


VOLUME I

PART 1 **STRUCTURE AND FUNCTION OF BONE, JOINTS, AND CONNECTIVE TISSUE**

- 1** **Biology of the Normal Joint, 1**
STEVEN R. GOLDRING • MARY B. GOLDRING
- 2** **Synovium, 23**
BARRY BRESNIHAN • ADRIENNE M. FLANAGAN
- 3** **Cartilage and Chondrocytes, 37**
MARY B. GOLDRING
- 4** **Biology, Physiology, and Morphology of Bone, 71**
JANET E. RUBIN • CLINTON T. RUBIN
- 5** **Muscle: Anatomy, Physiology, and Biochemistry, 93**
JODY A. DANTZIG • EUGENIA C. PACHECO-PINEDO •
YALE E. GOLDMAN
- 6** **Joint Biomechanics: The Role of Mechanics in Joint Pathology, 107**
PAUL L. BRIANT • THOMAS P. ANDRIACCHI
- 7** **Proteinases and Matrix Degradation, 115**
YASUNORI OKADA

PART 2 **CELLS INVOLVED IN AUTOIMMUNE DISEASES AND INFLAMMATION**

- 8** **Mononuclear Phagocytes in Rheumatic Diseases, 135**
SIAMON GORDON
- 9** **T Lymphocytes, 155**
RALPH C. BUDD • KAREN A. FORTNER
- 10** **B Cells , 177**
BETTY DIAMOND • CHRISTINE GRIMALDI
- 11** **Fibroblasts and Fibroblast-like Synoviocytes, 201**
THOMAS PAP • STEFFEN GAY
- 12** **Neutrophils and Eosinophils, 215**
MICHAEL H. PILLINGER • JOSE U. SCHER •
STEVEN B. ABRAMSON
- 13** **Mast Cells, 235**
PETER A. NIGROVIC • DAVID M. LEE
- 14** **Platelets and Rheumatic Diseases, 249**
FEDERICO DÍAZ-GONZÁLEZ • MARK H. GINSBERG

**PART
3****EFFECTOR MECHANISMS IN
AUTOIMMUNITY AND INFLAMMATION**


- 15 Autoimmunity, 259**
RICHARD M. SIEGEL • PETER E. LIPSKY
- 16 Innate Immunity, 277**
STEVEN A. PORCELLI
- 17 Adaptive Immunity Including Organization of
Lymphoid Tissues, 291**
MICHAEL L. DUSTIN
- 18 Genetics of Rheumatic Diseases, 305**
PETER K. GREGERSEN
- 19 Complement System, 323**
JOHN P. ATKINSON
- 20 Signal Transduction, 337**
JOHN C. SCATIZZI • HARRIS PERLMAN
- 21 Prostaglandins, Leukotrienes, and Related
Compounds, 343**
ROBERT B. ZURIER
- 22 Cell Recruitment and Angiogenesis, 357**
ZOLTÁN SZEKANECZ • ALISA E. KOCH
- 23 Cytokines, 367**
IAIN B. McINNES
- 24 Cell Survival and Death in Rheumatic Diseases, 379**
KEITH B. ELKON
- 25 Animal Models of Inflammatory Arthritis, 397**
WIM B. VAN DEN BERG
- 26 Neurologic Regulation of Inflammation, 411**
KATHLEEN A. SLUKA • KARIN N. WESTLUND-HIGH
- 27 Atherosclerosis in Rheumatoid Arthritis, 421**
NAVEED SATTAR • IAIN B. McINNES

**PART
4****BROAD ISSUES IN THE APPROACH
TO RHEUMATIC DISEASES**

- 28 Principles of Epidemiology in Rheumatic
Disease, 433**
JOANNE M. JORDAN
- 29 Economic Burden of Rheumatic Diseases, 439**
ANTHONY D. WOOLF

- 30 Clinical Trial Design and Analysis, 453**
ROBERT B.M. LANDEWÉ • DÉsirÉE M.F.M. VAN DER HEIJDE
- 31 Assessment of Health Outcomes, 463**
DORCAS ELEANOR BEATON • MAARTEN BOERS •
PETER TUGWELL
- 32 Biologic Markers, 475**
JEROEN DeGROOT • ANNE-MARIE ZUURMOND •
PAUL P. TAK
- 33 Occupational and Recreational Musculoskeletal
Disorders, 491**
RICHARD S. PANUSH
- 34 Integrative Medicine in Rheumatology:
An Evidence-Based Approach, 501**
ROBERT ALAN BONAKDAR • DAVID C. LEOPOLD
-

**PART 5 EVALUATION OF GENERALIZED AND
LOCALIZED SYMPTOMS**

- 35 History and Physical Examination of the
Musculoskeletal System , 515**
JOHN M. DAVIS III • KEVIN G. MODER • GENE G. HUNDER
- 36 Monarticular Arthritis, 533**
JOSEPH GOLBUS
- 37 Polyarticular Arthritis, 545**
JOHN S. SERGENT • HOWARD A. FUCHS
- 38 Fibromyalgia, 555**
FREDERICK WOLFE • JOHANNES J. RASKER
-

**PART 6 DIFFERENTIAL DIAGNOSIS OF REGIONAL
MUSCULOSKELETAL PAIN**

- 39 Neck Pain, 571**
CLINTON DEVIN • KARL SILLAY • JOSEPH S. CHENG
- 40 Shoulder Pain , 587**
SCOTT DAVID MARTIN • THOMAS S. THORNHILL
- 41 Low Back Pain, 617**
MICHAEL S. WILDSTEIN • EUGENE J. CARRAGEE
- 42 Hip and Knee Pain, 627**
JAMES I. HUDDLESTON • STUART B. GOODMAN
- 43 Foot and Ankle Pain , 643**
MARK D. PRICE • CHRISTOPHER P. CHIDO
- 44 Hand and Wrist Pain, 651**
CARRIE R. SWIGART
- 45 Temporomandibular Joint Pain, 665**
DANIEL J. LASKIN

46 The Eye and Rheumatic Diseases 🏠, 677

JAMES T. ROSENBAUM

47 The Skin and Rheumatic Diseases 🏠, 685

LELA A. LEE • VICTORIA P. WERTH

PART 7 **DIAGNOSTIC TESTS AND PROCEDURES IN RHEUMATIC DISEASES**

48 Synovial Fluid Analysis, Synovial Biopsy, and Synovial Pathology 🏠, 🎥, 703

HANI S. EL-GABALAWY

49 Arthrocentesis and Injection of Joints and Soft Tissue 🎥, 721

CHRISTOPHER M. WISE

50 Antinuclear Antibodies, 741

STANFORD L. PENG • JOSEPH E. CRAFT

51 Rheumatoid Factors and Other Autoantibodies in Rheumatoid Arthritis, 755

CARL S. GOODYEAR • HELEN TIGHE • IAIN B. McINNES

52 Acute-Phase Reactants and the Concept of Inflammation, 767

IRVING KUSHNER • STANLEY P. BALLOU

53 Imaging Modalities in Rheumatic Disease, 777

LEYLA ALPARSLAN • BARBARA N. WEISSMAN

PART 8 **MODALITIES OF THERAPY IN RHEUMATIC DISEASE**

54 Nonsteroidal Anti-inflammatory Drugs, 833

LESLIE R. BALLOU • BENJAMIN W.E. WANG

55 Glucocorticoid Therapy, 863

JOHANNES W.G. JACOBS • JOHANNES W.J. BIJLSMA

56 Methotrexate, Leflunomide, Sulfasalazine, Hydroxychloroquine, and Combination Therapies, 883

AMY C. CANNELLA • JAMES R. O'DELL

57 Immunoregulatory Drugs, 909

C. MICHAEL STEIN • H. GUY TAYLOR

58 Anticytokine Therapies, 929

ZUHRE TUTUNCU • ARTHUR KAVANAUGH

59 Cell-Targeted Biologics and Emerging Targets: Rituximab, Abatacept, and Other Biologics, 947

PETER C. TAYLOR

60 Chronic Musculoskeletal Pain, 963

MAREN LAWSON MAHOWALD • HOLLIS E. KRUG

- 61 Arthritis Self-Management, 993
KATE R. LORIG
- 62 Psychosocial Management of Rheumatic Diseases, 999
W. NEAL ROBERTS, JR.
- 63 Nutrition and Rheumatic Diseases, 1009
JOEL M. KREMER
- 64 Introduction to Physical Medicine and Rehabilitation, 1023
PETER R. OESCH • STEFAN BACHMANN

VOLUME II

PART 9

RHEUMATOID ARTHRITIS

- 65 Etiology and Pathogenesis of Rheumatoid Arthritis, 1035
GARY S. FIRESTEIN
- 66 Clinical Features of Rheumatoid Arthritis 📺, 1087
EDWARD D. HARRIS, JR. • GARY S. FIRESTEIN
- 67 Treatment of Rheumatoid Arthritis, 1119
MARK C. GENOVESE
- 68 Felty's Syndrome, 1145
ROBERT S. PINALS
- 69 Sjögren's Syndrome, 1149
STEVEN CARSONS

PART 10

SPONDYLOARTHROPATHIES

- 70 Ankylosing Spondylitis 📺, 1169
SJEFF M. VAN DER LINDEN • DÉSIRÉE VAN DER HEIJDE •
WALTER P. MAKSYMOWYCH
- 71 Undifferentiated Spondyloarthritis and Reactive Arthritis 📺, 1191
DAVID TAK YAN YU • DENNIS MCGONAGLE •
HELENA MARZO-ORTEGA • FILIP VAN DEN BOSCH •
MARJATTA LEIRISALO-REPO
- 72 Psoriatic Arthritis 📺, 📺, 1201
OLIVER FITZGERALD
- 73 Enteropathic Arthritis 📺, 1219
FRANK A. WOLLHEIM

PART 11

SYSTEMIC LUPUS ERYTHEMATOSUS AND RELATED SYNDROMES

- 74 Pathogenesis of Systemic Lupus Erythematosus, 1233
BEVRA HANNAHS HAHN • BETTY P. TSAO

- 75 Clinical Features and Treatment of Systemic Lupus Erythematosus, 1263**
IOANNIS O. TASSIULAS • DIMITRIOS T. BOUMPAS
- 76 Antiphospholipid Syndrome 🏠, 1301**
DORUK ERKAN • JANE E. SALMON • MICHAEL D. LOCKSHIN

PART 12 SCLERODERMA, INFLAMMATORY MYOPATHIES, AND OVERLAP SYNDROMES

- 77 Systemic Sclerosis and the Scleroderma-Spectrum Disorders, 1311**
JOHN VARGA • CHRISTOPHER P. DENTON
- 78 Inflammatory Diseases of Muscle and Other Myopathies, 1353**
KANNEBOYINA NAGARAJU • INGRID E. LUNDBERG
- 79 Overlap Syndromes, 1381**
ROBERT M. BENNETT

PART 13 VASCULITIS

- 80 The Classification and Epidemiology of Systemic Vasculitis, 1401**
JOHN H. STONE
- 81 Giant Cell Arteritis, Polymyalgia Rheumatica, and Takayasu's Arteritis, 1409**
DAVID B. HELLMANN
- 82 Antineutrophil Cytoplasmic Antibody–Associated Vasculitis, 1429**
LEONARD H. CALABRESE • EAMONN S. MOLLOY • GEORGE F. DUNA
- 83 Polyarteritis and Related Disorders, 1453**
JOHN S. SERGENT
- 84 Isolated Angiitis of the Central Nervous System, 1461**
JOHN S. SERGENT
- 85 Immune Complex–Mediated Small Vessel Vasculitis, 1465**
JOHN H. STONE
- 86 Behçet's Disease, 1475**
B. ASHER LOUDEN • JOSEPH L. JORIZZO

PART 14 CRYSTAL-INDUCED INFLAMMATION

- 87 Gout and Hyperuricemia 🏠, 1481**
ROBERT L. WORTMANN

- 88 Diseases Associated with Articular Deposition of Calcium Pyrophosphate Dihydrate and Basic Calcium Phosphate Crystals 📺, 1507
ROBERT TERKELTAUB

PART 15 **CARTILAGE, BONE, AND HERITABLE CONNECTIVE TISSUE DISORDERS**

- 89 Pathogenesis of Osteoarthritis, 1525
PAUL E. DI CESARE • STEVEN B. ABRAMSON • JONATHAN SAMUELS
- 90 Clinical Features of Osteoarthritis 📺, 1547
JÉRÉMIE SELLAM • FRANCIS BERENBAUM
- 91 Management of Osteoarthritis, 1563
CARLOS J. LOZADA
- 92 Metabolic Bone Disease, 1579
NANCY E. LANE
- 93 Proliferative Bone Diseases, 1601
REUVEN MADER
- 94 Osteonecrosis, 1611
CHRISTOPHER CHANG • ADAM GREENSPAN • M. ERIC GERSHWIN
- 95 Relapsing Polychondritis, 1629
JEAN-CHARLES PIETTE • PHILIPPE VINCENEUX
- 96 Heritable Diseases of Connective Tissue, 1635
DEBORAH KRAKOW

PART 16 **RHEUMATIC DISEASES OF CHILDHOOD**


- 97 Juvenile Idiopathic Arthritis 📺, 1657
KIRAN NISTALA • PATRICIA WOO • LUCY R. WEDDERBURN
- 98 Systemic Lupus Erythematosus, Juvenile Dermatomyositis, Scleroderma, and Vasculitis 📺, 1677
JAMES T. CASSIDY

PART 17 **INFECTION AND ARTHRITIS**

- 99 Bacterial Arthritis, 1701
GEORGE HO, JR. • DAWD S. SIRAJ • PAUL P. COOK
- 100 Lyme Disease, 1715
LINDA K. BOCKENSTEDT

- 101 Mycobacterial Infections of Bones and Joints, 1729**
WALTER G. BARR • J. TIMOTHY HARRINGTON •
JOHN P. FLAHERTY
- 102 Fungal Infections of the Bones and Joints, 1739**
J. TIMOTHY HARRINGTON • JOHN P. FLAHERTY •
WALTER G. BARR
- 103 Rheumatic Manifestations of Human
Immunodeficiency Virus Infection, 1747**
JOHN D. REVELLE • RASHMI M. MAGANTI
- 104 Viral Arthritis, 1761**
STANLEY J. NAIDES
- 105 Poststreptococcal Arthritis and Rheumatic
Fever, 1771**
ALLAN GIBOFSKY • JOHN B. ZABRISKIE
-

**PART
18 ARTHRITIS ACCOMPANYING SYSTEMIC
DISEASE**

- 106 Amyloidosis, 1785**
DAVID C. SELDIN • MARTHA SKINNER
- 107 Sarcoidosis, 1795**
LEE S. NEWMAN • HOLLY M. SACKETT
- 108 Hemochromatosis, 1809**
GAYE CUNNANE
- 109 Hemophilic Arthropathy, 1817**
KATHERINE S. UPCHURCH • DOREEN B. BRETTLER
- 110 Rheumatic Manifestations of
Hemoglobinopathies, 1827**
KENNETH C. KALUNIAN • BOB SUN
- 111 Arthritis Accompanying Endocrine and Metabolic
Disorders, 1833**
JOHN S. SERGENT
- 112 Musculoskeletal Syndromes in Malignancy, 1841**
ELIZA F. CHAKRAVARTY
- 113 Familial Autoinflammatory Syndromes, 1863**
ANNA SIMON • JOS W.M. VAN DER MEER •
JOOST P.H. DRENTH
- 114 Tumors and Tumor-like Lesions of Joints
and Related Structures , 1883**
ANDREW E. ROSENBERG
-