Redox signaling and biomarkers in ageing /

Çakatay, Ufuk, editor

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Monografía

This book aims to present the age-related alterations in redox signaling networks and their diagnostic biomarkers in aging cells using multidisciplinary approach. Establishing sensitive and specific biomarkers of dynamic redox homeostasis is crucially important in the development of effective antiaging and senolytic interventions. Recent years have seen tremendous advances in the understanding of redox signaling events which highlight the process of aging and age-related pathologies. A major challenge in biological aging research is developing reliable biomarkers to determine the consequences of disrupted redox signaling networks long before the clinical diagnosis of age-related diseases is made. Therefore, we have chosen to concentrate on aging-induced aberrant redox signaling networks, their biomarkers, and pathological consequences in this book. Although oxidation is a natural metabolic process, the imbalance in the level of oxidants and antioxidants causes oxidative stress and eventually leads to inflammatory conditions, diabetes, neurodegenerative diseases, and cancer. Novel redox-sensitive biomarkers for the evaluation of aging-induced proteinopathies such as amyloid and tau proteins in Alzheimer's disease, [alpha]-synuclein in Parkinson's disease, and islet amyloid polypeptides in type 2 diabetes mellitus recently drew the attention of researchers. Inside this textbook, readers will find comprehensive perspectives on the association between redox homeostasis and the aging process both at the molecular and clinical levels. Due to the inherent relationship between impaired metabolic activities and oxidative stress, the temporal interaction between intermediary metabolism and disturbed redox status can lead to greater susceptibility to aging-induced diseases and disorders, such as cardiovascular diseases, hypertension, and diabetes. This knowledge could be a key to continued research toward improving medication regimens such as in cancer and cardiovascular therapies, and procedural outcomes for patients. This book brings together current research evidence and knowledge on redox signaling and biomarkers in aging in chapters written by leading global experts in this rapidly evolving field. We hope that this textbook is of interest to a wide group of researchers, advanced students, scientifically curious non-specialist readers and clinicians alike

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Baratz Innovación Documental

- Gran Vía, 59 28013 Madrid
- (+34) 91 456 03 60
- informa@baratz.es