

1. Record Nr.	UNINA9910465172503321
Autore	Vijg Jan
Titolo	Aging of the genome [[electronic resource]] : the dual role of DNA in life and death / / Jan Vijg
Pubbl/distr/stampa	Oxford, : Oxford University Press, 2007
ISBN	9786611145255 1-281-14525-4 0-19-856922-X 0-19-152458-1 1-4294-6993-5
Descrizione fisica	1 online resource (385 p.)
Disciplina	571.878
Soggetti	Aging - Genetic aspects Genomes Electronic books.
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	Contents; Preface; 1 Introduction: the coming of age of the genome; 1.1 The age of biology; 1.2 From genetics to genomics; 1.3 A return to function; 1.4 The causes of aging: a random affair; 2 The logic of aging; 2.1 Aging genes; 2.2 Pleiotropy in aging; 2.3 Interrupting the pathways of aging; 2.4 Longevity-assurance genes; 2.5 Somatic damage and the aging genome; 3 Genome structure and function; 3.1 DNA primary structure; 3.2 Higher-order DNA structure; 3.3 Nuclear architecture; 3.4 Transcription regulation; 3.5 Conclusions; 4 Genome maintenance; 4.1 Why genome maintenance? 4.2 DNA-damage signaling and cellular responses 4.3 DNA-repair mechanisms; 4.4 Genome maintenance and aging; 5 Genome instability and accelerated aging; 5.1 Premature aging; 5.2 Validity of accelerated-aging phenotypes; 5.3 Genome maintenance and accelerated aging in mice; 5.4 Conclusions; 6 The aging genome; 6.1 DNA damage; 6.2 DNA-sequence changes; 6.3 Changes in DNA modification and conformation; 6.4 Summary and conclusions: a DNA damage report of aging; 7 From genome to phenotype; 7.1 The causes of cancer; 7.2

Genome instability and tissue dysfunction

7.3 Testing the role of genome instability in aging8 A genomic limit to life?; 8.1 Aiming for immortality; 8.2 SENS, and does it make sense?; EPILOGUE; GLOSSARY; A; B; C; D; E; F; G; H; I; L; M; N; O; P; R; S; T; X; Y; Z; REFERENCES; INDEX; A; B; C; D; E; F; G; H; I; J; K; L; M; N; O; P; Q; R; S; T; U; V; W; X; Y; Z

Sommario/riassunto

Aging has long been ascribed to the gradual accumulation of mutations in the genome. However, it is only recently that the necessary sophisticated technology has been developed to begin testing this theory and its consequences. This book reviews the concept of genomic instability as a possible universal cause of aging in complex organisms resulting from recent advances in functional genomics and systems biology. - ;Aging has long since been ascribed to the gradual accumulation of DNA mutations in the genome of somatic cells. However, it is only recently that the necessary sophisticated technol