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Nota di contenuto	Preface -- Part 1 Basics on coenzyme Q -- Introduction. The current coenzyme Q science and knowledge -- Molecular structure, biosynthesis, and distribution of coenzyme Q -- Coenzyme Q function in mitochondria -- Extramitochondrial coenzyme Q10 in aging -- Regulation of the synthesis of Coenzyme Q10 -- Part 2 Coenzyme Q in aging studies -- Coenzyme Q and aging in C. elegans -- Coenzyme Q and aging in the fruit fly Drosophila melanogaster -- The aging process and coenzyme Q: clk-1 mouse models -- Reduced coenzyme Q10 decelerates senescence and age-related hearing loss in senescence-accelerated mice by activating mitochondrial functions -- Part 3 Age-

related diseases and coenzyme Q -- Coenzyme Q, mtDNA and mitochondrial dysfunction during aging -- Coenzyme Q10 and metabolic syndrome -- Coenzyme Q and age-related neurodegenerative disorders: Parkinson and Alzheimer diseases -- Immunosenescence and CoQ10 -- Coenzyme Q10 in fertility and reproduction -- Part 4 Prolongevity effectors and Coenzyme Q -- Calorie restriction, longevity and coenzyme Q -- Age dependent changes of coenzyme Q levels and its induction in experimental systems -- Effects of coenzyme Q10 supplementation on elderly people -- Index.

Sommario/riassunto

This book offers a comprehensive exploration of research on the essential relationship of the coenzyme Q10 and the process of aging in living organisms. CoQ10 is an important factor in two main aspects of cell physiology: bioenergetics and antioxidant protection. While primary deficiency of CoQ10 is associated with severe and lethal disease, secondary deficiency can be associated with the progression of mitochondrial dysfunction linked to the lessening of biological activities during aging. The book is organized in four sections. The first offers an overview of the function of CoQ10, highlighting the two main functions of CoQ10 in cells: its essential role as electron transport chain member in mitochondria, and the protection of cell membranes against oxidation as one of the main endogenous-synthesized antioxidants. The second section covers research on Coenzyme 10. Topics include studies involving invertebrate models, mammal studies and the influence of CoQ on longevity. Also covered is research involving the role of CoQ in senescence-accelerated mice. Section three examines the effects of reduced CoQ in human aging, as evident in mitochondrial dysfunction, metabolic syndrome, neurodegenerative disorders, immunosenescence and fertility and reproduction. The final section, Prolongevity effectors and Coenzyme Q, explores research into slowing or stopping the aging process. Coverage includes strategies including calorie restriction, and modulation of CoQ10 levels by induction of synthesis or by supplementation. Coenzyme Q in Aging benefits a broad readership of researchers, clinicians, educators and students interested in the biochemical and physiological effects of coenzyme Q and the importance of this molecule in aging process.
