

Contents

<i>About the Authors</i>	<i>xii</i>
<i>Preface</i>	<i>xiii</i>
<i>About the Companion Website</i>	<i>xiv</i>
1 Introduction to Laboratory Animal Medicine	1
Animals Used in Research, Teaching, and Testing	2
Ethical Considerations	8
Organizations	12
Bibliography	17
Further Reading	18
Chapter 1 Review	19
2 Regulations, Policies, and Principles Governing the Care and Use of Laboratory Animals	22
Animal Welfare Act and Regulations	22
Public Health Service Policy on Humane Care And Use of Laboratory Animals	28
Other Regulations, Policies, Guidance Documents, and Organizations	31
References	36
Further Reading	37
Chapter 2 Review	37
3 Facility Design, Housing, Equipment, and Management	39
Laboratory Animal Facility Design	39
Common Facility Classifications	46
Housing	50

Facility Equipment	59
Management	66
Bibliography	69
Further Reading	69
Chapter 3 Review	71
4 Mice	74
Genetics	74
Microbiologic Classifications	76
Uses	77
Behavior	77
Anatomic and Physiologic Features	78
Breeding and Reproduction	80
Husbandry	81
Techniques	86
Special Techniques: Transgenic Production Technology	96
Therapeutic Agents	101
Introduction to Diseases of Mice	101
Viral Diseases	107
References	114
Further Reading	119
Chapter 4 Review	122
5 Rats	124
Genetics	124
Microbiologic Classifications	125
Uses	126
Behavior	126
Anatomic and Physiologic Features	127
Breeding and Reproduction	129
Husbandry	130
Techniques	133
Therapeutic Agents	143
Introduction to Diseases of Rats	144
Bibliography	157
Further Reading	162
Chapter 5 Review	162
6 Gerbils	165
Uses	165
Behavior	166
Anatomic and Physiologic Features	166
Breeding and Reproduction	167
Husbandry	168
Techniques	170
Therapeutic Agents	176
Introduction to Diseases of Gerbils	176

Bibliography	181
Further Reading	183
Chapter 6 Review	184
7 Hamsters	185
Uses	185
Behavior	186
Anatomic and Physiologic Features	187
Breeding and Reproduction	189
Husbandry	190
Techniques	192
Therapeutic Agents	198
Introduction to Diseases of Hamsters	198
Bibliography	207
Further Reading	209
Chapter 7 Review	210
8 Guinea Pigs	212
Uses	212
Behavior	213
Anatomic and Physiologic Features	214
Breeding and Reproduction	216
Husbandry	218
Techniques	219
Therapeutic Agents	225
Introduction to Diseases of Guinea Pigs	226
Bibliography	238
Further Reading	240
Chapter 8 Review	242
9 Chinchillas	243
Uses	243
Behavior	244
Anatomic and Physiologic Features	244
Breeding and Reproduction	246
Husbandry	247
Techniques	249
Therapeutic Agents	253
Introduction to Diseases of Chinchillas	255
Bibliography	260
Further Reading	262
Chapter 9 Review	262
10 Zebrafish	264
Uses	264
Behavior	265
Anatomic and Physiologic Features	265

Reproduction And Life Stages	266
Husbandry	268
Techniques	274
Therapeutic Agents	278
Introduction to Diseases of Zebrafish	278
Bibliography	283
Further Reading	284
Chapter 10 Review	285
11 Rabbits	286
Breeds	286
Uses	287
Behavior	288
Anatomic and Physiologic Features	288
Breeding and Reproduction	291
Husbandry	293
Techniques	297
Therapeutic Agents	308
Introduction to Diseases of Rabbits	309
Bibliography	326
Further Reading	329
Chapter 11 Review	331
12 Ferrets	333
Uses	333
Behavior	334
Anatomic and Physiologic Features	334
Breeding and Reproduction	336
Husbandry	337
Techniques	339
Therapeutic Agents	347
Introduction to Diseases of Ferrets	347
Bibliography	365
Further Reading	369
Chapter 12 Review	369
13 Primates	371
Taxonomy	371
Uses	375
Behavior	376
Anatomic and Physiologic Features	377
Breeding and Reproduction	378
Husbandry	380
Techniques	383
Therapeutic Agents	390
Introduction to Diseases of Nonhuman Primates	390

Bibliography	410
Further Reading	413
Chapter 13 Review	416
14 Cattle, Sheep, Goats, and Pigs	417
Uses	417
Behavior	418
Anatomic and Physiologic Features	419
Breeding and Reproduction	419
Husbandry	420
Techniques	424
Therapeutic Agents	428
Introduction to Diseases of Agricultural Animals of Particular Importance to Research	428
Bibliography	434
Further Reading	435
Chapter 14 Review	435
15 Research Variables, Biosecurity, and Colony Health Surveillance	437
Research Variables	437
Biosecurity and Exclusion of Contaminants	445
Animal Colony Health Surveillance	448
Bibliography	455
Further Reading	455
Chapter 15 Review	456
<i>Appendix 1: Normal Values</i>	459
<i>Appendix 2: Comparative Biologic and Reproductive Values by Species</i>	464
<i>Answers to Review Questions</i>	467
<i>Index</i>	474