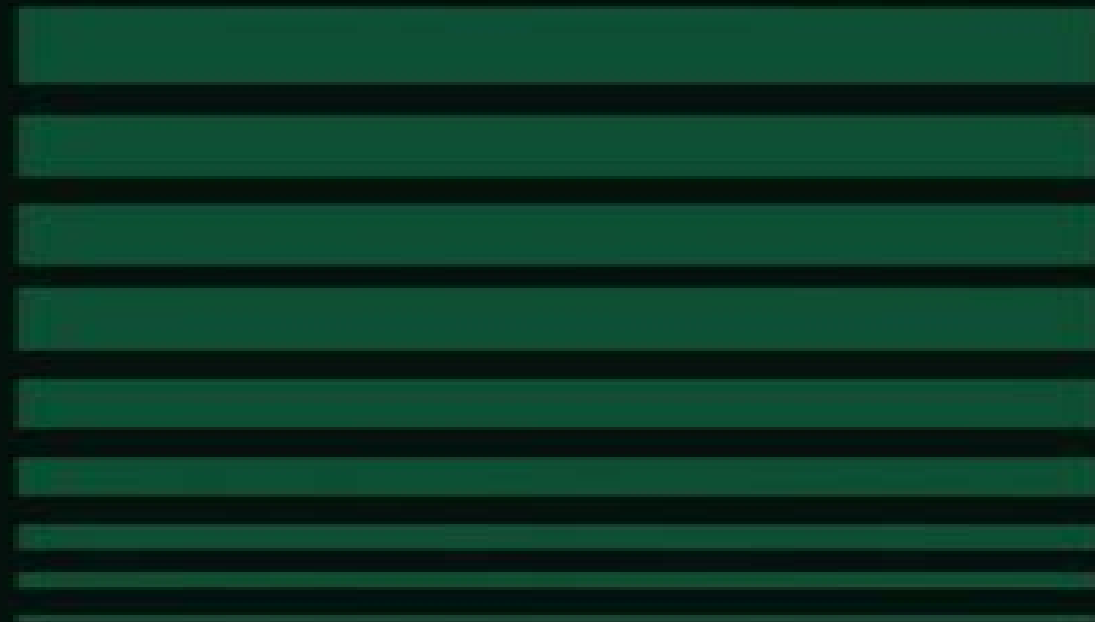


Longevity, Senescence, and the Genome

Caleb E. Finch

*With expanded and updated
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Longevity Senescence And The Genome Longevity Senescence And The Genome

**Howard M. Fillit, Kenneth
Rockwood, John B Young**



Longevity Senescence And The Genome Longevity Senescence And The Genome:

Longevity, Senescence, and the Genome Caleb E. Finch, 1994-05-16 Featuring extensive references updated for this paperback edition *Longevity Senescence and the Genome* constitutes a landmark contribution to biomedicine and the evolutionary biology of aging To enhance gerontology's focus on human age related dysfunctions Caleb E Finch provides a comparative review of all the phyla of organisms broadening gerontology to intersect with behavioral developmental evolutionary and molecular biology By comparing species that have different developmental and life spans Finch proposes an original typology of senescence from rapid to gradual to negligible and he provides the first multiphyletic calculations of mortality rate constants

Life-Span Extension Christian Sell, Antonello Lorenzini, Holly M. Brown-Borg, 2009-07-27 In recent years remarkable discoveries have been made concerning the underlying mechanisms of aging In *Life Span Extension Single Cell Organisms to Man* the editors bring together a range of illuminating perspectives from researchers investigating the aging process in a variety of species This novel work addresses the aging process in species ranging from yeast to man and among other subjects features detailed discussions of the naked mole rat an exceptionally long lived rodent the relationship between dietary factors food restriction and aging and an evolutionary view of the human aging process Single mutations that extend life span have been identified in yeast worms flies and mice whereas studies in humans have identified potentially important markers for successful aging At the same time it has been discovered that the genes and pathways identified in these studies involve a surprisingly small set of conserved functions most of which have been the focus of aging research for some time For example the mTOR pathway a regulator of translation and protein synthesis has been identified as a common longevity pathway in yeast and *Caenorhabditis elegans* In mammals this pathway intersects with neuroendocrine pathways and with the insulin like growth factor pathways which have been identified as major modulators of life span and aging in both invertebrates and mice Novel emerging technologies and the increasingly wide variety of systems that are now used to study aging and the mechanisms of aging provide enormous opportunities for the identification of common pathways that modulate longevity It is these common pathways that are the focus of this important volume

Longevity: To the Limits and Beyond Jean-Marie Robine, James W. Vaupel, Bernard Jeune, Michel Allard, 2012-12-06 Why longevity For a number of years the Fondation IPSEN has been devoting considerable effort to the various aspects of ageing not only to age related diseases such as Alzheimer's but also to the Centenarians the paragon of positive ageing The logical continuation of this approach is to address the question of longevity in global terms Behind the extreme values what span is accessible to all of us and likely to directly concern most of our contemporaries The individual and collective increase in the duration of life is one of the most striking phenomena of our time It could be one of the most significant events in the bio social history of humanity The increase in life expectancy at old age which started a few decades ago only is going on The most well advised observer had not foreseen or even dared hope for this increase which will

drastically affect our everyday life our habits and our behavior In the fragment of human history we are living in it is our responsibility to deal with this major transformation for the species Such a transformation needs an effort from all to adapt to the new conditions This transformation has to be managed rather than simply experienced anticipated rather than followed in order to avoid any attempt to pervert this major step forward All that was present during the first symposium of the new series on longevity of the Colloques Medecine et Recherche convened by the Fondation IPSSEN **Brocklehurst's**

Textbook of Geriatric Medicine and Gerontology E-Book Howard M. Fillit, Kenneth Rockwood, John B Young, 2016-05-06 The leading reference in the field of geriatric care Brocklehurst's Textbook of Geriatric Medicine and Gerontology 8th Edition provides a contemporary global perspective on topics of importance to today's gerontologists internal medicine physicians and family doctors An increased focus on frailty along with coverage of key issues in gerontology disease specific geriatrics and complex syndromes specific to the elderly makes this 8th Edition the reference you'll turn to in order to meet the unique challenges posed by this growing patient population Consistent discussions of clinical manifestations diagnosis prevention treatment and more make reference quick and easy More than 250 figures including algorithms photographs and tables complement the text and help you find what you need on a given condition Clinical relevance of the latest scientific findings helps you easily apply the material to everyday practice A new chapter on frailty plus an emphasis on frailty throughout the book addresses the complex medical and social issues that affect care and the specific knowledge and skills essential for meeting your patients complex needs New content brings you up to date with information on gerontechnology emergency and pre hospital care HIV and aging intensive treatment of older adults telemedicine the built environment and transcultural geriatrics New editor Professor John Young brings a fresh perspective and unique expertise to this edition **Biology of**

Longevity and Aging Robert Arking, 2019-01-10 An introductory text to the biology of aging and longevity offering a thorough review of the field *Aging is a Group-Selected Adaptation* Joshua Mitteldorf, 2017-02-03 Although books exist on the evolution of aging this is the first book written from the perspective of aging as an adaptive program It offers an insight into the implications of research on aging genetics The author proposes the Demographic Theory of Senescence whereby aging has been affirmatively selected because it levels the death rate over time helping stabilize population dynamics and prevent extinctions **Evolutionary Thinking in Medicine** Alexandra Alvergne, Crispin Jenkinson, Charlotte

Faurie, 2016-05-13 The aim of this edited book is to provide health professionals across a wide variety of specialisms with a targeted access to evolutionary medicine Throughout the book the views of both medical and evolutionary scientists on the latest relevant research is presented with a focus on practical implications The inclusion of boxes explaining the theoretical background as well as both a glossary for technical terms and a lay summary for non specialists enable medical researchers public health professionals policy makers physicians students scholars and the public alike to quickly and easily access appropriate information This edited volume is thus relevant to anyone keen on finding out how evolutionary medicine can

improve the health and well being of people *Handbook of the Biology of Aging* Edward J. Masoro, Steven N. Austad, 2011-04-28 The Handbook of the Biology of Aging Sixth Edition provides a comprehensive overview of the latest research findings in the biology of aging Intended as a summary for researchers it is also adopted as a high level textbook for graduate and upper level undergraduate courses The Sixth Edition is 20% larger than the Fifth Edition with 21 chapters summarizing the latest findings in research on the biology of aging The content of the work is virtually 100% new Though a selected few topics are similar to the Fifth Edition these chapters are authored by new contributors with new information The majority of the chapters are completely new in both content and authorship The Sixth Edition places greater emphasis and coverage on competing and complementary theories of aging broadening the discussion of conceptual issues Greater coverage of techniques used to study biological issues of aging include computer modeling gene profiling and demographic analyses Coverage of research on *Drosophila* is expanded from one chapter to four New chapters on mammalian models discuss aging in relation to skeletal muscles body fat and carbohydrate metabolism growth hormone and the human female reproductive system Additional new chapters summarize exciting research on stem cells and cancer dietary restriction and whether age related diseases are an integral part of aging The Handbook of the Biology of Aging Sixth Edition is part of the Handbooks on Aging series including Handbook of the Psychology of Aging and Handbook of Aging and the Social Sciences also in their 6th editions Biology of Aging Roger B. McDonald, 2019-06-07 Biology of Aging Second Edition presents the biological principles that have led to a new understanding of the causes of aging and describes how these basic principles help one to understand the human experience of biological aging longevity and age related disease Intended for undergraduate biology students it describes how the rate of biological aging is measured explores the mechanisms underlying cellular aging discusses the genetic pathways that affect longevity in various organisms outlines the normal age related changes and the functional decline that occurs in physiological systems over the lifespan and considers the implications of modulating the rate of aging and longevity The book also includes end of chapter discussion questions to help students assess their knowledge of the material Roger McDonald received his Ph D from the University of Southern California and is Professor Emeritus in the Department of Nutrition at the University of California Davis Dr McDonald s research focused on mechanisms of cellular aging and the interaction between nutrition and aging His research addressed two key topics in the field the relationship between dietary restriction and lifespan and the effect of aging on circadian rhythms and hypothalamic regulation You can contact Dr McDonald at rbmcdonald@ucdavis.edu Related Titles Ahmad S I ed Aging Exploring a Complex Phenomenon ISBN 978 1 1381 9697 1 Moody H R J Sasser Gerontology The Basics ISBN 978 1 1387 7582 4 Timiras P S Physiological Basis of Aging and Geriatrics ISBN 978 0 8493 7305 3 **Evolutionary Gerontology and Geriatrics** Giacinto Libertini, Graziamaria Corbi, Valeria Conti, Olga Shubernetskaya, Nicola Ferrara, 2021-05-25 This book provides concrete scientific basis that we can conceive the possibility of modifying or even completely canceling aging

process despite the fact that aging is commonly regarded as the result of the overall effects of many uncontrollable degenerative phenomena. The authors illustrate in detail the mechanisms by which cells and the whole organism age. Actions by which it is possible or will be possible within a limited time to operate for modifying aging are also debated. The discussion is conducted within the frame and the concepts of evolutionary medicine which is also indispensable for distinguishing between the manifestations of aging and i diseases that worsen with age and ii acceleration of normal aging rates caused by unhealthy lifestyle habits and other avoidable factors. The book also discusses the impact of aging on overall mortality and the strange situation that according to official statistics aging does not exist as cause of death. This book is a turning point between a gerontology and geriatrics conceived as the study and vain treatment of an incurable condition and one in which these disciplines examine the how and why of a physiological phenomenon that can be modified up to a possible total control. This means transforming the medical prevention and treatment of physiological aging from the greatest failure to the greatest success of medicine.

The Molecular Genetics of Aging Siegfried Hekimi, 2012-12-06. The molecular genetics of aging or life span determination is an expanding field. One reason is because many people would consider it desirable if human life span could be extended. Indeed it is difficult not to be fascinated by tales of the life and death of people who have succeeded in living a very long life. Because of this we have placed at the head of this book the chapter by Perls et al on Centenarians and the Genetics of Longevity. Perls and his coauthors convincingly argue that while the average life expectancy might be mostly determined by environmental factors because the average person has an average genotype extremely long life spans are genetically determined. Of course studying humans to uncover the genetics of aging is not ideal not so much because one cannot easily perform experiments as because they live such a long time. This is why most of this book describes the current state of research with model organisms such as yeast, worms, flies and mice. Jaswinski focuses on yeast and how metabolic activity and stress resistance affect the longevity of *Saccharomyces cerevisiae*. In the process he discusses the concept of aging as applied to a unicellular organism such as yeast and the importance of metabolism and stress resistance for aging in all organisms.

Cellular Communication in Plants R.M. Amasino, 2013-06-29. **Conn's Handbook of Models for Human Aging** Jeffrey L. Ram, P. Michael Conn, 2018-04-05. Conn's Handbook of Models for Human Aging Second Edition presents key aspects of biology, nutrition factors affecting lifespan, methods of age determination, use in research and the disadvantages/advantages of use. Using a multidisciplinary approach, this updated edition is designed as the only comprehensive current work that covers the diversity in aging models. Chapters on comparative models explore age-related diseases including Alzheimer's, joint disease, cataracts, cancer and obesity. Also included are new tricks and approaches not available in primary publications. This must-have handbook is an indispensable resource for researchers interested in the mechanisms of aging, gerontologists, health professionals, allied health practitioners and students. Combines both the methods of study for human aging and animal models. Provides a historical overview and

discussion of model availability key methods and ethical issues Contains over 200 full color illustrations *The Long and the Short of It* Jonathan Silvertown, 2022-12-22 A whimsical book on aging the author mixes art science and humor to brew a highly readable concoction presenting one aging theory after another Publishers Weekly Everything that lives will die That s the fundamental fact of life But not everyone dies at the same age people vary wildly in their patterns of aging and their life spans and that variation is nothing compared to what s found in other animal and plant species With *The Long and the Short of It* biologist and writer Jonathan Silvertown offers readers a witty and fascinating tour through the scientific study of longevity and aging Dividing his daunting subject by theme death life span aging heredity evolution and more Silvertown draws on the latest scientific developments to paint a picture of what we know about how life span senescence and death vary within and across species At every turn he addresses fascinating questions that have far reaching implications What causes aging and what determines the length of an individual life What changes have caused the average human life span to increase so dramatically fifteen minutes per hour in the past two centuries If evolution favors those who leave the most descendants why haven t we evolved to be immortal The answers to these puzzles and more emerge from close examination of the whole natural history of life span and aging from fruit flies nematodes redwoods and much more *The Long and the Short of It* pairs a perpetually fascinating topic with a wholly engaging writer and the result is a supremely accessible book that will reward curious readers of all ages Captivating and enlightening *The New York Times Well Blog* **Human**

Evolutionary Demography Oskar Burger, Ronald Lee, Rebecca Sear, 2024-06-14 Human evolutionary demography is an emerging field blending natural science with social science This edited volume provides a much needed interdisciplinary introduction to the field and highlights cutting edge research for interested readers and researchers in demography the evolutionary behavioural sciences biology and related disciplines By bridging the boundaries between social and biological sciences the volume stresses the importance of a unified understanding of both in order to grasp past and current demographic patterns Demographic traits and traits related to demographic outcomes including fertility and mortality rates marriage parental care menopause and cooperative behavior are subject to evolutionary processes Bringing an understanding of evolution into demography therefore incorporates valuable insights into this field just as knowledge of demography is key to understanding evolutionary processes By asking questions about old patterns from a new perspective the volume composed of contributions from established and early career academics demonstrates that a combination of social science research and evolutionary theory offers holistic understandings and approaches that benefit both fields **Human Evolutionary Demography** introduces an emerging field in an accessible style It is suitable for graduate courses in demography as well as upper level undergraduates Its range of research is sure to be of interest to academics working on demographic topics anthropologists sociologists demographers natural scientists working on evolutionary processes and disciplines which cross cut natural and social science such as evolutionary psychology human behavioral ecology cultural

evolution and evolutionary medicine As an accessible introduction it should interest readers whether or not they are currently familiar with human evolutionary demography *Molecular Basis of Aging* Alvaro Macieira-Coelho,2017-11-22 Using a new integrative approach *Molecular Basis of Aging* describes the aging phenomenon within mammalian organisms from the perspective of changes in information storage and coordination between hierarchical orders of structure This unique approach provides the reader with a thorough insight into the evolution of molecular cellular tissue and organ systems and processes in mammals This informative volume contains up to date reviews of **Principles and Practice of Geriatric Surgery** Ronnie Ann Rosenthal,Michael E. Zenilman,Mark R. Katlic,2013-06-29 More than two decades ago in response to the special healthcare needs of the aging American population interest in the field of geriatric medicine began to grow and blossom in the United States In 1984 and 1985 under the editorial leadership of Christine K Cassel and William R Hazzard respectively two major textbooks devoted to the medical care of aged patients were published These scholarly comprehensive texts provided insight into the principles of aging and guidance in the care of the geriatric patient Three editions later the need to understand the special issues involved in the medical care of the elderly is widely accepted by internists primary care providers and medical specialists For the editors of this book the special issues involved in the surgical care of the elderly have been apparent for nearly as long Although there have been a few scholarly texts on the subject including one in 1990 by Mark R Katlic general acceptance of the concept of geriatric surgery by our surgical and medical colleagues has however lagged This is not the result of a proportionately smaller number of older patients with surgical disease because cancer cardiovascular disease and orthopedic problems are diseases of the aged It is rather the result of uncertainty about the value of surgery in the elderly and concerns about the risks of operations In the past such concerns prevented primary care givers from referring patients for surgical care and prevented surgeons from agreeing to operate **Mismanagement of Marine Fisheries** Alan Longhurst,2010-04-22 Longhurst examines the proposition central to fisheries science that a fishery creates its own natural resource by the compensatory growth it induces in the fish and that this is sustainable His novel analysis of the reproductive ecology of bony fish of cooler seas offers some support for this but a review of fisheries past and present confirms that sustainability is rarely achieved The relatively open structure and strong variability of marine ecosystems is discussed in relation to the reliability of resources used by the industrial level fishing that became globalised during the 20th century This was associated with an extraordinary lack of regulation in most seas and a widespread avoidance of regulation where it did exist Sustained fisheries can only be expected where social conditions permit strict regulation and where politicians have no personal interest in outcomes despite current enthusiasm for ecosystem based approaches or for transferable property rights **Handbook of Nutrition in the Aged** Ronald Ross Watson,2008-10-20 Detailed Review of Nutritional Therapies Used to Combat Elderly Health Issues The combination of the aging baby boomer generation and their increased longevity has been fortunately met with increased research and greater

understanding of health promotion and disease prevention in the elderly Handbook of Nutrition in the Aged Fourth Edition shares *Sourcebook of Models for Biomedical Research* P. Michael Conn, 2008-03-07 The collection of systems represented in Sourcebook of genomic programs although this work is certainly well Models for Biomedical Research is an effort to reflect the represented and indexed diversity and utility of models that are used in biomedicine Some models have been omitted due to page limitations That utility is based on the consideration that observations and we have encouraged the authors to use tables and made in particular organisms will provide insight into the figures to make comparisons of models so that observations workings of other more complex systems Even the cell not available in primary publications can become useful to cycle in the simple yeast cell has similarities to that in the reader humans and regulation with similar proteins occurs We thank Richard Lansing and the staff at Humana for Some models have the advantage that the reproductive guidance through the publication process mitotic development or aging cycles are rapid compared As this book was entering production we learned of the with those in humans others are utilized because individual loss of Tom Lanigan Sr Tom was a leader and innovator proteins may be studied in an advantageous way and that in scientific publishing and a good friend and colleague to have human homologs Other organisms are facile to grow all in the exploratory enterprise We dedicate this book to in laboratory settings or lend themselves to convenient analysis his memory We will miss him greatly

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