicine, Departments of Pediatrics and Medicine, Cardiovascular Research Institute, University of California, San Francisco

**Susan B. Masters, PhD**

Associate Dean, School of Medicine;

Professor of Pharmacology

Department of Cellular & Molecular Pharmacology, University of California, San Francisco

**Kenneth R. McQuaid, MD**

Professor of Clinical Medicine, University of California, San Francisco; Chief of Gastroenterology, San Francisco Veterans Affairs Medical Center

**Brian S. Meldrum, MB, PhD**

Professor Emeritus, GKT School of Medicine, Guy's Campus, London

**Ramana K. Naidu, MD**

Department of Anesthesia and Perioperative Care, University of California, San Francisco

**Roger A. Nicoll, MD**

Professor of Pharmacology and Physiology, Departments of Cellular & Molecular Pharmacology and Physiology  
University of California, San Francisco

**Martha S. Nolte Kennedy, MD**

Clinical Professor, Department of Medicine, University of California, San Francisco

**Kent R. Olson, MD**

Clinical Professor, Departments of Medicine and Pharmacy, University of California, San Francisco; Medical Director, San Francisco Division, California Poison Control System

**Achilles J. Pappano, PhD**

Professor Emeritus, Department of Cell Biology and Calhoun Cardiology Center, University of Connecticut Health Center, Farmington

**Roger J. Porter, MD**

Adjunct Professor of Neurology, University of Pennsylvania, Philadelphia; Adjunct Professor of Pharmacology  
Uniformed Services University of the Health Sciences, Bethesda

**Ian A. Reid, PhD**

Professor Emeritus, Department of Physiology, University of California, San Francisco

**David Robertson, MD**

Elton Yates Professor of Medicine, Pharmacology and Neurology, Vanderbilt University; Director, Clinical &  
Translational Research Center, Vanderbilt Institute for Clinical and Translational Research, Nashville

**Dirk B. Robertson, MD**

Professor of Clinical Dermatology, Department of Dermatology, Emory University School of Medicine, Atlanta

**Philip J. Rosenthal, MD**

Professor of Medicine, University of California, San Francisco, San Francisco General Hospital

**Stephen M. Rosenthal, MD**

Professor of Pediatrics, Associate Program Director, Pediatric Endocrinology; Director, Pediatric Endocrinology  
outpatient Services, University of California, San Francisco

**Sharon Safrin, MD**

Associate Clinical Professor, Department of Medicine, University of California, San Francisco; President, Safri  
Clinical Research

**Alan C. Sartorelli, PhD**

Alfred Gilman Professor of Pharmacology, Department of Pharmacology, Yale University School of Medicine, New  
Haven

**Mark A. Schumacher, PhD, MD**

Professor, Department of Anesthesia and Perioperative Care, University of California, San Francisco

**Don Sheppard, MD**

Associate Professor, Departments of Microbiology and Immunology and Medicine, McGill University; Program  
Director, McGill Royal College Training Program in Medical Microbiology and Infectious Diseases, Montreal

**Emer M. Smyth, PhD**

Associate Professor, Department of Pharmacology, University of Pennsylvania School of Medicine, Philadelphia

**Daniel T. Teitelbaum, MD**

Adjunct Professor of occupational and Environmental Health, Colorado School of Public Health, Denver, Colorado and Adjunct Professor, Civil and Environmental Engineering, Colorado School of Mines, Golden, Colorado

**Anthony J. Trevor, PhD**

Professor Emeritus, Department of Cellular & Molecular Pharmacology, University of California, San Francisco

**Candy Tsourounis, PharmD**

Professor of Clinical Pharmacy, Medication outcomes Center, University of California, San Francisco School of Pharmacy

**Mark von Zastrow, MD, PhD**

Professor, Departments of Psychiatry and Cellular & Molecular Pharmacology, University of California, San Francisco

**Lisa G. Winston, MD**

Associate Professor, Department of Medicine, Division of infectious Diseases, University of California, San Francisco; Hospital Epidemiologist, San Francisco General Hospital

**Spencer Yost, MD**

Professor, Department of Anesthesia and Perioperative Care, University of California, San Francisco; Medical Director, UCSF-Mt. Zion ICU, Chief of Anesthesia, UCSF-Mt. Zion Hospital

**James L. Zehnder, MD**

Professor of Pathology and Medicine, Pathology Department, Stanford University School of Medicine, Stanford