

# TABLE OF CONTENTS

- Contributors

Preface

About the Companion Website

## **Section 1 Principles of Pharmacology 1**

1 Veterinary Pharmacology: An Introduction to the Discipline 3  
Jim E. Riviere and Mark G. Papich

2 Absorption, Distribution, Metabolism, and Elimination 8  
Jim E. Riviere

3 Pharmacokinetics 41  
Jim E. Riviere

4 Mechanism of Drug Action and Pharmacokinetics/ Pharmacodynamics Integration  
in Dosage Regimen Optimization for Veterinary Medicine 65  
Pierre-Louis Toutain

5 Principles of Pharmaceutics and Veterinary Dosage Forms 87  
Raafat M. Fahmy and Marilyn N. Martinez

## **Section 2 Drugs Acting on the Autonomic Nervous System 111**

6 Introduction to the Autonomic Nervous System and Autonomic Pharmacology 113  
Joshua A. Rowe, Rose M. McMurphy, Barbara J. Lutjemeier, and Michael J. Kenney

7 Adrenergic Receptor Agonists and Antagonists 131  
Rose M. McMurphy, Elizabeth G. Davis, Amy J. Rankin, Daniel A. Frese, Barbara J.  
Lutjemeier, and ;Michael J. Kenney

8 Cholinergic Pharmacology: Autonomic Drugs 151  
Rose M. McMurphy, Elizabeth G. Davis, Amy J. Rankin, Marjory A. Artzer, Barbara J.  
Lutjemeier, and Michael J. Kenney

## **Section 3 Anesthetics and Analgesics, and Drugs Acting on the Central Nervous System 165**

9 Introduction to Drugs Acting on the Central Nervous System and Principles of  
Anesthesiology 167  
Peter J. Pascoe and Eugene P. Steffey

10 Neuromuscular Blocking Agents 194  
Diane E .Mason and Christopher L. Norkus

11 Inhalation Anesthetics 216  
Robert J. Brosnan and Eugene P. Steffey

12 Injectable Anesthetic Agents 247  
Lysa P. Posner

13 Opioid Analgesic Drugs 281  
Butch Kukanich and Mark G. Papich

14 Sedatives and Tranquilizers 324  
Lysa P. Posner

15 Local Anesthetics 369  
Thomas W. Vickroy

16 Euthanizing Agents 387  
Anna Hampton

17 Anticonvulsant Drugs 395  
Mark G. Papich

18 Drugs Affecting Animal Behavior 416  
Margaret E. Gruen, Barbara L. Sherman, and Mark G. Papich

## **Section 4 Autacoids and Antiinflammatory Drugs 449**

19 Histamine, Serotonin, and their Antagonists 451  
Wolfgang Baumer

20 Analgesic, Antiinflammatory, Antipyretic Drugs 467  
Peter Lees

## **Section 5 Drugs Acting on the Cardiovascular System 501**

21 Digitalis, Positive Inotropes, and Vasodilators 503  
Clarke E. Atkins and Marisa K. Ames

22 Antiarrhythmic Agents 537  
Kathryn M. Meurs and Jim E. Riviere

## **Section 6 Drugs Affecting Renal Function and Fluid–Electrolyte Balance 553**

23 Principles of Acid–Base Balance: Fluid and Electrolyte Therapy, Blood Substitutes 555  
Maya M. Scott-Garrard, Melisa Rosenthal, and Deborah T. Kochevar

24 Diuretics and Renal Pharmacology 593  
Butch Kukanich and Deborah T. Kochevar

## **Section 7 Drugs Acting on Blood and Blood Elements 623**

25 Anticoagulant, Antiplatelet, and Hemostatic Drugs 625  
Mark G. Papich

## **Section 8 Endocrine Pharmacology 647**

26 Hypothalamic and Pituitary Hormones 649  
Srujana Rayalam, Margarethe Hoenig, and Duncan C. Ferguson

27 Hormones Affecting Reproduction 674  
Wolfgang Baumer, C. Scott Bailey, and John Gadsby

28 Thyroid Hormone and Antithyroid Drugs 691  
Duncan C. Ferguson

29 Glucocorticoids, Mineralocorticoids, and Adrenolytic Drugs 729  
Duncan C. Ferguson and Margarethe Hoenig

30 Drugs Influencing Glucose Metabolism 763  
Margarethe Hoenig

## **Section 9 Chemotherapy of Microbial Diseases 779**

31 Antiseptics and Disinfectants 781  
Megan E. Jacob

32 Sulfonamides and Potentiated Sulfonamides 796  
Mark G. Papich

33  $\beta$ -Lactam Antibiotics: Penicillins, Cephalosporins, and Related Drugs 826  
Mark G. Papich

34 Tetracycline Antibiotics 858  
Mark G. Papich and Jim E. Riviere

35 Aminoglycoside Antibiotics 877  
Mark G. Papich and Jim E. Riviere

36 Chloramphenicol and Derivatives, Macrolides, Lincosamides, and Miscellaneous Antimicrobials 903  
Mark G. Papich

37 Fluoroquinolone Antimicrobial Drugs 953  
Mark G. Papich

38 Antifungal and Antiviral Drugs 988  
Jennifer L. Davis and Lara Maxwell

## **Section 10 Chemotherapy of Parasitic Diseases 1033**

39 Antinematodal Drugs 1035

Carlos E. Lanusse, Juan M. Sallovitz, Sergio F. Sanchez Bruni, and Luis I. Alvarez

40 Anticestodal and Antitrematodal Drugs 1081

Carlos E. Lanusse, Luis I. Alvarez, and Guillermo L. Virkel

41 Macrocyclic Lactones: Endectocide Compounds 1102

Carlos E. Lanusse, Fernanda A. Imperiale, and Adrian L. Lifschitz

42 Antiprotozoan Drugs 1128

Jennifer L. Davis and Jody L. Gookin

43 Ectoparasiticides 1166

Ronald E. Baynes

## **Section 11 Specialty Areas of Pharmacology 1189**

44 Chemotherapy of Neoplastic Diseases 1191

Luke A. Wittenburg and Daniel L. Gustafson

45 Immunosuppressive Drugs 1226

Mark G. Papich

46 Drugs for Treating Gastrointestinal Diseases 1245

Mark G. Papich

47 Dermatopharmacology: Drugs Acting Locally on the Skin 1278

Jim E. Riviere and Rosanna Marsella

48 Drugs that Affect the Respiratory System 1302

Mark G. Papich

49 Ophthalmic Pharmacology 1321

Alison Clode

50 Pharmacogenomics 1332

Katrina L. Mealey

51 Considerations for Treating Minor Food-Producing Animals with Veterinary  
Pharmaceuticals 1345

Lisa A. Tell, Margaret Oeller, Tara Marmulak, and Ronette Gehring

52 Unique Considerations Pertaining to the Use of Drugs in Food Animals 1358

Michael D. Apley

53 Pharmacology in Aquatic Animals 1373

Ron A. Miller

54 Zoological Pharmacology 1395  
Robert P. Hunter

## **Section 12 Regulatory and Other Considerations 1405**

55 The Regulation of Animal Drugs 1407  
Steven D. Vaughn and Marilyn N. Martinez

56 Veterinary Pharmacy 1427  
Gigi Davidson and Mark G. Papich

57 Medication Control Programs in Performance Animals 1439  
Cynthia A. Cole

58 Pharmacovigilance 1448  
John D. Baker, Susan J. Bright-Ponte, and Lee Anne M. Palmer

59 Dosage Forms and Veterinary Feed Directives 1459  
Geof Smith and Jim E. Riviere

60 Evidence-Based Pharmacotherapy 1465  
Ronette Gehring

61 Chemical Residues in Tissues of Food Animals 1469  
Jim E. Riviere

Index 1481.