Clinical Laboratory Animal Medicine: An Introduction, 4th Edition

Table of Contents

About the Authors xi

Preface xiii

About the Companion Web Site xv

1 Introduction to Laboratory Animal Medicine 1

Animals Used in Research, Product Safety Testing, and Education 2

Ethical Considerations 5

Organizations 9

References 14

Further Reading 14

Chapter 1 Review 15

2 Regulations, Policies, and Principles Governing the Care and Use of Laboratory Animals 18

Animal Welfare Act and Regulations 18

References 31

Further Reading 32

Chapter 2 Review 32

3 Facility Design, Equipment, Housing, and Management 34

Laboratory Animal Facility Design 34

Biosecurity 35

Facility Equipment 41

Housing 43

Management 48

References 50

Further Reading 50

Chapter 3 Review 51

4 Mice 54

Genetics 54 Microbiologic Classifications 56 Uses 57 Behavior 57 Anatomic and Physiologic Features 58 Breeding and Reproduction 60 Husbandry 61 Techniques 66 Special Techniques: Transgenic Production Technology 76 Therapeutic Agents 80 Introduction to Diseases of Mice 80 References 94 Further Reading 97 **Chapter 4 Review 102** 5 Rats 105 Genetics 105 Microbiologic Classifications 106 **Uses 107** Behavior 107 Anatomic and Physiologic Features 108 Breeding and Reproduction 110 Husbandry 110 Techniques 113 Therapeutic Agents 123 Introduction to Diseases of Rats 123 References 138 Further Reading 140

6 Gerbils 145

Chapter 5 Review 143

Uses 145 Behavior 146 Anatomic and Physiologic Features 146 Breeding and Reproduction 147 Husbandry 148 Techniques 149 Therapeutic Agents 156 Introduction to Diseases of Gerbils 156 References 161 Further Reading 163 **Chapter 6 Review 164** 7 Hamsters 167 **Uses 167** Behavior 168 Anatomic and Physiologic Features 169 Breeding and Reproduction 171 Husbandry 172 Techniques 173 Therapeutic Agents 179 Introduction to Diseases of Hamsters 182 References 189 Further Reading 190 **Chapter 7 Review 192** 8 Guinea Pigs 195 **Uses 195** Behavior 196 Anatomic and Physiologic Features 197 Breeding and Reproduction 200

Husbandry 201

Techniques 202
Therapeutic Agents 208
Introduction to Diseases of Guinea Pigs 208
References 221
Further Reading 223
Chapter 8 Review 225
9 Chinchillas 227
Uses 227
Behavior 228
Anatomic and Physiologic Features 228
Breeding and Reproduction 230
Husbandry 231
Techniques 232
Therapeutic Agents 237
Introduction to Diseases of Chinchillas 239
References 244
Further Reading 245
Chapter 9 Review 246
10 Rabbits 249
Breeds 249
Uses 250
Behavior 251
Anatomic and Physiologic Features 251
Breeding and Reproduction 254
Husbandry 256
Techniques 259
Therapeutic Agents 271
Introduction to Diseases of Rabbits 271

References 289

Further Reading 292

Chapter 10 Review 295

11 Ferrets 298

Uses 298

Behavior 299

Anatomic and Physiologic Features 299

Breeding and Reproduction 301

Husbandry 302

Techniques 304

Therapeutic Agents 312

Introduction to Diseases of Ferrets 312

References 330

Further Reading 332

Chapter 11 Review 334

12 Primates 337

Taxonomy 337

Uses 341

Behavior 342

Anatomic and Physiologic Features 343

Breeding and Reproduction 344

Husbandry 345

Techniques 349

Therapeutic Agents 356

Introduction to Diseases of Nonhuman Primates 356

References 377

Further Reading 379

Chapter 12 Review 383

13 Research Variables and Quality Control 386

Research Variables: Intrinsic and Extrinsic Factors 386

Quality Control 395

Reference 400

Further Reading 400

Chapter 13 Review 401

Appendix 1: Normal Values 403

Appendix 2: Comparative Biologic and Reproductive Values by Species 408

Appendix 3: Supportive and Critical Care Products for Laboratory Animal Use 412

Answers to Review Questions 414

Index 417