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Nota di contenuto	Cover; Title page; Copyright page; Contents; Contributors; Primer Corporate Sponsors; Preface to the Eighth Edition of the Primer; About ASBMR; President's Preface; About the Companion Website; Section I: Molecular Cellular and Genetic Determinants of Bone Structure and Formation; 1: Skeletal Morphogenesis and Embryonic Development; Early Skeletal Patterning; Craniofacial patterning; Axial patterning; Limb patterning; Embryonic Cartilage and Bone Formation; Chondrocyte Proliferation and Differentiation in The Developing Cartilage; Regulation of Chondrocyte Survival; Conclusions; References 2: Signal Transduction Cascades Controlling Osteoblast DifferentiationIntroduction; Runx2 and Osterix Transcription Factors; BMP Signaling; TGF- Signaling; WNT Signaling; Hedgehog Signaling; PTH Signaling; IGF-1 Signaling; FGF Signaling; Notch Signaling; Concluding Remarks; Acknowledgments; References; 3: Osteoclast Biology and Bone Resorption; Cell Biology of The Osteoclast; Integrin Signaling; Small GTPases; Factors Regulating Osteoclast Formation And/Or Function; Proteins; Small molecules; Cell-Cell Interactions in Bone Marrow; Intracellular Signaling Pathways; Human Genetics; References 4: OsteocytesIntroduction; Osteocyte Ontogeny; Osteocytes as

Orchestrators of Bone (Re)Modeling; Osteocyte Cell Death and Apoptosis; Osteocyte Modification of Their Microenvironment; Mechanosensation and Transduction; Role of Gap Junctions and Hemichannels in Osteocyte Communication; The Potential Role of Osteocytes in Bone Disease; Acknowledgment; References; 5: Connective Tissue Pathways That Regulate Growth Factors; Introduction; The Fibrillinopathies; Fibrillin Microfibrils; Regulation of Growth Factors by Fibrillin Microfibrils; Molecular Mechanisms Orchestrated on a Microfibril Scaffold

SummaryAbbreviations; References; 6: The Composition of Bone; Introduction; The Composite; The mineral; Collagen; Noncollagenous Proteins; Serum-derived proteins; Proteoglycans; Glycosylated proteins; Small integrin-binding ligand, N-glycosylated protein, and other glycoproteins with cell attachment activity; Gla-containing proteins; Other Components; References; 7: Assessment of Bone Mass and Microarchitecture in Rodents; Introduction; Radiographs; Peripheral Dual-Energy X-Ray Absorptiometry; Peripheral Quantitative Computed Tomography; Magnetic Resonance Imaging; Microcomputed Tomography

Nanocomputed TomographyImaging Considerations; Voxel size and image resolution; Segmentation; Skeletal site and volume of interest; Calibration; Other considerations; Conclusions; References; 8: Animal Models: Genetic Manipulation; Introduction; Overexpression of Target Genes; Chondrocytes; Osteoblasts; Tendon and ligament; Osteoclasts; Advantages and disadvantages of overexpression approaches; Gene Targeting; Advantages and disadvantages of gene targeting; Tissue-Specific and Inducible Knockout and Overexpression; Uncondensed mesenchyme, mesenchymal condensations, and neural crest; Cartilage Osteoblasts

Sommario/riassunto

Primer on the Metabolic Bone Diseases and Disorders of Mineral Metabolism, 8th Edition is the comprehensive revision of the field-leading reference on bone and mineral health. The eighth edition has been fully revised by the leading researchers and clinicians in the field to provide concise coverage of the widest possible spectrum of metabolic bone diseases and disorders of mineral metabolism. Chapters look to explain basic biological factors of healthy development and disease states and make it easily translatable to clinical interventions.

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