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Nota di contenuto	Standards of Mouse Model Phenotyping; Foreword; Table of Contents; Preface; 1 Characterizing Hearing in Mice; 1.1 Introduction; 1.2 Behavioral Tests of Hearing; 1.3 Physiological Tests of Hearing; 1.4 Anatomy of the Ear; 1.5 Conclusions; Acknowledgements; 2 Molecular Phenotyping: Gene Expression Profiling; 2.1 Why this Screen? Medical and Biological Relevance; 2.2 Examples: Diseases of Mouse and Man; 2.3 Diagnostic Methods: History and State of the Art; 2.4 Technical Requirements for Screening Protocols (Short): First and Second Line Approaches; 2.5 Logistics (Whom, When, How Many, Why) 2.5.1 Choice of Platform2.5.2 Biological Samples; 2.6 Trouble Shooting; 2.6.1 Preparation of Hybridization Target; 2.6.2 Critical Issues of Chip

Hybridization; 2.6.3 Image Processing and Array Design; 2.7 Short-term Outlook; 3 Screening for Bone and Cartilage Phenotypes in Mice; 3.1 Introduction; 3.1.1 The Skeleton; 3.1.2 Skeletal Development in the Embryo; 3.1.3 Growth and Maintenance of Bone and Cartilage; 3.1.4 Diseases Involving Cartilage and Bone; 3.1.5 The Mouse as a Model for Skeletal Diseases; 3.2 Screening Protocols; 3.2.1 Morphological Analysis; 3.2.1.1 Protocol; 3.2.2 X-Ray Analysis; 3.2.2.1 General; 3.2.2.2 Imaging; 3.2.2.3 X-Ray Analysis; 3.2.2.4 Protocol; 3.2.3 DXA-Analysis; 3.2.3.1 General; 3.2.3.2 Advantages; 3.2.3.3 Disadvantages; 3.2.3.4 Small Animal Applications; 3.2.3.5 Precision and Accuracy; 3.2.3.6 Considerations; 3.2.3.7 Protocol; 3.2.4 Biochemical Bone Markers; 3.2.4.1 Clinical Utility of Biochemical Markers of Bone Turnover in Small Animals; 3.2.4.2 Mouse Markers of Bone Turnover/Metabolism and Hormonal Regulation; 3.2.4.3 Variability/Sensitivity/Sample Choice; 3.2.4.4 Which Markers Should be Used During the Screen?; 3.2.5 Advanced Small Animal Imaging Techniques; 3.2.5.1 pQCT; 3.2.5.2 CT; 3.2.5.3 MRI; 3.2.5.4 Whole-mount Skeletal Preparations; 3.2.5.5 Histomorphometry; 3.2.5.6 Miscellaneous; 3.2.5.7 Order of the Tests; 3.3 Conclusion; List of Abbreviations; Appendix; CT Volumetric Data Processing; MRI Principles; 4 Clinical Chemical Screen; 4.1 Introduction; 4.1.1 Relevance of the Screen; 4.1.2 Biology and Medical Application; 4.1.2.1 Biology of Clinical Chemical Parameters; 4.1.2.2 Medical Application; 4.2 Diseases in Mouse and Humans; 4.2.1 Diagnostic Impact of Clinical Chemistry; 4.2.2 Clinical Chemistry in Selected Disorders; 4.2.2.1 Hypercholesterolemia; 4.2.2.2 Albuminuria; 4.2.2.3 Acute Myeloid Leukemia (AML); 4.3 Clinical Chemistry as Diagnostic Tool; 4.3.1 History; 4.3.2 State of the Art; 4.4 Technical Requirements and Screening Protocols; 4.4.1 Technical Requirements; 4.4.1.1 Blood Collection; 4.4.1.2 Sample Preparation; 4.4.1.3 Sample Analysis; 4.4.2 Screening Protocols; 4.4.2.1 Primary Screen; 4.4.2.2 Secondary Screen; 4.4.2.3 Tertiary Screen; 4.5 Logistics of the Screen; 4.5.1 General Considerations; 4.5.2 Lessons from ENU Mutants; 4.6 Trouble Shooting; 4.6.1 Factors Interfering In Vivo

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## Sommario/riassunto

This is the first book in the field of mouse genetics to provide comprehensive and standardized methods for the characterization of laboratory mice. The editor is Director of the German Mouse Clinic and member of the Project Committee of the German National Genome Research Network and provides here a brief introduction to the mouse as a model for diseases and functional analysis of genes and proteins. Throughout, he focuses on the characterization of mouse models using the latest phenotyping methods, with the different areas presented in a clearly structured and easily accessible manner.

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