ORAL MICROBIOLOGY AND IMMUNOLOGY
SECOND EDITION
Contents

Contributors xix
Preface xxiii
About the Editors xxv

SECTION I  GENERAL PRINCIPLES OF ORAL MICROBIOLOGY  1

1  General Microbiology  3
HOWARD F. JENKINSON

Introduction 3
Classification Schemes for Bacteria 4
Bacterial Classification 5
Bacterial Architecture 6
Membranes 7
Lipopolysaccharides 8
Cell Wall Peptidoglycan 9
Lipoteichoic Acids 10
Other Important Components Produced by Bacteria 12

Genetic Organization of Bacteria 15
The Bacterial Chromosome 15
Chromosome Replication in Bacteria 16
Gene Transfer in Bacteria 17

Bacterial Growth and Nutrition  17
Growth 17
Nutrient Acquisition 19
Contents

Introduction to Fundamental Concepts of Oral Microbial Ecology 20
Microbial Biofilms 20
Ecology of the Oral Microbiota and Development of Oral Diseases 22

KEY POINTS 23

2  The Immune System and Host Defense 25
P. M. Lydyard and M. F. Cole

Introduction 25
Innate Immunity 25
Cells Involved in Early Defense 25
Molecules Involved in Early Defense 27

The Lymphoid System 31
Lymphocyte Heterogeneity 32
Lymphoid Organs and Tissues 33

Antibodies: Specificities, Classes, and Functions 35
Generalized Structure and Specificity 35
Antibody Classes 38
Differential Properties of Antibodies 39
Antibody-Mediated Protection against Microbes 39

Recognition of Antigen by Lymphocytes 40
B Lymphocytes 40
T Lymphocytes 41

The Adaptive Immune System in Action 44
Initiation of Adaptive Immune Responses: the Interface between the Innate and Adaptive Systems 44
Most B Cells Require Help from T Cells 45
T-Cell Mechanisms in Host Defense: Cell-Mediated Immunity 46
Regulation of the Immune Response 48

KEY POINTS 48

FURTHER READING 49

3  The Oral Environment 51
Frank A. Scannapieco

Introduction 51
General Features of the Oral Environment 51
Teeth 51
The Oral Soft Tissues (Periodontium, Oral Mucosa, and Tongue) 54

Physical and Host Parameters Affecting Oral Microbial Colonization 55
Temperature 55
pH 55
Oxygen  56
Mechanical Abrasive Forces  56
Fluid Flow  56
Host Age  57

The Oral Microbiota  57
Tooth (Dental) Plaque: Early Determinants of Plaque Formation  57
Calculus  62
The Mucosal Microbiota  65

Recent Concepts of Dental Biofilm Formation  66
Saliva and the Salivary Proteome  66
Saliva-Microbe Interactions  68
Clearance of Bacteria from the Oral Cavity: Agglutinins  70
Pellicle Adhesion Receptors  72
Antimicrobial Components in Saliva  73
Antiviral Components in Saliva  75
Saliva as a Source of Bacterial Nutrition  75
Gingival Crevicular Fluid  75

KEY POINTS  76

FURTHER READING  76

4 Isolation, Classification, and Identification of Oral Microorganisms  77
Eugene J. Leys, Ann L. Griffen, Clifford Beall, and Mark F. Maiden

Introduction  77
Diversity of the Oral Microbiota  77
The Ribosomal 16S Gene and Bacterial Identification and Classification  78
16S and Phylogeny  79
Sampling Oral Bacteria  80
Identifying Oral Bacteria  80
Molecular Techniques for Bacterial Identification  81
Naming of Bacteria and Molecular Analysis  90
Direct Observation of Oral Bacteria  90
Cultivation of Oral Bacteria  91
Oxygen Requirements  91
Culture Media  94
Classification of Cultured Bacteria  95
Antibiotic Susceptibility  95

KEY POINTS  96

FURTHER READING  96
5 Oral Microbial Ecology  97
HOWARD F. JENKINSON AND RICHARD J. LAMONT

Introduction  97
Acquisition of Oral Bacteria  98
Colonization by Oral Bacteria  99
Surface Structures and Molecules Involved in Adhesion  99
Mechanisms of Adhesion  102
Host Surface-Specific Constraints on Bacterial Adhesion  104
Adhesion and Metabolism  104
Gene Regulation  106
Bacterial Communication  108
Communication with Host Cells  110
KEY POINTS  112
FURTHER READING  112

6 Oral Microbial Physiology  113
PAUL G. EGGLEND AND ROBERT E. MARQUIS

Overview  113
Survey of Metabolic Activities Important to the Oral Bacterial Community  115
Carbohydrate Fermentation  115
Metabolism of Organic Acids  116
Energy Generation Using Lactate  117
Metabolism of Amino Acids  118
The Role of Proteases in Energy Generation  119
Amino Acid Metabolism by The Stickland Reaction  120
Amino Acid Fermentation by Fusobacterium nucleatum  120
Arginine Metabolism by the Arginine Deiminase System  121
Acid-Base Physiology of Oral Microorganisms  122
Acid-Base Cycling in the Mouth  122
The Range of Acid Tolerance among Oral Bacteria Related to Oral Ecology  122
Acid Tolerance Related to Specific Functions  123
Constitutive and Adaptive Acid Tolerance  124
Alkali Production and Tolerance  126
Acid-Base Physiology, Virulence, and Disease  128
Oxygen Metabolism, Oxidative Stress, and Adaptation  128
Sources of Oxygen for Oral Bacteria  128
Oxygen Levels and Oxidation-Reduction Potentials in Dental Plaque  129
Oxygen Metabolism in Oral Bacteria, Reactive Oxygen Species, and Oxidative Damage 130
Repair Systems 133

Physiology of Oral Biofilms 134
Physicochemical Gradients in Oral Biofilms and Concentrative Capacities of Biofilms for Fluoride and Other Antimicrobials 135
Plaque Nutrition Related to Biofilm Physiology 137

KEY POINTS 138
FURTHER READING 138

7 Genetics and Molecular Biology of Oral Microorganisms 139
Susan Kinder Haake, Donald J. LeBlanc, and Gena D. Tribble

Introduction 139
Fundamental Terms in Bacterial Genetics 139

Bacterial DNA Inheritance 140
Gene Transfer Mechanisms 140
Gene Transfer in Nature 144

Molecular Manipulation and Analysis of Oral Microorganisms 153
Vectors and Their Utility 158
Features of Plasmids Essential for Vector Construction 160
Use of Native Plasmids in Molecular Analyses 165
Use of Nonnative or Broad-Host-Range Plasmids in Molecular Analyses 167
Integration Vectors 169
Transposon Mutagenesis 172
Conclusions 174

KEY POINTS 175

8 Applied Molecular Biology and the Oral Microbes 177
Hansel M. Fletcher, Wilson Aruni, Yuetan Dou, and Ann Progulske-Fox

Introduction 177
Investigating Gene Expression: Genetic Approaches 177
DNA Cloning 177
PCR 180

KEY POINTS 175
9 Population Genetics of Oral Bacteria 195
Mogens Kilian

Introduction 195
Bacterial Species Show Different Patterns of Evolution 195
Localized Sex in Bacteria 197
Differences in Pathogenicity of Strains 198
Specific Host Adaptation of Bacterial Clones 198
Population Sizes of Pathogenic and Commensal Bacteria 199
Oral Bacteria Show Varying Degrees of Genetic Diversity 200
The Oral Microbiota Is a Dynamic Population Undergoing Constant Changes 201
Virulence Differences within Species of Oral Bacteria? 202
Methods of Strain Differentiation and Search for Virulent Clones 203
Population Genetics Structure of Oral Bacteria 205

KEY POINTS 208
FURTHER READING 208

10 Immunology of the Oral Cavity 209
Evlambia Hajishengallis and George Hajishengallis

Introduction 209
Oral Secretory Immunity 209
Innate Host Defense Factors in Saliva 210
Specific Host Defense Factors in Saliva: S-IgA 214
Subgingival Immunity and Inflammation 217
Innate and Adaptive Immune Players below the Gums 217

KEY POINTS 225
FURTHER READING 226
SECTION II INFECTION-DRIVEN ORAL DISEASES 227

11 Dental Caries: General Concepts 229
Robert G. Quivey, Jr., Hyun Koo, José Lemos, and Dorota T. Kopycka-Kedzierawski

Overview 229
Tooth Structure and Development 230
Sites of Carious Lesions 231
Coronal Caries 231
Root Surface Caries 232
Early Childhood Caries 232
Caries in Populations 233
Bacterial Etiology of Dental Caries 234
The Supragingival Oral Microbiome 235
Root Caries 236
Caries Risk Assessment 236
Prevention of Dental Caries 237
Fluoride 237
Natural Products 238
Specifically Targeted Antimicrobial Peptides 239

KEY POINTS 240
FURTHER READING 240

12 Pathogenic Mechanisms in Dental Caries 241
Robert G. Quivey, Jr., Hyun Koo, José Lemos, and Dorota T. Kopycka-Kedzierawski

Background 241
Colonization of the Oral Cavity by Mutans Streptococci 242
Polysaccharide Production 243
Acid Production 245
Acid Tolerance and Stress Resistance 246
Animal Models of Caries 247
The Rat Caries Model 248
Caries Scoring in Rats 249
Caries Models in the Future 249

KEY POINTS 250
FURTHER READING 250
## 13 Periodontal Diseases: General Concepts 251

**Panos N. Papapanou**

- **Introduction** 251
- **Current Classification of Periodontal Diseases** 251
- **Epidemiology of Periodontal Diseases** 255
- **Microbial Etiology of Periodontal Diseases** 261
- **Prevention and Control of Periodontal Diseases** 266
- **Periodontal Diseases and General Health Outcomes** 266

**KEY POINTS 271**

**FURTHER READING 271**

## 14 Virulence Factors of Periodontal Bacteria 273

**Richard J. Lamont, Janina P. Lewis, and Jan Potempa**

- **Introduction** 273
- **Colonization** 273
  - Localization in the Gingival Crevice 273
  - Attachment 274
  - Invasion 275
  - Community Development 276
- **Toxins** 277
  - Leukotoxin 277
  - Cytolethal Distending Toxin 277
- **Proteolytic Enzymes** 277
- **Acquisition of Iron** 281
- **Surface-Associated Bioactive Components** 284
  - Lipopolysaccharide 284
  - Capsule and Exopolysaccharide 284
  - Toxic Bacterial Components and Enzymes 285
- **Resistance to Neutrophil Killing** 286

**KEY POINTS 286**

**FURTHER READING 286**

## 15 Immunopathogenic Mechanisms in Periodontal Disease 287

**George Hajishengallis and Toshihisa Kawai**

- **Introduction** 287
- **Disruption of Protective Innate Immunity** 288
Unresolved Inflammation in Periodontitis 293
Role of Adaptive Immunity in Periodontitis 295
Osteoimmunological Interactions in Periodontitis 297
T-Cell Subsets in Periodontal Disease 300
Th1 Cells 301
Th2 Cells 301
Th17 Cells 301
Tfh Cells 302
Tregs 302

KEY POINTS 303
FURTHER READING 304

16 Oral Virology 305
Matti Sällberg

Introduction 305
What Is Oral Virology? 305
What Is a Virus? 305
The Virus 306
How Viruses Change: Viral Evolution 307

The Viral Life Cycle 308
Virus Taxonomy 313
Discovery of New Viruses without Isolating the Virus 316

Oral Virology: The Viruses 317
Viruses That Can Cause Pathologies in the Oral Cavity 317
Picornaviridae 317
Human Herpesviruses 318
Human Herpesviruses 1 and 2 318
Varicella-Zoster Virus 319
Cytomegalovirus and Epstein-Barr Virus 320
Human Herpesviruses 6, 7, and 8 321
Human Papillomaviruses 321

Viruses Present in the Oral Cavity 323
Hepatitis B Virus 323
Hepatitis D Virus 326
Hepatitis C Virus 327
Human Immunodeficiency Virus 329

Viral Immune Responses 331
Viruses and the Innate Immune System 331
Viruses and the Adaptive Immune System 332
Viral Evasion Strategies 333
Antiviral Vaccines and Therapies 335
History of Viral Vaccines 335
Antiviral Immunoglobulin Preparations and Vaccines 337
Antiviral Compounds and Therapies 338

KEY POINTS 341
FURTHER READING 342

17 Fungi and Fungal Infections of the Oral Cavity 343
Richard D. Cannon and Norman A. Firth

Introduction 343
Biology 343
Morphology 344
Replication 345
Pathogenesis 345
Acquisition 345
Virulence 346
Host Defenses against Fungal Infection 347
Nonspecific Defense Mechanisms 347
Specific Defense Mechanisms 348
Antifungal Therapy 348
Growth and Identification of Fungi 348
Principles of Antifungal Chemotherapy 349
Clinical Conditions 350
Candidiasis 351
Aspergillosis 356
Cryptococcosis 356
Histoplasmosis 356
Blastomycosis 357
Paracoccidioidomycosis 357
Mucormycosis 357

KEY POINTS 358
FURTHER READING 359

18 Endodontic Microbiology 361
Burton Rosan, Louis Rossman, and J. Craig Baumgartner

Introduction 361
History 361
Sources of Infection 364
Microbiology of Root Canal Infections 365
Pathogenesis of Endodontic Infections 367
Endodontic Treatment 368
Contents xv

Microbiological Considerations for Obturation 369
Antimicrobial Agents Used in Endodontics 370
Summary 370
KEY POINTS 371
FURTHER READING 371

19 Systemic Disease and the Oral Microbiota 373
Jingyuan Fan, Massimo Costalonga, Karen F. Ross,
and Mark C. Herzberg

Introduction 373
Routes from Oral to Systemic Compartments 374
Breaches in the Oral Mucosa 374
Transport and Translocation of Microbes 374
The Potential of Commensal Bacteria To Behave
as Pathogens 374
Microbial Chameleons: Changing Gene Expression in Response to
Environmental Signals 375
Host Defenses 378
Systemic Diseases Associated with Oral Microbes 381
Infective Endocarditis 381
Disseminated Intravascular Coagulation 383
Sequelae of Oral Viral Infections 383
Other Effects 384
Other Possible Associations between Oral Microbes
and Systemic Disease 384
Heat Shock Proteins 384
Autorecognition Induced by Oral Microorganisms 386
Inflammation: a Link between Local Dental Disease and Systemic
Pathology? 387

KEY POINTS 390
FURTHER READING 390

SECTION III CONTROL OF ORAL
DISEASES 391

20 Immunological Intervention against Oral
Diseases 393
Kohtaro Fujihashi, Michael W. Russell,
and George Hajishengallis

Introduction and Historical Background 393
The Mucosal Immune System from an Oral Perspective 395
Mucosal Vaccination Routes and Adjuvants 397
Rationale for Vaccination against Dental Caries  398
Salivary Adhesins as Immunogens against Dental Caries  400
Caries Immunization Using GTF and Glucan-Binding Proteins  403
Targeting both Sucrose-Independent and Sucrose-Dependent Colonization  404
Safety Considerations and Prospects for a Caries Vaccine  405
Vaccine Development against Periodontal Disease  406
Proof-of-Concept Immunization against Periodontal Pathogens in Rodent Models  408
Immunization of Nonhuman Primates against Periodontal Disease  410
Conclusions  411
KEY POINTS  411
FURTHER READING  412

21 Antibiotics and the Treatment of Infectious Diseases  413
Donald J. LeBlanc

Antibiotics: a Class of Therapeutic Agent  413
Inhibitors of Cell Wall Synthesis  415
Inhibitors of Translation  421
Inhibitors of Transcription and Replication  426
Miscellaneous Antibiotics  428
Treatment of Tuberculosis  430
Antibiotic Combinations  430
Measurements of Antibiotic Potency  431

Antibiotic Resistance  433
Resistance to Antibiotics Follows Their Introduction into Clinical Practice  433
R Factors and Other Resistance Plasmids  433
Acquired Antibiotic Resistance  435
Transposons and Other Mobile Genetic Elements Carry Antibiotic Resistance Genes  435
The Role of Mutations in Antibiotic Resistance  440
Efflux Pumps: Association with Acquired and Intrinsic Resistance and Mutation to Resistance  443
Oral Microbial Resistance  445

Antibiotic Resistance in the 21st Century  447
Genetic Elements in Resistance Spread  447
The Many Mechanisms of Antibiotic Resistance  448
Why So Much Resistance?  450
Future Prospects 452
Will the Modern Antibiotic Era Soon Be Over? 452
What Can Be Done To Extend The Antibiotic Era? 456

KEY POINTS 458
FURTHER READING 458

22 Infection Control in Dentistry 459
J. Christopher Fenno, Stephen J. Stefanac, and Dennis E. Lopatin

Introduction 459
Introduction to Risk Control 462
Quality Assurance Is the Promise of Performance 462
Cross-Infection Control Is Essentially a Set of Management Strategies for Risk Control 462
What Is Risk Management? 462

Cross-Infection Risks in Dentistry 463
Routes of Spread of Infection 463
Management of Recently Identified Infection Control Risks 466

Practical Application of Infection Control Measures in General Dentistry 471
Definitions of Terms 471
Problems Posed for Prevention of Cross-Infection in General Dental Practice 471
Universal Precautions 473
Infection Control Checklist 477
Sterilization of Instruments 477

KEY POINTS 483
FURTHER READING 483

Index 485
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Preface

In the seven years since the first edition of this book, the world of microbiology and immunology has seen incredible technological and conceptual advances. It is now almost routine to sequence the genome of a bacterium, and for that matter, a community of bacteria; the catalog of proteins for which the crystal structure is known has increased apace; knockout mice deficient in numerous components of the innate and adaptive immune system are widely available; and the regulatory interplay between the innate and adaptive arms of immunity is now better understood. Development of high resolution and 3D imaging techniques has allowed novel studies of communities growing in biofilms, as well as the more intimate interactions between microbes and host cells. High-throughput techniques and extended computer power have made population biology and epidemiology research more comprehensive. This burgeoning knowledge has changed our understanding of both the etiology of oral diseases and the nature of the pathogenic mechanisms and host responses. These changing perceptions are reflected in the updated and expanded chapters. What has (disappointingly) not improved over the last seven years is the incidence of caries and periodontal disease. It is more important than ever for dental practitioners and the clinical scientists to understand the basic science underlying oral health and disease in order for such knowledge to be translated into future health improvements.

As with the first edition, each chapter is self contained and represents the particular insights and priorities of the authors. Taken separately or together, we hope that the chapters provide the reader with the basic facts as well as with the ecological and biological context.
About the Editors

Richard J. Lamont received a bachelor of science degree in bacteriology from the University of Edinburgh; he received a doctorate from the University of Aberdeen in 1985. After a postdoctoral fellowship at the University of Pennsylvania focusing on streptococcal adherence mechanisms, he joined the faculty at the University of Washington, in 1989. He is currently the Delta Dental Endowed Professor of oral microbiology at the University of Louisville. His research interests include the molecular mechanisms of polymicrobial synergy and the cellular interactions between oral bacteria and the host epithelium. He has taught microbiology and immunology to dental students and residents for over 25 years.

George Hajishengallis was originally trained as a dentist (DDS, 1989, University of Athens, Greece) before pursuing doctoral studies in cellular and molecular biology (PhD, 1994, University of Alabama at Birmingham). His postdoctoral training combined research in mucosal immunology (University of Alabama at Birmingham) and periodontal pathogenesis (State University of New York at Buffalo). He has held faculty appointments at the Louisiana State University, the University of Louisville, and, most recently, the University of Pennsylvania, which he joined in 2012 as a Professor of Microbiology. His field of interest lies at the host-microbe interface focusing on mechanisms of periodontal immunopathogenesis and inflammation. He has taught microbiology and immunology to dental students and residents since 1997.

Howard F. Jenkinson received his bachelor’s degree in microbiology and virology from the University of Warwick, England. He completed his PhD training in 1978 at the University of Nottingham. He worked at the University of Oxford for five years as a postdoctoral researcher on the biochemistry and genetics of sporulation in Bacillus subtilis. He was appointed Lecturer in Oral Biology at the University of Otago, New Zealand, in 1983 and progressed through the ranks to Professor of Molecular Oral Biology at Otago (1996). He was a visiting Commonwealth
Medical Fellow at the Department of Biochemistry, University of Cambridge (1989–1990), and at the Institute of Molecular Medicine, University of Oxford (1995–1996). In 1997, he moved to the University of Bristol, England, as Professor and Chair of Oral Microbiology. His research interests include the genetics and biochemistry of microbial cell surfaces, principally streptococci and Candida, intermicrobial interactions, polymicrobial communities, and infective cardiovascular disease. He has taught molecular microbiology and biochemistry to dental, medical, and basic sciences students since 1983.