Contributors / ix
Preface / xiii

SECTION I
THE GRAM-POSITIVE CELL WALL / 1
SECTION EDITOR: Vincent A. Fischetti

1 Ultrastructure of Gram-Positive Cell Walls / 3
TERRY J. BEVERIDGE AND VALÉRIO R. F. MATIAS

2 Surface Proteins on Gram-Positive Bacteria / 12
VINCENT A. FISCHETTI

SECTION II
THE STREPTOCOCCUS / 27
SECTION EDITORS: Vincent A. Fischetti and Joseph J. Ferretti

A. GROUP A STREPTOCOCCI

3 Intracellular Invasion by Streptococcus pyogenes: Invasins, Host Receptors, and Relevance to Human Disease / 29
BEINAN WANG, DAVID CUE, AND P. PATRICK CLEARY

4 Capsular Polysaccharide of Group A Streptococci / 37
MICHAEL R. WESSELS

5 Toxins and Superantigens of Group A Streptococci / 47
JOHN K. MCCORMICK, MARNIE L. PETERSON, AND PATRICK M. SCHLIEVERT

6 Genetics of Group A Streptococci / 59
KYU HONG CHO AND MICHAEL CAPARON

7 Cross-Reactive Antigens of Group A Streptococci / 74
MADELEINE W. CUNNINGHAM

8 Extracellular Matrix Interactions with Gram-Positive Pathogens / 89
GURSHARAN S. CHHATWAL AND KLAUS T. PREISSNER

9 Streptococcus-Mediated Host Cell Signaling / 100
VIJAY PANCHOLI

10 Vaccine Approaches To Protect against Group A Streptococcal Pharyngitis / 113
VINCENT A. FISCHETTI

11 The Bacteriophages of Group A Streptococci / 123
W. MICHAEL MCSHAN

12 Molecular Epidemiology, Ecology, and Evolution of Group A Streptococci / 143
DEBRA E. BESSEN AND SUSAN K. HOLLINGSHEAD

B. GROUP B STREPTOCOCCI

13 Pathogenic Mechanisms and Virulence Factors of Group B Streptococci / 152
VICTOR NIZET AND CRAIG E. RUBENS
CONTENTS

14 Surface Structures of Group B Streptococci Important in Human Immunity / 169
LAWRENCE C. MADOFF, LAWRENCE C. PAOLETTI, AND DENNIS L. KASPER

15 Epidemiology of Group B Streptococcal Infections / 186
ANNE SCHUCHAT AND SHARON BALTER

C. GROUP C AND G STREPTOCOCCI

16 Genetics and Pathogenicity Factors of Group C and G Streptococci / 196
HORST MALKE

17 Pathogenicity Factors in Group C and G Streptococci / 213
GURSHARAN S. CHHATWAL, DAVID J. McMILLAN, AND SUSANNE R. TALAY

18 Group C and Group G Streptococcal Infections: Epidemiologic and Clinical Aspects / 222
GIO J. BARACCO AND ALAN L. BISNO

D. STREPTOCOCCUS PNEUMONIAE

19 The Cell Wall of Streptococcus pneumoniae / 230
ALEXANDER TOMASZ AND WERNER FISCHER

20 Streptococcus pneumoniae Capsular Polysaccharide / 241
JAMES C. PATON AND JUDY K. MORONA

21 Streptococcus pneumoniae: Invasion and Inflammation / 253
CARLOS J. ORIHUELA AND ELAINE TUOMANEN

22 Phase Variation of Streptococcus pneumoniae / 268
JEFFREY N. WEISER

23 Genetics of Streptococcus pneumoniae / 275
JANET YOTHER AND SUSAN K. HOLLINGSHEAD

24 Pneumococcal Vaccines / 289
D. E. BRILES, J. C. PATON, E. SWIATLO, AND M. J. CRAIN

E. ENTEROCOCCI

25 Pathogenicity of Enterococci / 299
LYNN E. HANCOCK AND MICHAEL S. GILMORE

26 Enterococcal Genetics / 312
KEITH E. WEAVER

F. ORAL STREPTOCOCCI

27 Pathogenesis of Oral Streptococci / 332
R. R. B. RUSSELL

28 The Virulence Properties of Streptococcus mutans / 340
HOWARD K. KURAMITSU

29 Genetics of sanguinis Group Streptococci / 347
HOWARD F. JENKINSON AND M. MARGARET VICKERMAN

G. LACTOCOCCI

30 Genetics of Lactococci / 356
PHILIPPE GAUDU, YUJI YAMAMOTO, PETER RUHDAL JENSEN, KARIN HAMMER, AND ALEXANDRA GRUSS

SECTION III

THE STAPHYLOCOCCUS / 369
SECTION EDITOR: Richard P. Novick

31 Diagnostics, Typing, and Taxonomy / 371
WOLFGANG WITTE, BIRGIT STROMMENGER, AND GUIDO WERNER

32 The Staphylococcus aureus NCTC 8325 Genome / 381
ALLISON F. GILLASPY, VERONICA WORRELL, JOSHUA ORVIS, BRUCE A. ROE, DAVID W. DYER, AND JOHN J. IANDOLO

33 Genetics: Accessory Elements and Genetic Exchange / 413
NEVILLE FIRTH AND RONALD A. SKURRAY

34 Carbohydrate Catabolism: Pathways and Regulation / 427
REINHOLD BRÜCKNER AND RALF ROSENSTEIN

35 Respiration and Small-Colony Variants of Staphylococcus aureus / 434
RICHARD A. PROCTOR

36 The Staphylococcal Cell Wall / 443
ALEXANDER TOMASZ

37 Staphylococcal Capsule / 456
CHIA Y. LEE AND JEAN C. LEE
<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>38</td>
<td>Staphylococcus aureus Exotoxins / 464</td>
<td>Gregory A. Bohach</td>
</tr>
<tr>
<td>39</td>
<td>Extracellular Enzymes / 478</td>
<td>Staffan Arvidson</td>
</tr>
<tr>
<td>40</td>
<td>Staphylococcal Sortases and Surface Proteins / 486</td>
<td>Andrea C. Dedent, Luciano A. Marraffini, and Olaf Schneewind</td>
</tr>
<tr>
<td>41</td>
<td>Staphylococcal Pathogenesis and Pathogenicity Factors: Genetics and Regulation / 496</td>
<td>Richard P. Novick</td>
</tr>
<tr>
<td>42</td>
<td>Staphylococcus aureus—Eukaryotic Cell Interactions / 517</td>
<td>Carlos Arrcubieta and Franklin D. Lowy</td>
</tr>
<tr>
<td>43</td>
<td>The Epidemiology of Staphylococcus Infections / 526</td>
<td>Fred C. Tenover and Rachel J. Gorwitz</td>
</tr>
<tr>
<td>44</td>
<td>Animal Models of Experimental Staphylococcus aureus Infection / 535</td>
<td>L. Vincent Collins and Andrzej Tarkowski</td>
</tr>
<tr>
<td>45</td>
<td>Cellular and Extracellular Defenses against Staphylococcal Infections / 544</td>
<td>Jerrold Weiss, Arnold S. Bayer, and Michael Yeaman</td>
</tr>
<tr>
<td>46</td>
<td>Biology and Pathogenicity of Staphylococcus epidermidis / 560</td>
<td>Christine Heilmann and Georg Peters</td>
</tr>
<tr>
<td>47</td>
<td>Biology and Pathogenicity of Staphylococci Other than Staphylococcus aureus and Staphylococcus epidermidis / 572</td>
<td>Anne Tristan, Gérard Lina, Jerome Etienne, and François Vandenesch</td>
</tr>
<tr>
<td>48</td>
<td>Antibiotic Resistance in the Staphylococci / 587</td>
<td>Steven J. Frojan and Alexey Ruzin</td>
</tr>
<tr>
<td>50</td>
<td>Listeria monocytogenes Infection of Mice: an Elegant Probe To Dissect Innate and T-Cell Immune Responses / 609</td>
<td>Jodie S. Haring and John T. Harty</td>
</tr>
<tr>
<td>51</td>
<td>Genetic Tools for Use with Listeria monocytogenes / 620</td>
<td>Darren E. Higgins, Carmen Buchrieser, and Nancy E. Freitag</td>
</tr>
<tr>
<td>52</td>
<td>Regulation of Virulence Genes in Pathogenic Listeria spp. / 634</td>
<td>Werner Goebel, Stefanie Müller-Altrock, and Jürgen Kreft</td>
</tr>
<tr>
<td>53</td>
<td>Cell Biology of Invasion and Intracellular Growth by Listeria monocytogenes / 646</td>
<td>Javier Pizarro-Cerdá and Pascale Cossart</td>
</tr>
<tr>
<td>49</td>
<td>Epidemiology and Clinical Manifestations of Listeria monocytogenes Infection / 601</td>
<td>Walter E. Schlech III</td>
</tr>
<tr>
<td>54</td>
<td>Bacillus anthracis / 659</td>
<td>Theresa M. Koehler</td>
</tr>
<tr>
<td>55</td>
<td>Clostridial Genetics / 672</td>
<td>Dena Lyras and Julian I. Rood</td>
</tr>
<tr>
<td>56</td>
<td>Neurotoxigenic Clostridia / 688</td>
<td>Eric A. Johnson</td>
</tr>
<tr>
<td>57</td>
<td>Enterotoxigenic Clostridia: Clostridium perfringens Type A and Clostridium difficile / 703</td>
<td>Bruce A. McClane, David M. Lyerly, and Tracy D. Wilkins</td>
</tr>
<tr>
<td>58</td>
<td>Histotoxic Clostridia / 715</td>
<td>Dennis L. Stevens and Julian I. Rood</td>
</tr>
<tr>
<td>59</td>
<td>Corynebacterium diphtheriae: Iron-Mediated Activation of DtxR and Regulation of Diphtheria Toxin Expression / 726</td>
<td>John F. Love and John R. Murphy</td>
</tr>
<tr>
<td>60</td>
<td>Actinomyces and Arcanobacterium spp.: Host-Microbe Interactions / 736</td>
<td>B. Helen Jost and Stephen J. Billington</td>
</tr>
</tbody>
</table>
CONTENTS

61 The Pathogenesis of Nocardia / 750
BLAINE L. BEAMAN

SECTION VI
ANTIBIOTIC RESISTANCE MECHANISMS / 767
SECTION EDITOR: Richard P. Novick

62 Mechanisms of Resistance to β-Lactam Antibiotics / 769
DOUGLAS S. KERNODLE

63 Resistance to Glycopeptides in Gram-Positive Pathogens / 782
HENRY S. FRAIMOW AND PATRICE COURVALIN

64 Tetracycline Resistance Determinants in Gram-Positive Bacteria / 801
LAURA M. McMURRY AND STUART B. LEVY

65 Mechanisms of Quinolone Resistance / 821
DAVID C. HOOPER

Index / 835
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Gram-positive bacteria are structurally distinct from their gram-negative relatives. These differences, reflected in the lack of an outer membrane and related secretory systems and the presence of a thick peptidoglycan, have enabled these organisms to develop novel approaches to pathogenesis by acquiring (among others) a unique family of surface proteins, toxins, and enzymes. The initial edition of this volume was a fully referenced research compendium directed to the gram-positive bacterial pathogen at all levels. In this second edition, we have attempted, whenever possible, to include the explosion of new data generated from genomic sequencing. It includes the current theories on the mechanisms of gram-positive bacterial pathogenicity, together with current knowledge on gram-positive structure and mechanisms of antibiotic resistance. This edition emphasizes streptococci, staphylococci, listeria, and spore-forming pathogens, with chapters written by many of the leading researchers in these areas. The chapters systematically dissect these organisms biologically, genetically, and immunologically, in an attempt to understand the strategies used by these bacteria to cause human disease. It is hoped that the insights gained from understanding these strategies will lead to the rational design of novel therapeutics and vaccines to control infections caused by gram-positive bacteria.

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RICHARD P. NOVICK
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DANIEL A. PORTNOY
JULIAN I. ROOD
Index

Abscess(es)
dental, 336
kidney, animal models, 538
staphylococcal, color illustration for Chapter 41, Figure 1
N-Acetylglucosamine, 120
ActA protein, L. monocytogenes, 650, 652–653
Actinomyces, 738–749
extracellular matrix adherence, 743
fimbriae, 739–742
levansucrase activity, 743–744
neuraminidase, 742–743
oral, 738–744
Actinomyces pyogenes, 745–747
Adhesins, 89
streptococci, 101–104, 350–352
Adhesion molecule, staphylococcal invasion, 520–521
Adhesive glycoproteins, 91
AFM, 7
agr system
affecting virulon, color illustration for Chapter 41, Figure 3
staphylococci, 501, 566–567
specificity groups, 503
translational regulation, 502–503
Albumin
binding to group C streptococci, 216
binding to group G streptococci, 216
Allelic replacement
linear DNA, 61–62
Alpha C protein, group B streptococci, 175
Alpha-toxin, S. aureus, 464–465
Alveoli, S. pneumoniae interactions, 256
Aminoglycosides, 591
resistance, 591
Amniotic fluid, group B streptococcal infection, 153
Aneurinibacillus thermoaerophilus, 9
Animal models
staphylococcal disease, 535–543
vaccination strategies for staphylococcal disease, 539
Anthrax, 659–671
action of toxin, color illustration for Chapter 54, Figure 2
and systemic diseases, 659–660
EdTx and, 662
genoM, 660–661
-host interactions, 662–663
LeTx and, 661–662
proteins, structures, color illustration for Chapter 54, Figure 1
Antibiotic resistance
enterococci, 315–317
S. aureus, 439
staphylococci, 529, 587–597
Antibiotic susceptibility
S. caprae, 577
S. haemolyticus, 574–575
S. lugdunensis, 572
S. saprophyticus, 574
S. schleiferi, 575–579
S. simulans, 575–579
Antibiotics
histotoxic clostridial infection, 722
in group A streptococcal infections, 147–148
staphylococcal infections, 539–540
Antimyosin antibodies, in rheumatic fever, 78, 82
Antiphagocytic factors
group C streptococci, 215–216
group G streptococci, 215–216
Antistaphylococcal drugs, development, 593
Antistaphylococcal therapies, animal models, 539
Antistreptococcal/antimyosin MAb 3.B6
reaction with endothelium and myocardium, color illustration for Chapter 7, Figure 4
Antistreptococcal/antimyosin monoclonal antibodies, 75, 76, 77
ApoMosis
host cells, 106–107
nocardia-induced, confocal micrographs, color illustration for Chapter 61, Figure 6
staphylococci and, 521
Arcanobacterium haemolyticum, 744–745
arlAB system, affecting virulon, color illustration for Chapter 41, Figure 3
Arthritis
group B streptococci, 187
group C streptococci, 224
group G streptococci, 224
staphylococcal
animal models, 537–538
Asymptomatic carriage, group A streptococci, 144, 148
Autolysin, L. monocytogenes, 648–650
β-Lactam resistance, 589
Bacillus, 774
coaegulate-negative staphylococci, 776
enterococci, 774
penicillin-binding staphylococci, 776
S. aureus, 772–774, 776
S. pneumoniae, 777
INDEX

β-Lactam resistance (continued)
spread, 778
staphylococci, 589
viridans streptococci, 777
β-Lactamase, 770–772
β-Lactam(s)
anticipation resistance, 769–781
mechanism of action, 769–770
tolerance, 777–778

Bacillus anthracis, 659–671
capsule, 664
exosporium, 664
genetic tools, 666–667
phagocyte interactions, 663–664
physiology, morphology, and taxonomy, 660
S-layer, 664
Sterne strain, 667
surface structures, 664–665
toxins, 661–662
vaccines, 667
virulence gene expression, 665–666

Bacillus licheniformis, 4

Bacillus subtilis, 67, 312

cell wall, 4, 6, 8
peptidoglycan, 7
quinolone resistance, 828

Bacillus thuringiensis, 7, 8

Bacteremia
tenterococci, 302–303
group B streptococci, 186
group C streptococci, 225
group G streptococci, 225
staphylococci, 526–527

Bacterial reactive oxidants, staphylococcal, 551

Bacteriophages
attachment sites, genome distribution, 125–128
group A streptococci, 50, 123–142
bacteriophage A25, 123–124
bacteriophage CS112, 125
bacteriophage SF370, 125, 128, 135, 136, 137
bacteriophage SP24, 134
bacteriophage T12, 125
diversity, modular exchange, 128–131
early studies, 123
temperate phages, 128–131

Bacteriolytic activity, S. aureus, 421
S. aureus NCTC 8325, 382–410
Bacteriuria, group B streptococci, 159

Beta C protein, group B streptococci, 159

Beta-toxin, S. aureus, 465–466

Biofilms
formation by enterococci, 302–304
formation by S. epidermidis, 561
extracellular matrix proteins in, 562–563
initial attachment, 561–562
S. sanguinis, 352
staphylococcal virulon expression, 508
Blood-brain barrier, S. pneumoniae interactions, 257–259
Bloodstream, S. pneumoniae access and survival, 256–257
Bloodstream infection, staphylococci, 528
Body fluids, antistaphylococcal action, 549
Bone infections, streptococci, 224

Botulism toxin, biological warfare agent, 690
Botulinum. See also Clostridium botulinum
clinical aspects, 689–691
treatment, 690
wound, 688
BPS protein, 177
Brain, nocardial invasion, 757–760
c protein, group B streptococci, 159
C5a peptidase
group B streptococci, 177
group C streptococci, 201
group G streptococci, 201
streptococci, 34, 119
CAMP phenomenon, group B streptococci, 156–157, 159–160
Capsular polysaccharide
group A streptococci, 37–46
attachment to epithelial cells and, 42
capsule and host immune defenses, 40–41
capsule as virulence factor, 39
capsule production, 39
to enter into epithelial cells and, 43
experimental infection models, 41–42
mucoa colonization and, 42
group B streptococci, 157–158, 169–174
vaccine based on, 177–178
S. pneumoniae, 241–252
background, 241
biosynthesis genes, 242–243
expression in different pneumococcal serotypes, 243
capsular transformation in vivo, 246–247
cps loci in serotypes, compared, 243–244, 245
regulation of production, 247–249
type 3 and, 37
type 3 CPS biosynthesis genes, 242–243
vaccine based on, 242
virulence and, 241–242
Carbohydrate
containing structures, S. pneumoniae, 269–270
peptides and, immunological cross-reactivity, 82
Carbohydrate antigens, group B streptococci, 169–174
capsular polysaccharide, 169–174
genetics, 173–174
group B carbohydrate, 169–170
sialic acid, 171–173
Carbohydrate metabolism, staphylococcal, 427–433
Carbon catabolite repression, staphylococci, 430–431
Carbon metabolism, lactococci, 358
Cardiolipin, 38
Cassette chromosome, staphylococci, 376–377
ChpA/polymeric immunoglobulin receptor, 255–256
CD14, 104
CD46, 32, 101
CD44-mediated tissue invasion, capsule and, 42–43
Cell division, staphylococci, 44
murein hydrolases in, 451–452
Cell surface-associated proteins, 197–201
Cell wall
chemistry
peptidoglycan, 7
secondary polymers, 8
electron microscopy, 8
gram-positive bacteria, 3–11
mycobacteria, 9–10
S. aureus, 4, 5, 8, 443–455
S. epidermidis, 3, 4
S. pneumoniae, 230–240
anatomy, 230
choline residue functions, 237–238
composition and autolysis, 232
covalent modifications, 237
growth zone and cell wall segregation, 231–232
host-related activities of wall components, 237
peptidoglycan, 232–236
 teichoic and lipoteichoic acids, 236–237
S-layered, 10
scanning electron microscopy, 3–4
staphylococci, 443–455
changing image of cell walls, 443
complex functions, 451–452
historical overview, 443
methicillin-conditonal mutants, 449–450
structure, 12, 13
techniques to study
AFM, 7
conventional embedding, 5
freeze-etching, 4
freeze-substitution, 5
hydrated cryosections, 5–7
negative staining, 5
shadow-casting, 3
transmission electron microscopy, 3, 4
turnover, 8–9
ultrastructure, 3–10
Cellulitis
group A streptococci, 59
group B streptococci, 186
Chimeric reporter protein, 69
Chloramphenicol, 592
Chloramphenicol acetyltransferase, 39
Chromosomal virulence genes, 499
Chromatography, high-performance liquid, 232
Chromobacterium diphtheriae, 690
cross-reactive antigens, group A streptococci, 74–88
cps genes, S. pneumoniae, 242–245
cross-reactive antigens, group A streptococci, 74–88
historical perspective, 74–75
monoclonal antibodies to identify, 77–82
novel protein antigens, 82
recognition of myosin by monoclonal antibodies, 75–77
Crp protein, L. monocytogenes, 637
csr genes, group A streptococci, 39–40
C-terminal-anchored surface proteins, 12–20
C-terminal anchor region, 15, 18
M protein, 12–13
microscopy, 15
multifunctional nature, 20
seven-residue periodicity, 18–19
size variation, 19–20
surface-exposed region, 17, 18, 19
wall-associated region, 17
C-terminal end, M protein sequence, color illustration for Chapter 2, Figure 5
virulence factors, iron-sensitive expression, 727
cps genes, S. pneumoniae, 242–245
Cross-reactive antigens, group A streptococci, 74–88
bulging lipid, 5–6
monoclonal antibodies to identify, 77–82
novel protein antigens, 82
Dactylocycline, 812
daptomycin, 589–590
delta-toxin, S. aureus, 466–467
dental abscess, 336
dental caries, oral streptococci, 335–336
dental plaque, metabolism, 335
dermatitis, S. aureus, 335
dermatitis, S. aureus, 335
dermatitis, S. aureus, 335
infiltrations of inflammatory cells, color illustration for Chapter 44, Figure 1
diabetes, group B streptococcal infections, 187
diagnetics, staphylococci, 371–372
diarhea, C. difficile, 709
diphtheria, 726–737
epidemiology, 733–734
diphtheria toxin, 730–733
fusion protein toxins, 732
Diphtheria toxin repressor
activation, 728
crystallographic analyses, 728–730
fusion protein toxin, 727–730
Directed mutagenesis, group A streptococci, 61–65
allelic replacement using linear DNA, 61–62
directed insertion inactivation, 62–63
in-frame deletion, 63–65
DNA, linear, allelic replacement, 61–62
DNA gyrase, 825
DNA repair, S. pneumoniae, 280
Dpn restriction system, S. pneumoniae, 282–283

Ear, middle, S. pneumoniae invasion, 255
E-cadherin, 650
Ecology, group A streptococci, 143–144
genotypic markers related to, 146
Elastin
binding to gram-positive pathogens, 93
structure and function, 91
Electron microscopy
cell wall, 8
C-terminal-anchored surface proteins, 15
Electron transport
lactococci, 359
S. aureus, 8
Embedding, study of cell wall, 5
emm genes, group A streptococci, 144–146
Endocarditis
enterococci, 303–304
group B streptococci, 187
group G streptococci, 214, 223, 225–226
L. monocytogenes, 604
S. epidermidis, 560
S. sanguinis, 352
staphylococci, 426–427
animal models, 536
Endophthalmitis, enterococci, 304
Endothelial cells
interaction with staphylococci, 517–525
clinopathologic correlations, 521
consequences of invasion, 520–521
intracellular survival of bacteria, 519
invasion, 518–519
staphylococcal adherence, 517
invasion by group B streptococci, 153–155
Endothelium, MAb 3.B6, antistreptococcal/antimyosin
reaction with, color illustration for Chapter 7, Figure 4
 α-Enolase, 20
Enolase, surface, 177
Enterococci
β-lactam resistance, 774, 776–777
biofilm formation, 302–304
biology, 302
colonization and translocation, 300–302
conjugative transposons, 321–323
environmental persistence, 300
epidemiology, 300
future perspectives, 306
gene expression regulation, 313–315
fatty acid-modifying enzyme
staphylococci, 482
FpbA, L. monocytogenes, 650
Fc receptors, endothelial cells invaded by staphylococci, 520
Fibrinogen
binding to gram-positive pathogens, 94–95
binding to staphylococci, 489
structure and function, 92
Fibronectin
binding to gram-positive pathogens, 93–94
binding to group B streptococci, 152
binding to group C streptococci, 199–200
binding to group G streptococci, 199–200
binding to staphylococci, 488
structure and function, 91
Fluorescent microscopy
L. monocytogenes infection of Vero cells, color illustration for
Chapter 53, Figure 5
surface proteins, 15, 17
Fluoroquinolone resistance, 591
Fluoroquinolones, 590–591, 822–823
Fn-binding proteins, S. pyogenes, 31–32
Focal adhesion kinase, phosphorylated, 33
Food-grade strains, lactococci, 364
Food poisoning
C. botulinum, 688–689
C. perfringens type A, 703–707
L. monocytogenes, 602
staphylococci, 468–469
tissue damage, 304–305
Toxic metabolites, 306
vancomycin resistance, 315–316, 786
virulence factors, 299, 300
Enterococcus faecalis, 67, 69, 70, 299, 301, 302, 306
Enterococcus faecium, 299, 301, 306. See also
Enterococci
Environment
effect on virulence of S. aureus, 500–501
lactococcal defense against, 361–363
S. epidermidis, 566
Erythromycin resistance, 675, 682
Escherichia coli, 61, 156, 177, 232
Evolution
emm genes of group A streptococci, 144–146
group A streptococci, 146–147
Exfoliative toxins, S. aureus, 471–472
Exosporium, B. anthracis, 664–445
Exotoxin, S. aureus, 664–445
Extracellular enzymes
S. epidermidis, 564
staphylococci, 478–485
Extracellular matrix, 89–92
degradation by gram-positive pathogens, 95
interaction with gram-positive pathogens, 92–95
structure and function of matrix molecules, 89–92
Eye infection, staphylococci, animal models, 537
Glycolipids, 481–482
Glycerol ester hydrolase, staphylococci, 481–482
Glyceraldehyde-3-phosphate dehydrogenase, 358, 359
Glycopeptide resistance, 590, 782–800
Glycopeptide dependence, enterococci, 793
Glycolytic enzymes/pathways
Glucose, utilization in staphylococci, 429
Glomerulonephritis, acute, 59, 74, 81, 223–224
Gene expression
Gastrointestinal tract, enterococci, 300–302
Genomes
Gene regions, group IV prophages, 621–627
Gene knockout mouse models, staphylococcal disease, 538–539
Gene regions, group IV prophages, color illustration for Chapter 11, Figure 8
Gene transfer, group A streptococci, 146
Genetic exchange
group A streptococci, 59–60
staphylococci, 413
Genetic map
Genetic markers, S. aureus, 409–410
Genetics
antibiotic resistance in staphylococci, 588
enterococci, 312–331
group A streptococci, 59–73
group C streptococci, 196–212
group G streptococci, 196–212
lactococci, 356–368
S. aureus, 413–426
S. pneumoniae, 275–288
capsular polysaccharide, 242
S. sanguis, 347–355
staphylococcal capsule, 456–457
staphylococci, 449–451
Genome distribution, bacteriophage attachment sites, 125–126
Genome NCTC 8325
circular map, color illustration for Chapter 32, Figure 3
role category assignments for ORFs for, color illustration for Chapter 32, Figure 4
Genome sequences
group B streptococci, 161, 177
S. pyogenes, 125–128
Genomes
S. pneumoniae, 262, 275–276
whole, compared using bitsum model, color illustration for Chapter 32, Figure 2
Gentamicin, 226
gfp gene, L. monocytogenes, 629
Glomerulonephritis, acute, 59, 74, 81, 223–224
Glucose, utilization in staphylococci, 429
β-Glucuronidase, L. monocytogenes, 629
Glyceraldehyde-3-phosphate dehydrogenase, 358, 359
Glycerol ester hydrolase, staphylococci, 481–482
Glycolipids, Nocardia, 760–761
Glycolytic enzymes/pathways
staphylococci, 427
surface proteins, 20
Glycopeptide dependence, enterococci, 793
Glycopeptide resistance, 590, 782–800
coagulase-negative staphylococci, 797
enterococci, 786
 genetic and molecular basis, 788–789
 laboratory detection, 787–788
 origin of resistance genes, 793–794
 van genes, 789–793
 mechanisms, 783–785
 S. aureus, 794–795, 797
 vancomycin, 795–797
Glycopeptides
structure and mechanism of action, 782–783
Glycoproteins, adhesive, 91
Gram-positive bacteria
collagen binding to, 92–93
elastin binding to, 93
fibrinogen binding to, 94–95
laminin binding to, 93
surface proteins on, 12–25
mucin interaction, 101
thrombospordin binding to, 95
vitronectin binding to, 94
Gram-positive pathogens
extracellular matrix degradation by, 95
extracellular matrix interactions, 92–95
fibronecits and, 93–94
Green fluorescent protein, 69
Group A streptococcal disease, 47–48, 59, 143–144
Group A streptococcal pharyngitis, 144
vaccine, 113–122
Group A streptococci
asymptomatic carriage, 144, 148
attachment to epithelial cells, 42
bacteriophages, 123–142
bacteriophage A25, 123–124
bacteriophage CS112, 125
bacteriophage SF370, 125, 128, 135, 136, 137
bacteriophage SF24, 134
bacteriophage T12, 125
diversity, modular exchange, 128–131
early studies, 123
late phage genes, 131
lytic phages, 123–124
temperate phages, 124–138
virulence and, 124, 132–138
capsular polysaccharide, 37–46, 82
capsule and host immune defenses, 40–41
capsule as virulence factor, 39
capsule production, 39
experimental infection models, 41–42
cross-reactive antigens, 74–88
historical perspective, 74–75
monoclonal antibodies to identify, 77–82
novel protein antigens, 82
recognition of myosin by monoclonal antibodies, 75–77
cytolytic toxins, 52
directed mutagenesis, 61–65
allelic replacement using linear DNA, 61–62
directed insertional inactivation, 62–63
in-frame deletion, 63–65
ecology, 143–144
genotypic markers related to, 146
emm genes, 144–146
entry into epithelial cells, 43
evolution, 146–147
flow of genetic information in natural populations, 138–139
gene expression
analysis, 69–71
heterologous expression, 71
gene transfer, 146
genetic exchange, 59–60
genetics, 59–73
hyaluronidase, 124
integrins, 104–105
mucosal colonization, 42
pyrogenic exotoxins, 51–52. See also Streptococcal pyrogenic exotoxins
resistance to phagocytosis, 40–41
serological markers, 143
streptokinase, 204
superantigens, 47–58
surface proteins, 100

Galactose, utilization in staphylococci, 429–430
Gamma-toxin, S. aureus, 468–469
Gas gangrene, 720–722
Gastrointestinal disease, L. monocytogenes, 605
Gastrointestinal tract, enterococci, 300–302
Genes
Gentamicin, 226
Genomes
GFP, 69
Genome sequences
Genome NCTC 8325
circular map, color illustration for Chapter 32, Figure 3
role category assignments for ORFs for, color illustration for Chapter 32, Figure 4
Genomes
Genes
Streptococcal See also
INDEX
Group A streptococci (continued)
- systemic disease, 143–144
- toxins, 47–58
- transduction, 59–60, 138–139
- transformation, 60
- transmission dynamics, 147–148
- transposon mutagenesis, 65–69
  - analysis of mutants, 68–69
  - Tn916, 66–67
  - Tn917, 67
  - Tn4001, 67–68
- vaccine, 113–122
- virulence factors, 41–42, 124

Group B alphalike protein, 176

Group B streptococcal disease
- future aspects, 192
  - duration of colonization, 188
  - risk factors for maternal carriage, 188–189
  - sites of maternal colonization, 188
- neonate, 189–191
  - colonization, 189
  - early-onset prevention, 191–192
  - infections, 189
  - prevention, 190–191
  - risk factors, 190
- nonpregnant adults, 186–188
  - incidence, 186
  - risk factors, 187–188
  - syndromes, 186–187
- nosocomial, 188

Group B streptococci
- adherence to epithelial surfaces, 152–153
- avoidance of immune clearance, 157–160
  - beta C protein, 176
  - c protein, 159
- CAMP phenomenon, 156–157, 159–160
- capsular polysaccharide, 157–158, 169–174
- carbohydrate antigens, 169–174
- disease incidence by age, 186, 187
- epidemiology, 186–189
- glutamine synthetase, 177
- group B alphalike protein, 175–176
  - hemolysins, 155
  - hyaluronate lyase, 156
  - injury to host cellular barriers, 155–157
  - invasion of epithelial and endothelial cells, 153–155
  - pathogenic mechanisms, 152–168
  - protein antigens, 173–177
- R proteins, 176
- Rib protein, 176
- sialic acid, 157
- surface structures, 169–185
- syndromes caused by, 186–187
- tandem repeat-containing proteins, 174–176
- transposon insertion sites, 158
- vaccines, 177–181
  - capsular polysaccharide, 177
  - clinical trials with Ia-TT and Ib-TT vaccines, 180
  - clinical trials with II-TT vaccine, 180
  - clinical trials with III-TT vaccine, 180
  - clinical trials with V-TT and V-CRM197 vaccines, 180–181
  - polysaccharide-protein conjugate, 178–181
  - virulence factors, 152–168
- X protein, 177

Group C streptococci
- animal infections, 223
- bacteremia, 225
- deep tissue infections, 225
- human infections, 223–226
- in pregnancy, 224–225
- invasive disease, 224
- neonate, 224–225
- pharyngitis, 223–224
- skin and soft tissue infections, 224
- treatment, 226

Group C streptococci
- adherence mechanisms, 214–215
- albumin-binding proteins, 216
- antiphagocytic factors, 215–216
- bacteriophage C1, 124
- C5a peptidase, 216
- classification, 196–197
- collagen-binding proteins, 215
- cytoplasmic membrane-associated enzymes, 201–202
- enzymes, 216–217
- epidemiology, 222
- extracellular proteins, 202–204
- fibronectin-binding proteins, 199–200
- genetics, 196–212
- hyaluronan synthase, 201
- immunoglobulin-binding protein, 198–199, 216
- lipoprotein acid phosphatase, 201–202
- M and M-like proteins, 197–198, 216
- morphologic groups, 213
- pathogenicity factors, 196–212, 213–221
- plasminogen-binding proteins, 200–201
  - protein G, 216
- streptodornase, 204
- streptokinase, 202–204, 217
- streptolysin, 204, 217
- surface proteins, 197–201
- taxonomy, 213–214, 222
- toxins, 216–217
- vitronectin-binding proteins, 215

Group C streptococci, pyrogenic toxin, 52

Group G streptococcal disease
- animal infections, 223
- arthritis, 224
- bacteremia, 225
- endocarditis, 224, 225–226
- human infections, 223–226
- invasive disease, 224
- neonate, 224–225
- pharyngitis, 224, 223–224
- skin and soft tissue infections, 224
- treatment, 226

Group G streptococci
- adherence mechanisms, 214–215
- albumin-binding proteins, 216
- antiphagocytic factors, 215–216
- C5a peptidase, 216
- classification, 196–197
- collagen-binding proteins, 215
- cytoplasmic membrane-associated enzymes, 201–202
- enzymes, 216–217
- epidemiology, 222
- extracellular proteins, 202–204
- fibronectin-binding proteins, 199–200
- genetics, 196–212
- hyaluronan synthase, 201
- immunoglobulin-binding protein, 198–199, 216
- lipoprotein acid phosphatase, 201–202
- M and M-like proteins, 197–198, 216
- morphologic groups, 213
- pathogenicity factors, 196–212, 213–221
- plasminogen-binding proteins, 200–201
  - protein G, 216
- streptodornase, 204
- streptokinase, 202–204, 217
- streptolysin, 204, 217
- surface proteins, 197–201
- taxonomy, 213–214, 222
- toxins, 216–217
- vitronectin-binding proteins, 215

Group F streptococci, pyrogenic toxin, 52
Haemophilus influenzae, 247, 255
has genes, group A streptococci, 37–38
Health care-associated infections, staphylococcal, 528–529
Heme iron transport, sortase-anchored proteins and, 489
Heme source, lactococci, 360
Hemin auxotrophs, S. aureus, 438–439
Hemolysins, group B streptococci, 155
Hepatitis, L. monocytogenes, 604
Heterologous gene expression, group A streptococci, 71
Heme source, lactococci, 360
Hyaluronan synthase, group A streptococci, 37, 38
Hyaluronate lyase, group B streptococci, 156
Hyaluronic acid
biosynthesis, 37–38
regulation, 38–40
immunogenicity, 40
Hyaluronic acid synthase, 37
Hyaluronidase, group A streptococci, 124
Hyaluronan synthase, group A streptococci, 37, 38
Hyaluronate lyase, group B streptococci, 156
staphylococci, 482–483
Hex mismatch repair system, S. pneumoniae, 280
Hexose-uptake system, L. monocytogenes, 652
Host cell barriers, group B streptococci, 155
Host cell receptors, 100
binding of streptococcal adhesins, 101–103
S. pyogenes, 30
Host cell signaling, streptococcus-mediated, color illustration for
Chapter 9, Figure 1, 100–112
integrins in, 104
membrane receptor-originated, 105–106
targeting the nucleus, 105–106
Host defense
against, S. epidermitis, 564–565
Hyaluronan synthase
binding to group A streptococci, 143–144
binding to group C streptococci, 198–199, 216
binding to group G streptococci, 198–199, 216
In-frame deletion, group A streptococci, 63–65
In utero infection, group B streptococci, 153
Inflammation
primary, group A streptococci, 143–144
skin. See Skin infections
soft tissue. See Soft tissue infections
staphylococcal
animal models, 535–543
community-acquired, 526–528
epidemiology, 526–534
health care-associated, 528–529
in health care setting, 530
streptococcal, non-M-protein and, 119–120
wound, staphylococcal, animal models, 536–537
Inflammatory response
S. epidermitis, 564–565
S. pneumoniae disease, 259–262
staphylococcal disease, 549–550
Insertion-duplication mutagenesis, S. pneumoniae,
283–284
Insertion sequence(s)
C. perfringens, 678–681
S. pneumoniae, 283
Integrin-linked kinase, 34
Integrins
group A streptococci, 104
in host cell signaling, 104–105
Integrins, enterococcal, 323, 324
Inflammation, active, conserved-region peptides, 116–117
Immunoglobin
binding to group C streptococci, 198–199, 216
binding to group G streptococci, 198–199, 216
Impetigo, 144
In-frame deletion, group A streptococci, 63–65
In utero infection, group B streptococci, 153
Influenza, 247, 255
Hemophilus influenzae, 247, 255
Heme iron transport, sortase-anchored proteins and, 489
Heme source, lactococci, 360
Hemin auxotrophs, S. aureus, 438–439
Hemolysins, group B streptococci, 155
Hepatitis, L. monocytogenes, 604
Heterologous gene expression, group A streptococci, 71
Hex mismatch repair system, S. pneumoniae, 280
Hexose-uptake system, L. monocytogenes, 652
Host cell barriers, group B streptococci, 155
Host cell receptors, 100
binding of streptococcal adhesins, 101–103
S. pyogenes, 30
Host cell signaling, streptococcus-mediated, color illustration for
Chapter 9, Figure 1, 100–112
integrins in, 104
membrane receptor-originated, 105–106
targeting the nucleus, 105–106
Host defense
against, S. epidermitis, 564–565
Hyaluronan synthase
binding to group A streptococci, 143–144
binding to group C streptococci, 198–199, 216
binding to group G streptococci, 198–199, 216
In-frame deletion, group A streptococci, 63–65
In utero infection, group B streptococci, 153
Inflammation
primary, group A streptococci, 143–144
skin. See Skin infections
soft tissue. See Soft tissue infections
staphylococcal
animal models, 535–543
community-acquired, 526–528
epidemiology, 526–534
health care-associated, 528–529
in health care setting, 530
streptococcal, non-M-protein and, 119–120
wound, staphylococcal, animal models, 536–537
Inflammatory response
S. epidermitis, 564–565
S. pneumoniae disease, 259–262
staphylococcal disease, 549–550
Insertion-duplication mutagenesis, S. pneumoniae,
283–284
Insertion sequence(s)
C. perfringens, 678–681
S. pneumoniae, 283
Integrin-linked kinase, 34
Integrins
group A streptococci, 104
in host cell signaling, 104–105
Integrins, enterococcal, 323, 324
Internalins (In1A)
L. monocytogenes, 646–647
receptor, 650
Invasins, S. pyogenes, 31–32
Iron
acquisition by S. epidermitis inside host, 565
Kidney abscess, staphylococci, animal models, 538
Lactococci
antigenicity, 364–365
carbon metabolism, 358
cell lysis system, 364
conjugation, 363
electron transport chain, 359
expression strain, 364
fermentation, 358–359
food-grade strains, 364
gene replacement, 363
genetics, 356–368
metabolic options, 357–361
nucleotide metabolism, 361
phylogenetic tree, 356–368
promoters, 364
protein export reporter, 364
respiration, 359–361
prototype, 360–361
secretion and anchoring signals, 364
site-specific single-copy integration, 363
stress resistance, 361–363
sugar metabolism, 358
survival, respiration metabolism, 360
transposition, 363
Lactococcus lactis, 356–358. See also Lactococci
Lactose, utilization in staphylococci, 429
Laminins
binding to gram-positive pathogens, 93
structure and function, 91
Lantibiotics, 567–568
Leukocidin, staphylococci, 527
LIM kinase, L. monocytogenes, 652
Lipoprotein acid phosphatase
group C streptococci, 201–202
group G streptococci, 201–202
Lipoproteins, surface proteins, 21
Lipoteichoic acid, 152
enterococci, 301, 304–305
S. pneumoniae, 236–237, 293
Listeria, 34
Listeria ivanovii, 634–635
Listeria monocytogenes
ActA protein, 650
bacteriophage, 629
chromosomes, 620–621
epidemiology, 601–608
reporter genes, 627–629
U153, 630
Vero cell infection, fluorescence microscopy, color illustration for
Chapter 53, Figure 5
virulence genes, 634–645
Listeria monocytogenes disease, 601–608
clinical disease, 603
cutaneous listeriosis, 604
Listeria monocytogenes disease (continued)
diagnosis, 605
endoocarditis, 604
entry into nonphagocytic cells, 646
food-borne outbreaks, 602
gastroenteritis, 605
hepatitis, 604
host cell interactions, 653
immune response, 611–615
meningoencephalitis, 603–604
mouse model, 609–619
musculoskeletal infection, 605
peritonitis, 604
sepsis, 604
treatment, 605
Listeriosis. See Listeria monocytogenes disease
Liver abscess, L. monocytogenes, 604, 609
LLO, L. monocytogenes, 650, 652
LPXTG motif, 17
LPXTGase, 17
Lymphoma, cutaneous T-cell, 732
Lytic bacteriophages, group A streptococci, 123–124
M-like proteins
group C streptococci, 197–198
group G streptococci, 197–198
M protein sequence, C-terminal end, color illustration for
Chapter 2, Figure 5
M proteins, 12–15, 37
acute glomerulonephritis and, 81–82
cross-reactive T cells and, 80–81
group A streptococci, 143
group C streptococci, 197–198, 216
group G streptococci, 197–198, 216
rheumatic fever and, 78–80
S. pyogenes, 34
structure and function, 113–114
MAb, mouse antistreptococcal, reaction with myocardial
tissue section, color illustration for Chapter 7, Figure 1
MAb 3.B6, antistreptococcal/antimyosin
reaction with endothelium and myocardium, color illustration for
Chapter 7, Figure 4
Macrolide-lincosamide-streptogramin, 592
Macrolide-lincosamide-streptogramin resistance, 592
Major histocompatibility complex, 47, 49
Maltose, utilization in staphylococci, 430
Mannitol, utilization in staphylococci, 430
Mastitis, staphylococci, animal models, 536
Membrane-associated enzymes, cytoplasmic, 201–202
Meningitis, group B streptococcal disease, 155
Meningococcal lipid A, 603–604
Metalloprotease, staphylococci, 481
Methicillin-resistant mutants, staphylococci, 449–450
Micrococaceae, 371, 372
Mitogenic factor, 52
Modular exchange, phage diversity, 128–131
Molecular mimicry, 74
Monoclonal antibodies
cross-reactive with group A streptococci, 74–77
identification of streptococcal cross-reactive antigens, 77–82
Monuxella catarrhalis, 255
Mouse models, gene knockout models of staphylococcal
disease, 538–539
MSCRAMMs, 488–489
Mucin, interactions with surface proteins, 101
Mucosal colonization, group A streptococci, 42
Mucosal vaccine, group A streptococcal pharyngitis, 115–116
Multifunctional surface proteins, 20
Multilocus enzyme electrophoresis, typing staphylococci, 374
Multilocus sequence typing, staphylococci, 375–376
Mupirocin resistance, staphylococci, 593
murMN operon, 232–235
Muropeptide, staphylococci, 446
Musculoskeletal infection, L. monocytogenes, 605
Mutagenesis
directed. See Directed mutagenesis
S. pneumoniae, 283–284
transposon. See Transposon mutagenesis
Mycetoma, 752
Mycobacteria, cell walls, 9–10
Mycobacterium kansasii, 9
Mycobacterium tuberculosis, 9
Myocardium, MAb 3.B6, antistreptococcal/antimyosin
reaction with, color illustration for Chapter 7, Figure 4
Myocardium tissue section, mouse antistreptococcal MAb
reaction with, color illustration for Chapter 7, Figure 1
Myosin, antimyosin antibodies in streptococcal infection, 78
N-terminal-anchored surface lipoproteins, 21
Nasopharynx, epithelial cells, pneumococcal interactions, 253–255
NCTC 8325 genome
circular map, color illustration for Chapter 32, Figure 3
role category assignments for ORFs for, color illustration for
Chapter 32, Figure 4
Necrotizing fasciitis, 59, 186, 214
Negative staining, cell wall, 5
Neonate
group B streptococcal disease
colonization, 189
infections, 189
prevention, 190–191
risk factors, 189–190
group C streptococcal disease, 224–225
group G streptococcal disease, 224–225
Nephritis, staphylococci, animal models, 538
Newborn. See Neonate
Nocardia
adherence and invasion of host cells, 757
animal pathogens, 752–753
apoptosis induced by, confocal micrographs, color illustration for
Chapter 61, Figure 6
genomic sequence, 762
glycolipids, 760–761
host factor protection, 762–763
pathogenesis, 750–765
tissue culture to study nocardia-host interactions, 753–757
Nocardioides asteroides, 753–757, 759
Nocardiosis
human, 750–752
NorA protein, S. aureus, 827–828
Nosocomial infection
tenterococci, 299–300
group B streptococci, 186–187
S. epidermitis, 560
Nuclease, staphylococci, 483
Nucleotide metabolism, lactococci, 361
Obessive-compulsive disorder, 59
Oligosaccharide/oligonucleotide binding, 48
Opacity factor, 143
Oral streptococci
acquisition, 334
adherence to oral surfaces, 334–335
as pathogens, 335
colonization, 334–335
dental abscesses, 336
dental caries, 335–336
names, 334
pathogenesis, 332–339
periodontal disease, 336
systemic infections, 336–337
taxonomy, 332–334
virulence factors, 337
Osteomyelitis
  staphylococci, 527
animal models, 536
Otitis media, S. pneumoniae, 253, 255
Oxazolidinones, 593

Pathogenicity factors
  enterococci, 299–311
  group B streptococci, 152–168
  group C streptococci, 196–212, 213–221
  group G streptococci, 196–212, 213–221
  staphylococci, 332–339, 496–516
Pathogenicity islands, S. aureus, 409–410, 422–423
PCR typing, staphylococcal, 374–375

Penicillin
  group A streptococcal infections, 147
  in group C streptococcal infections, 226
  in group G streptococcal infections, 226
  prevention of early-onset group B streptococcal disease, 192
Penicillin-binding proteins, 230, 450–451, 774–775
Penicillin
  PCR typing, staphylococcal, 374–375
Pathogenicity islands, S. aureus, 409–410, 422–423
Phagocytes, antistaphylococcal action, 544–547
Peptostreptococcus magnus, 14
Peptidoglycan
  effect of antibiotics, 447
  effect of growth phase and medium composition, 447–448
  high-resolution analysis, 445–446
  mureptide composition, 446
  S. aureus, 445–446
  teicoplanin resistance and, 448
  vancomycin resistance and, 448
  variations in composition, 447–449
Peptidoglycan N-acetylglucosamine deacetylase, 237
Peptostreptococcus magnus, 14
Periostitis, oral streptococci, 336
Periplasm, gram-positive, 10
Pheromones. See Bacteriophages
Phagocytes, antistaphylococcal action, 544–547
  oxygen-dependent, 545, 550–554
  oxygen-independent, 546–547, 551–554
  respiratory burst oxidase, 550–551
Phagocytosis
  resistance in group A streptococci, 40–41
  zipper phagocytosis of streptococci, 30–31
Pharyngitis
  group A streptococci, 144
  vaccine, 113–122
  group C streptococci, 223–224
  group G streptococci, 214, 223–224
Phase variation, S. pneumoniae, 268–274
  characteristics of phase variants, 268–269, 271
  contribution to host clearance mechanisms, 272
  correlation between opacity variation and infection, 269
  opacity variation and carbohydrate-containing structures, 269–270
  variation in surface proteins, 270–271
Phenotypic variation, 268. See also Phase variation
Pheromone response, regulatory circuitry, color illustration for Chapter 26, Figure 2
Phenomenon-responsive plasmids
  enterococci, 317–321
Phosphocholine, teichoic acids, 293
Phosphoglycerate kinase, 20
Phosphoglycerate mutase, 20
Phosphoinositide, 290
Phosphoglycerate kinase, 20
Phosphorylcholine, 237
Phosphoryl choline residues, enzymatic removal, 237
Phosphorylcholine, S. pneumoniae, 237
Phosphotransferase system, staphylococci, 427–429
Phylogenetic relations, lactococci, 356, 357
Pl-phospholipase C, 482
Placental membrane rupture, induced by group B streptococci, 156
Plasmid(s)
  C. perfringens, 677–678
  enterococci, 317–321
  group A streptococci, 60–61
  L. monocytogenes, 621–627
  S. pneumoniae, 280, 281–283
  staphylococci, 413–417, 499
  conjugative plasmids, 416–417, 418
  multiresistance plasmids, 415–416, 417
  pSK639 family, 414–415
  small rolling-circle plasmids, 413–414
Plasmin(ogen)
  binding to group C streptococci, 200–201
  binding to group G streptococci, 200–201
Platelets(s)
  antistaphylococcal action, 547–549
  interactions, staphylococcal, 518
  Platelet kinocidins, 552–553
  Platelet microbicidal proteins, 552–553
  Pneumococcal C-polysaccharide and F-antigen, 235–236
  Pneumococcal capsular polysaccharide vaccine, 242
  Pneumococcal surface protein A, 230, 231
  Pneumococci. See Streptococcus pneumoniae
  Pneumolysin, 291–292
  Pneumonia
    group B streptococci, 186–187
    staphylococci, 528
  Polymers, secondary, 8
  Polysaccharide-protein conjugate vaccine
    group B streptococci, 177–180
    S. pneumoniae, 290
  Porphyromonas gingivalis, 20
  Pregnancy
    group B streptococcal disease, 187
    risk factors for maternal carriage, 187
    site of maternal colonization, 187
  Premature delivery, response to group B streptococci, 156
  PrfA protein, L. monocytogenes, 635–637, 639
  Proinflammatory response, host cells after interaction with streptococci, 106
  Promoters, S. pneumoniae, 283
  Prophage genomes, decay, 136–138
  Prophages
    group IV, late gene regions, color illustration for Chapter 11, Figure 8
    S. pyogenes, 125–128, 129–131
  Proteases, staphylococcal, 479–481
  cysteine, 480–481
  metalloprotease, 481
  serine protease, 480
  Protein(s)
    ActA, L. monocytogenes, 650, 652–653
    anthrax toxin, ribbon diagrams, color illustration for Chapter 54, Figure 1
    cell surface-associated, 197–201
    extracellular, 202–204
    penicillin-binding, 230, 450–451, 774–775
    secretion by group B streptococci, 156
    surface. See Surface proteins
    X, group B streptococci, 177
  Protein A
    S. aureus, 12, 486
    staphylococci, 486
  Protein vaccine, S. pneumoniae, 291
  Pseudomonas aeruginosa, 101
  Pseudomonas putida, 312
  Pseudotransduction, S. pneumoniae, 281
  Psoriasias, 59
  PsPbA protein, 20–21, 291
PspC protein, 291
Pullulanase, 101
Pulmonary abscess, staphylococcal, color illustration for Chapter 41, Figure 1
Pyrogenic exotoxins, streptococci. See Streptococcal pyrogenic exotoxins
Quinolone resistance, 821–833
R proteins, group B streptococci, 176
RelSeq1-385 structure, color illustration for Chapter 16, Figure 5
Reporter genes group A streptococci, 69, 70
L. monocytogenes, 627–629
Respiration L. lactis, 359–361
S. aureus, 434–435, 439
staphylococcal, 434–435
Respiratory tract S. pneumoniae in, 272–273
S. pneumoniae invasion, 255–256
Restriction fragment length polymorphism, typing staphylococci, 374
Rheumatic fever, 59, 74
M proteins and, 78–80
Rheumatic heart disease, 75, 81, 82
Ribosomal protection, tetracycline resistance, 811–812
Ribosomal RNA, mutation to tetracycline resistance, 810
Rifampin resistance, staphylococci, 590
RNA, ribosomal, mutation to tetracycline resistance, 810
RNA I-RNA II interaction, color illustration for Chapter 26, Figure 4
S-layer, 10
Sak, S. aureus, 479
sar locus, staphylococci, 505, 507
Scalded skin syndrome, staphylococcal, 471
Scanning electron microscopy, cell wall, 3–4
Scarlet fever, 59, 125
SCCmec elements in MRSA, color illustration for Chapter 31, Figure 5
SCPA, 34
Sdr protein, staphylococci, 489
Sepsis group B streptococci, 160–161
S. aureus, animal models, 533–536
S. pyogenes, 29
Septicemia, S. epidermidis, 560
Serine protease, staphylococci, 480
Serological markers, group A streptococci, 143
Shadow-casting, cell wall, 3
Sialic acid, group B streptococci, 157, 171–173
Signal transduction, membrane receptor-originated, 105–106
Signaling, host cell. See Host cell signaling
Sip protein, 176–177
Skin infections group C streptococci, 224
group G streptococci, 224
staphylococci, 526
animal models, 536–537
Small-colony variants, S. aureus, 434–442
antibiotic resistance, 439
clinical studies, 438
history, 435
instability of phenotype, 439
phenotypic changes and interrupted electron transport, 435–437
Soft tissue infections group C streptococci, 224
group G streptococci, 224
S. pyogenes, 224
staphylococci, 526
Sortase, 17
Sortase A, staphylococcal, 486–488
Sortase A-anchored surface proteins, 488–489
Sortase A-dependent protein attachments, 237
Sortase-anchored proteins, and heme iron transport, 489
Sortase B, 489
Spleen, L. monocytogenes, 611
Sporosarcina, 8
srhRS system, affecting virulon, color illustration for Chapter 41, Figure 3
Staphylococcal abscesses, color illustration for Chapter 41, Figure 1
Staphylococcal disease animal models, 535–543
arthritis animal models, 535–543
bacteremia, 526–527
bloodstream infections, 528
cogulase-negative staphylococci, 782, 797
community-acquired, 526–528
endocarditis, 526–528
animal models, 536
epidemiology, 526–534
eye infection, animal models, 537
food-borne, 468–469
gene knockout mouse models, 538–539
host defense, 544–559
antistaphylococcal action of body fluids, 549
antistaphylococcal action of phagocytes, 549
antistaphylococcal action of platelets, 547–549
carlicidins, 554
cellular and extracelullar defenses, 544–559
defensins, 553–554
group IIA PLA2, 551–552
molecular, 550–554
platelet microbicidal proteins, 552–553
infection control, 530
inflammatory response, 549–550
kidney abscess, animal models, 558
mastitis, animal models, 536
nephritis, animal models, 538
nosocomial infection, 526
osteomyelitis, 527
animal models, 536
pathogenesis, 496–497
pneumonia, 528
S. aureus-eukaryotic cell interactions, 517–525
scaled skin syndrome, 471
sepsis, 535–536
skin infections, 526
animal models, 536–537
soft tissue infections, 526
surgical site infection, 528–529
toxic shock syndrome, 527, 535
transmission, 530
treatment, 530–531, 539–540
wound infection, animal models, 536–537
Staphylococci accessory gene regulatory organization, 508–511
agr system, 501
translational regulation, 502–503
antibiotic resistance, 529, 587–597
consequences, 587
source of infection, 587–588
apoptosis in mammary epithelial cells, 521
capsular polysaccharide, 456–457
capsule, 456–463
biosynthesis, 458–460
genetics, 456–457
in virulence, 460
regulation of capsule expression, 457–458
carbohydrate catabolism, 427–433
carbon catabolite repression, 430–431
INDEX

- cassette chromosome, 376–377, 421–422
- cell division, 444
- murein hydrolases, 451–452
- cell wall, 443–455
- changing image of cell walls, 443
- complex functions, 451–452
- historical overview, 443
- methicillin-conditional mutants, 449–450
- coagulase, 478–479
- coagulase-negative, \( \beta \)-lactam resistance, 776
- collagen-binding proteins, 489
- diagnostics, 371–372
- extracellular enzymes, 478–485
- FAME, 482
- fatty acid-modifying enzyme, 482
- fibrinogen-binding proteins, 489
- fibronectin-binding proteins, 488
- galactose utilization, 429–430
- genetic exchange, 413
- genetics, 413–426
- glucose utilization, 429
- glycerol ester hydrolase, 481–482
- glycolytic pathways, 427
- hyaluronate lyase, 482–483
- infections
  - community-acquired, 526–528
  - epidemiology, 526–534
  - health care-associated, 528–529
  - in health care setting, 530
  - insertion sequences, 417–421
  - interaction with endothelial cells, 517–525
  - adherence, 517–518
  - clinicopathologic correlations, 521
  - consequences of invasion, 520–521
  - intracellular survival, 519
  - inversion, 520–521
  - lactose utilization, 429–430
  - lipase, 481–482
  - maltose utilization, 430
  - mannosyl utilization, 430
  - mupirocin resistance, 593
  - nucleotides, 483
  - pathogenicity factors, 422–423, 496–516, 572–586
  - penicillin-binding proteins, 450–451
  - peptidoglycan
    - effect of antibiotics, 447
    - effect of growth phase and medium composition, 447–448
    - high-resolution analysis, 445–446
    - muropeptide composition, 446
    - teicoplanin resistance and, 448
    - vancomycin resistance and, 448
    - variations in composition, 447–449
  - phosphotransferase system, 427–429
  - Pl-phospholipase, 482
  - plasmids, 413–417, 499
    - conjugative plasmids, 416–417, 418
    - multiresistance plasmids, 415–416, 417
    - pSK639 family, 414–415
    - small rolling-circle plasmids, 413–414
  - protein A, 486
  - regulatory genes, 501
  - respiration, 434–435
  - streptogramin combination resistance, 592–593
  - sucrose utilization, 430
  - sulfonamide-trimethoprim resistance, 593
  - surface proteins, 486–495
    - anchoring to cell wall, 486
    - cell wall-associated, 489–491
    - sortase A-anchored, 488–489
    - TCS modules, 501–505
    - transposons, 417–421, 499
  - typing, 372–378
  - amplified fragment length polymorphism, 375
- arbitrarily primed PCR, 374–375
- combined use of molecular methods, 377–378
- general aspects, 372–374
- genotypic methods, 373–374, 378
- multilocus enzyme electrophoresis, 374–375
- PCR, 374–375
- PCR for DNA flanked by insertion elements, 375
- PCR of repetitive sequences, 375
- PCR of rRNA gene spacer sequences, 375
- phenotypic methods for Staphylococcus aureus, 373
- requirements for typing systems, 372–373
- restriction fragment length polymorphism, 374
- sequence-based, 375–376
- spa-sequence typing, 376, 377
- vaccines, 460–461
- vinulin
  - genetics, 497–499
  - regulation, 499–511
- xylose utilization, 430

Staphylococcus aureus

- alpha-toxin, 464–465
- antibiotic resistance, 427
- \( \beta \)-lactam resistance, 772–774, 776
- \( \beta \)-lactam tolerance, 777–778
- beta-toxin, 465–466
- bicomponent toxins, 467–468
- carrier state, 530–531
- cell wall, 4, 5, 8, 443–455
- community-associated pneumonia, 528
- delta-toxin, 466–467
- dermatitis, infiltrations of inflammatory cells, color illustration for Chapter 44, Figure 1
- electron transport, 437, 439
- endothelial cell adherence, 517–518
- endothelial cell invasion, 518–519
- eukaryotic cell interactions, 517–525
- exfoliative toxins, 471–472
- exotoxins, 464–477
- extracellular enzymes, 478–485
- gamma-toxin, 467–468
- genetic map, 381–410
- genetic markers, 409–410
- genotyping systems, 378
- glycopeptide resistance, 794–795
- hemin- or menaquinone-deficient strains, 437–438
- leukocidin, 467–468
- NCTC 8325 genome, 381–412
- NorA, 827–828
- pathogenicity islands, 409–410
- peptidoglycan, 445–446
- phenotyping methods, 373
- protein A, 12, 486
- respiration, 434–435, 439
- small-colony variants, 434–442
  - antibiotic resistance and, 439
  - clinical studies, 438
  - history, 435
  - instability phenotype, 439
  - phenotypic changes and interrupted electron transport, 435–437
- staphyloccocal pyrogenic toxin superantigen, 468–471
- surface proteins, 12, 486–495
- tissue site adherence, 518
- toxins
  - production, 439
  - with superantigen activity, 468–471
  - vancomycin resistance, 448–449, 794–795, 797
  - vinulin, regulation, 499–511
- VISA isolates, 448

Staphylococcus capitis, 579–580
Staphylococcus caprae, 577
- antibiotic susceptibility, 577
Staphylococcus caprae (continued)
diseases, 577
genomic diversity and natural habitat, 577
pathogenicity, 577
Staphylococcus carnosus, 582
Staphylococcus chromogenes, 582
Staphylococcus cohnii, 581
Staphylococcus epidermidis disease, 560–565
endocarditis, 562
host defense, 564–565
inflammatory reaction, 564–565
nosocomial infections, 560
septicaemia, 560
spectrum, 560–561
Staphylococcus epidermidis
agr system, 566–567
biofilms, 561–566
accumulation process, 563–564
extracellular matrix proteins and, 562–563
formation, 561
initial attachment, 561–562
cell wall, 3, 4
DrhR homolog, 567
environmental factors, 566
extracellular enzymes, 564
Fur-like protein, 567–568
future aspects, 568
inguinal cavity infection, 565
lanthionines, 567–568
phase variation, 567
sar locus, 567
sigB operon, 566
stress, 566
toxins, 564
virulence factors, 564–567
Staphylococcus gallinarum, 582
Staphylococcus haemolyticus, 574–575
antibiotic susceptibility, 574
diseases, 574
genomic diversity and natural habitat, 574
pathogenicity, 574–575
Staphylococcus hominis, 580
Staphylococcus hyicus, 582
Staphylococcus intermedius, 580–581
diseases and habitat, 580
genomic diversity, 581
pathogenicity, 581
Staphylococcus lugdunensis, 572–574
antibiotic susceptibility, 512
diseases, 572
genomic diversity and natural habitat, 572
pathogenicity, 572–574
Staphylococcus pasteuri, 579
Staphylococcus saprophyticus, 574
antibiotic susceptibility, 574
diseases, 574
genomic diversity and natural habitat, 574
pathogenicity, 574
Staphylococcus schleiferi, 575–579
antibiotic susceptibility, 575
disease, 575
genomic diversity and natural habitat, 575
pathogenicity, 577–579
Staphylococcus sciuri, 581–582
Staphylococcus simulans, 579
antibiotic susceptibility, 579
diseases, 579
genomic diversity and natural habitat, 579
pathogenicity, 579
Staphylococcus warneri, 577
antibiotic susceptibility, 579
diseases, 577
pathogenicity, 577
Staphylococcus xylosus, 580
Streptococcus pneumoniae, 347–348, 349
Streptococcal genomes, 53, 347–348, 349
Streptococcal pyrogenic exotoxins, 51–52
SPE A toxin, 50
SPE B toxin, 51–52
SPE C toxin, 52
SPE F toxin, 52
SSA toxin, 50
Streptococcal superantigens, 50–53
Streptococcal surface dehydrogenase, 101–104
Streptococcal toxic shock syndrome, 47–48, 53
Streptococci
focal adhesion and signal transduction, 33–34
group A. See Group A streptococci
group B. See Group B streptococci
group C. See Group C streptococci
group G. See Group G streptococci
mediation of host signaling, color illustration for Chapter 9,
Figure 1
intracellular, 34–35
mitis group
competence pheromones, 348
genomes, 347–348
oral. See Oral streptococci
salivarius group, 147
sanguis group
development, 348–349
transformation, 349–350
superantigens, 47–58
T-cell activation complexes for, color illustration for Chapter 5,
Figure 1
tetracycline resistance, 808–810
viridans
β-lactam resistance, 777
β-lactam tolerance, 777–778
zipper phagocytosis, 30–31
Streptococcus agalactiae, 34, 186
Streptococcus anginosus, 213, 214, 222
Streptococcus canis, 222
Streptococcus constellatus, 214, 222
Streptococcus dysgalactiae, 14, 94, 205, 222, 225, 226
Streptococcus equi, 213, 222
Streptococcus equisimilis, 205, 213, 222, 226
Streptococcus gordonii, 352–353
genome, 347–348
Streptococcus group
Streptococcus pyogenes, 34, 186, 214, 222, 242
Streptococcus pneumoniae, 34, 186, 214, 222, 242
Streptococcus salivarius
Streptococcus salivarius sanguinis group
Streptococcus salivarius sanguinis, 147
Streptococcus salivarius salivarius group
Streptococcus salivarius salivarius
Streptococcus intermedius, 352–353
Streptococcus mitis, 214, 222
Streptococcus milleri, 214, 222
Streptococcus oralis, 347
Streptococcus pyogenes, 34, 186
Streptococcus ratti, 214
Streptococcus salivarius
Streptococcus salivarius sanguinis group
Streptococcus salivarius sanguinis
Streptococcus salivarius salivarius group
Streptococcus salivarius salivarius
cps loci in serotypes, compared, 243, 248
genetics, 242
regulation of CPS production, 247–249
types 3 and 37 CPS biosynthesis genes, 242–243
vaccine based on, 242
virulence and, 241–242
cell wall, 104, 230–240
anatomy, 230
choline residue functions, 237–238
composition, 232
covalent modifications, 237
growth zone and cell wall segregation, 231–232
host-related activities of wall components, 237
peptidoglycan, 232–236

choline, color illustration for Chapter 21, Figure 1
choline-binding protein, 237–238
choline phosphorylcholine, biology, 271–272
conjugation, 276–281
cytotoxicity, 262
Dpn restriction system, 282–283
fluoroquinolone resistance, 591
gene transfer, 276–281
genetics, 275–288
genomes
diversity and, 275–276
pathogenesis, 262
inflammation, 259–262
invasion, 253–267
lipoteichoic acid, 236–237
middle ear invasion, 255–256
peptidoglycan, 232–236
promotors, 283
pseudotransduction, 281
quino (continued)
phase variation, 268–274
characteristics of phase variants, 268–269, 271
contribution to host clearance mechanisms, 272
correlation between opacity variation and infection, 269
opacity variation and carbohydrate-containing structures, 269–270
relation to other respiratory pathogens, 272–273
variation in surface proteins, 270–271
promotors, 283
quino (continued)
surface proteins, 20
tetraionic acid, 230, 236–237, 293
transformation, 276–281
artificial, 280–281
chromosomal integration, 279–280
DNA release, binding, and uptake, 279
DNA repair, 280
Hex mismatch repair system, 280
induction of competence, 277–279
mismatch repair, 280
plasmid, 280
upper respiratory tract invasion, 255–256
vaccines, 289–298
capsular polysaccharide vaccine, 242
multivalent protein vaccine, 293
noncapsular polysaccharide vaccine, 291–293
 pneumococcal capsular surface protein, 289–290
 pneumolysin, 291–292
 polysaccharide-protein conjugate, 290
 protein, 291
virulence factors, 241–242, 262
Streptococcus pyogenes, 12, 47, 60, 71, 94, 105, 113, 125, 215
disease, 29
fate of intracellular streptococci, 34–35
Fn-binding proteins as invasins, 29
host cell interactions leading to adherence and invasion, 30
host receptors, 30
intracellular invasion, 29–30
invasins, 30
M proteins, 34
surface proteins, 12
tonsils as reservoir for, 30
Streptococcus salivarius, 147
Streptococcus sanguinis
adhesion, 350–352
multiple adhesive interactions, 350
biofilms, 352
competence phenonemes, 348
genes, 347–355
heterologous gene expression, 352–353
pathogenesis of oral streptococci, 347
surface proteins, 350–352
transformation, 349–350
Streptococcus sobrinus, 14
Streptococcus suis, 14
Streptococcus zooepidemicus, 213, 222, 226
Streptodornase
group C streptococci, 204
group G streptococci, 204
Streptogonams, combinations, resistance in staphylococci, 592–593
Streptokinase
group A streptococci, 204
group C streptococci, 202–204
group G streptococci, 202–204
Streptolysin
group C streptococci, 204
group G streptococci, 204
Streptolysin O, 52
Streptomyces, tetracycline resistance, 811–812
Stress resistance
lactococci, 361–363
Sucrose, utilization in staphylococci, 430
Sugar metabolism, lactococci, 358
Sulfonamide-trimethoprim, 593
Superantigens
group A streptococci, 47–58
S. aureus toxins, 468–470
streptococci, 47–58
T-cell activation complexes for, color illustration for Chapter 5, Figure 1
Surface proteins
anchored by charge and/or hydrophobic interactions, 20–21
C-terminal-anchored proteins, 12–20
glycolytic enzymes, 20
group A streptococci, 100
group B streptococci, 174–176, 177
group C streptococci, 197–201
group G streptococci, 197–201
mu (continued)
mucin interactions, 101
multifunctional, 20
on gram-positive bacteria, 12–25
S. aureus, 12, 486–495
S. pneumoniae, 20
S. pyogenes, 12
S. sanguinis, 350–352
staphylococci, 486–495
anchoring to cell wall, 486
cell wall-associated, 489–491
sortase A-anchored, 488–489
Surface structures, group B streptococci, 169–185
Sydenham chorea, 82–83
Systemic disease
group A streptococci, 143–144
oral streptococci, 336–337
T-cell activation complexes
streptococcal superantigens, color illustration for Chapter 5, Figure 1
T-cell antigen receptor, 47
T-cell lymphoma, treatment, 732
T-cell responses, to L. monocytogenes, 613–615
T cells, cross-reactive, M proteins and, 80–81
T lymphocytes
adhesion and extravasation into ARF valve in valvulitis, color illustration for Chapter 7, Figure 5
cross-reactive, M proteins and, 80–81
Taxonomy
group C streptococci, 213–214, 222
group G streptococci, 213–214, 222
oral streptococci, 332–334
TCS modules, affecting virulon, color illustration for Chapter 41, Figure 3
TCS modules, staphylococci, 501–505
Teichoic acid, 4, 5
S. pneumoniae, 230, 236–237, 293
structure, 236–237
Teichuronic acid, 5
Teicoplanin resistance, staphylococci, 448
Temperate bacteriophages, group A streptococci, 124–138
Tetanus, clinical aspects, 690–691
tetanus neurotoxin
detection, 692
gene arrangement, 693–695
inhibition of neurotransmission, 696–698
regulation of synthesis, 693–695
safety in working with, 699
structure, 695–696
Tetracycline(s), 591
chemical properties, 801
entry into microbial cells, 801
inhibition of protein synthesis, 802–803
Tetracycline resistance, 591–592
by active efflux, 803–811
by ribosomal protection, 808–810
C. difficile, 682
C. perfringens, 680–810
mutated rRNA, 810
S. pneumoniae, 276–281
artificial transformation, 280–281
chromosomal integration, 279–280
DNA release, binding, and uptake, 279
DNA repair, 280
Hex mismatch repair system, 280
induction of competence, 277–279
mismatch repair, 280
plasmid transformation, 280
S. sanguinis, 349–350
Transmission
group A streptococci, 147–148
staphylococcal disease, 530
Transmission electron microscopy, cell wall, 3, 4, 5
Transposon(s)
C. botulinum, 674
c. difficile, 682–683
C. perfringens, 678–810
C. tetani, 675
tenterococci, 312, 321–323
insertion sites
B. anthracis, 661–662
c. difficile, 682
C. perfringens, 678–810
C. tetani, 675
tenterococci, 312, 321–323
insertion sites
group B streptococci, 158
L. monocytogenes, 621
staphylococci, 417–421, 499
Transposon mutagenesis
C. perfringens, 682
group A streptococci, 65–69
analysis of mutants, 68–69
Tn916, 66–67
Tn917, 67
Tn4001, 67–68
T. denticola, 214
Triosephosphate isomerase, 20
Tumor necrosis factor, response to streptococci, 106
Typing, staphylococci, 372–378
amplified fragment length polymorphism, 375
arbitrarily primed PCR, 374–375
combined use of molecular methods, 377–378
general aspects, 372–374
genotypic methods, 373–374, 378
multilocus enzyme electrophoresis, 374
PCR, 374–375
PCR for DNA flanked by insertion elements, 375
PCR for repetitive sequences, 375
PCR for rRNA gene spacer sequences, 375
phenotypic methods for S. aureus, 373
plasmid profile analysis, 374
requirement for typing systems, 372–373
restriction fragment length polymorphism, 374
sequence-based, 375–376
spa-sequence typing, 376, 377
Urinary tract infection, enterococci, 303
Vaccine(s)
B. anthracis, 667
delivery, L. monocytogenes, 615
diphtheria, 726, 733
group A streptococcal pharyngitis, 113–122
gram-positive commensals as vectors, 117
immunization with conserved region peptides, 116–117
mucosal vaccine, 115–116
new generation vaccine, 118–119
non-M-protein approaches, 119–120
passive protection, 116
type-specific protection, 114–115
vaccinia virus as vector, 117
Transformation
C. botulinum, 674
c. perfringens, 681–682
C. tetani, 675
group A streptococci, 60
S. pneumoniae, 276–281
artificial transformation, 280–281
chromosomal integration, 279–280
DNA release, binding, and uptake, 279
DNA repair, 280
Hex mismatch repair system, 280
induction of competence, 277–279
mismatch repair, 280
plasmid transformation, 280
S. sanguinis, 349–350
Transmission
group A streptococci, 147–148
staphylococcal disease, 530
Transmission electron microscopy, cell wall, 3, 4, 5
Transposon(s)
C. botulinum, 674
c. difficile, 682–683
c. perfringens, 678–810
c. tetani, 675
tenterococci, 312, 321–323
insertion sites
T. denticola, 214
Triosephosphate isomerase, 20
Tumor necrosis factor, response to streptococci, 106
Typing, staphylococci, 372–378
amplified fragment length polymorphism, 375
arbitrarily primed PCR, 374–375
combined use of molecular methods, 377–378
general aspects, 372–374
genotypic methods, 373–374, 378
multilocus enzyme electrophoresis, 374
PCR, 374–375
PCR for DNA flanked by insertion elements, 375
PCR for repetitive sequences, 375
PCR for rRNA gene spacer sequences, 375
phenotypic methods for S. aureus, 373
plasmid profile analysis, 374
requirement for typing systems, 372–373
restriction fragment length polymorphism, 374
sequence-based, 375–376
spa-sequence typing, 376, 377
Urinary tract infection, enterococci, 303
Vaccine(s)
B. anthracis, 667
delivery, L. monocytogenes, 615
diphtheria, 726, 733
group A streptococcal pharyngitis, 113–122
gram-positive commensals as vectors, 117
immunization with conserved region peptides, 116–117
mucosal vaccine, 115–116
new generation vaccine, 118–119
non-M-protein approaches, 119–120
passive protection, 116
type-specific protection, 114–115
vaccinia virus as vector, 117
group B streptococci, 177–181
capsular polysaccharide vaccine, 177–178
clinical trials with Ia-TT and Ib-TT vaccines, 180
clinical trials with II-TT vaccine, 180
clinical trials with III-TT vaccine, 180
clinical trials with V-TT and V-CRM197 vaccines, 180–181
polysaccharide-protein conjugate vaccine, 177–180
*S. pneumoniae*, 289–298
capsular polysaccharide vaccine, 242
multivalent protein vaccine, 293
pneumococcal capsular surface protein, 289–290
pneumolysin, 291–292
polysaccharide-protein conjugate vaccines, 290
protein vaccines, 291
staphylococci, 460–461
strategies using animal models, 539
Vaccinia virus, vector for group A streptococcal vaccine, 117
Valvulitis
adhesion and extravasation of T lymphocytes into ARF
valve in, *color illustration for Chapter 7, Figure 5*
van genes, enterococci, 789–793
Vancomycin, 786
Vancomycin resistance, 786–787
enterococci, 315–316
staphylococci, 448–449
VanA and VanB systems, *color illustration for Chapter 26, Figure 1*
Variable genetic elements, *S. aureus*, 410
Virulence factors
*C. difficile*, 710
*C. diphtheriae*, 727
enterococcal, 299, 300
group A streptococci, 53, 124, 134–136
group B streptococci, 152–168
oral streptococci, 337
*S. epidermidis*, 564–567
*S. mutans*, 343
*S. pneumoniae*, 241–242, 262
staphylococcal capsule, 460
Virulence genes
*B. anthracis*, 665–666
fixation, prophage genomes, 136–138
*L. ivanovii*, 634–635
*L. monocytogenes*, 634–645
staphylococcal, 497–499
Virulon
genetics, *S. aureus*, 497–499
regulation, *S. aureus*, 499–511
TCS modules affecting, *color illustration for Chapter 41, Figure 3*
Vitronectin
binding to gram-positive pathogens, 94
binding to group C streptococci, 215
binding to group G streptococci, 215
structure and function, 91–92
Wound botulism, 688
Wound infection, staphylococci, animal models, 536–537
X protein, group B streptococci, 177
Xylose, utilization in staphylococci, 430
*Yersinia pseudotuberculosis*, 30
Zipper phagocytosis, streptococci, 30–31