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Sommario/riassunto	Aging is a topic that concerns all of us, since none of us can escape it. The molecular and cellular process is built in every of the billions of

cells forming our body. Some of these cells, such as immune cells and red blood cells, live only for a few days to weeks and get life-long constantly replaced by cells produced in the bone marrow. In contrast, there are cells, such as neurons and memory lymphocytes, that get as old as we get. The process of aging limits our maximal life span, which is for our humans 120 years. However, only a very few individuals reached this age. How did their life differ from others that died decades earlier? Is it just the absence of life threatening disease paired with a more healthy life style? Or is it build in in our genome or epigenome? In this book we try to give answers to these questions from the perspectives of evolution, our genome, the epigenomes of our different tissues and cell types and the functionality of our cells. We should try to understand ourselves in detail as well as in a global setting. Basic biology explains cellular mechanisms, such as growth, differentiation, and cell death, which make life as a whole possible. Every (human) organism represents a complex interplay between hundreds of different cell types forming distinctive tissues and organs with specialized tasks. These processes need to be highly orchestrated especially during development, maintenance and aging. Studying the cellular and molecular basis of aging is one of the most fascinating areas but also a great challenge. Nevertheless, research made the biggest steps in elucidating biological processes via studying malfunctions of normal mechanisms leading to different diseases, such as progeroid syndrome and cancer. We will start this book with the understanding of the human genome in relation to principles of evolution. Then we will explain the basics of gene regulation and epigenetics, i.e., the interplay of transcription factors and chromatin. Next, we will shift to cellular mechanisms of aging and discuss then the impact of nutrition and immunity on the aging process. In the following the relation of aging to so-called aging-related common diseases, such as type 2 diabetes, atherosclerosis, cancer and Alzheimer. Do we get these diseases because we are aging or are we aging because we get one of these diseases? The book will end how we can slow down the aging process so that we can age healthy. In short, healthy aging is not an option but is a must. An ancient poem says "Teach us to number our days, that we may get a heart of wisdom." It is up to each one of us and a daily decision to live a healthy lifestyle and to be aware of the unique gift of live we all have. .
