

GSA releases most comprehensive textbook on basic biology of aging to date

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A new e-book published by The Gerontological Society of America (GSA) provides a primary resource for detailed overviews of the aging process across multiple organisms—from microbes to humans. This seminal publication, "Molecular and Cellular Biology of Aging," is intended as a textbook for emerging scholars of all levels.

Its contents explore how basic aging processes relate to age-related disease, how aging and longevity are subject to both gene-gene and gene-environment interactions, and how greatly increased insight into these relationships can help scholars design rational strategies for intervention.

The lead editors are Jan Vijg, PhD, of the Albert Einstein College of Medicine; Judith Campisi, PhD, of the Buck Institute for Research on Aging and the Lawrence Berkeley National Laboratory; and Gordon J. Lithgow, PhD, of the Buck Institute for Research on Aging.

"Aging research has undergone a revolution in scientific understanding and potential for meaningful intervention in the last two decades," Campisi said. "Consequently, the field is attracting an unprecedented number of students, new postdoctoral fellows, and accomplished scientists working in other fields."

The book is broken down into ten sections—with a total of 34 chapters authored by dozens of the world's top scholars in the biological sciences.

"This long-awaited textbook provides the first comprehensive

description of modern thinking, experimental results, interpretations and controversies in this growing and fast-evolving field. The e-book format will allow frequent updates, making the textbook a unique and perpetually contemporary guide to the field," Campisi added.

The book begins with an introduction to the science of aging, with a strong focus on its relevance to aging populations and its biological foundations in the evolutionary history of life. It then discusses what is known about aging in intact (mostly model) organisms, and proceeds to focus on ever-finer components of intact organisms: the aging of specific tissues, the cellular bases of aging, [age](#)-related changes in subcellular compartments, and finally the aging of biological macromolecules, such as lipids, proteins, and DNA. The final pages offer chapters on the systems biology of aging and possible interventions. Throughout the text, the authors pay special attention to the aging-disease relationship and various theories of aging.

"While not neglecting necessary details, this book focuses on providing insights from basic principles and common characteristics of aging across species," the lead authors state in their introduction. "We firmly believe that deep insight and understanding of solid principles are essential for ultimately developing interventions that might enable us to view aging as we now view disease—that is, as a condition amenable to treatment."

More information: "Molecular and Cellular Biology of Aging" is available for download at www.geron.org/online-store.

Provided by The Gerontological Society of America

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