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| Altri autori (Persone) | ChalupaLeo M WilliamsRobert W. <1952-> |
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| Soggetti | Mice - Sense organs Eye Visual pathways Electronic books. |
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| Nota di contenuto | Contents; Preface; I - Introduction to the Mouse as a Species and Research Model; 1 Evolutionary History of the Genus Mus; 2 Visual and Other Sensory Abilities of Mice and Their Influence on Behavioral Measures of Cognitive Function; 3 Comparative Survey of the Mammalian Visual System with Reference to the Mouse; 4 Survey of the Research Opportunities Afforded by Genetic Variation in the Mouse Visual System; II - Optics, Psychophysics, and Visual Behaviors of Mice; 5 The Mouse as a Model for Myopia, and Optics of Its Eye; 6 Characteristics and Applications of Mouse Eye Movements 7 Measuring Vision in the Awake Behaving Mouse8 Electroretinographic Correlates of Normal and Abnormal Retinal Ganglion Cell Activity; III - Organization of the Adult Mouse Eye and Central Visual System; 9 Aqueous Humor Dynamics and Trabecular Meshwork; 10 Recent Advances in the Investigation of Mouse Cone Photoreceptors; 11 Mosaic Architecture of the Mouse Retina; 12 Synaptic Organization of the Mouse Retina; 13 Distribution and Functional Roles of Neuronal Gap Junctions in the Mouse Retina; 14 Neurotransmission in the Mouse |

Retina

15 Morphological, Functional, and Developmental Properties of Mouse Retinal Ganglion Cells; 16 The Lamina Cribrosa Region and Optic Nerve of the Mouse; 17 Photoentrainment of the Circadian Oscillator; 18 Physiology of the Mouse Dorsal Lateral Geniculate Nucleus; 19 Superior Colliculus and Saccade Generation in Mice; 20 Interconnections of Visual Cortical Areas in the Mouse; IV - Development of the Mouse Eye; 21 Chronology of Development of the Mouse Visual System: Comparisons with Human Development; 22 Developmental Studies of the Mouse Lens: Past, Present, and Future; 23 Development of the Retinal Vasculature and the Effects of High Oxygen (Retinopathy of Prematurity); 24 Specification, Histogenesis, and Photoreceptor Development in the Mouse Retina; 25 Rb and the Control of Retinal Development; 26 Gene Regulatory Networks and Retinal Ganglion Cell Development; 27 Cell Death in the Mouse Retina; 28 The Function of the Retina prior to Vision: The Phenomenon of Retinal Waves and Retinotopic Refinement; 29 ON and OFF Pathways in the Mouse Retina and the Role of Stimulation; 30 Retinoic Acid Function in Central Visual Pathways; V - Development and Plasticity of Retinal Projections and Visuotopic Maps; 31 Intraretinal Axon Guidance; 32 Early Development of the Optic Stalk, Chiasm, and Astrocytes; 33 Axon Growth and Regeneration of Retinal Ganglion Cells; 34 Development of the Retinogeniculate Pathway; 35 Developmental Synaptic Remodeling: Insights from the Mouse Retinogeniculate Synapse; 36 Ocular Dominance Plasticity; 37 Environmental Enrichment and Visual System Plasticity; 38 Bidirectional Experience-Dependent Plasticity in Primary Visual Cortex; VI - Mouse Models of Human Eye Disease; 39 Mouse Models: A Key System in Revolutionizing the Understanding of Glaucoma

Sommario/riassunto

A comprehensive guide to current research, reflecting recent technical breakthroughs that have established the usefulness of the mouse model as part of a bilateral exchange between experimental and clinical research. Recent years have seen a burst of studies on the mouse eye and visual system, fueled in large part by the relatively recent ability to produce mice with precisely defined changes in gene sequence. Mouse models have contributed to a wide range of scientific breakthroughs for a number of ocular and neurological diseases and have allowed researchers to address fundamental issues that were difficult to approach with other experimental models. This comprehensive guide to current research captures the first wave of studies in the field, with fifty-nine chapters by leading scholars that demonstrate the usefulness of mouse models as a bridge between experimental and clinical research. The opening chapters introduce the mouse as a species and research model, discussing such topics as the mouse's evolutionary history and the mammalian visual system. Subsequent sections explore more specialized subjects, considering optics, psychophysics, and the visual behaviors of mice; the organization of the adult mouse eye and central visual system; the development of the mouse eye (including comparisons to human development); the development and plasticity of retinal projections and visuotopic maps; mouse models for human eye disease (including glaucoma and cataracts); and the application of advanced genomic technologies (including gene therapy and genetic knockouts) to the mouse visual system. Readers of this unique reference will see that the study of mouse models has already demonstrated real translational prowess in vision research.

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