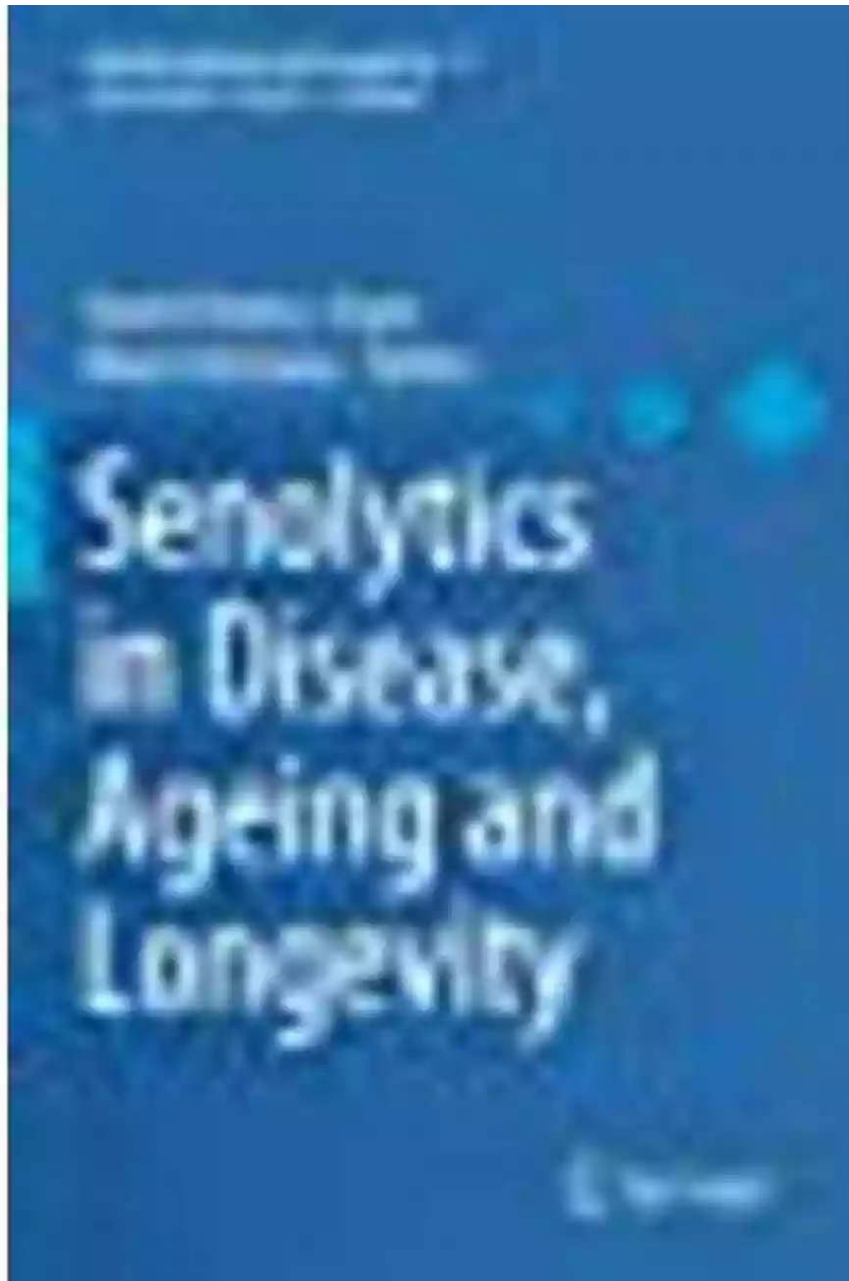


Senolytics In Disease Ageing And Longevity - Healthy Ageing And Longevity 11

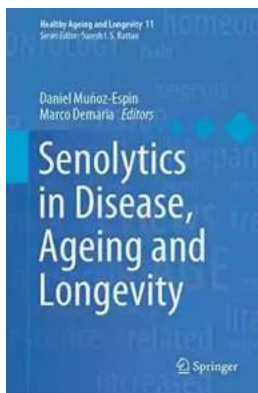


As we age, our bodies undergo various changes that can make us more susceptible to diseases and decline in overall health. However, recent advancements in medical research have led to an emerging field called

senolytics, which aims to target and eliminate senescent cells that contribute to age-related pathologies.

The Role of Senescent Cells in Ageing

Senescent cells are cells that have irreversibly stopped dividing due to various stress factors such as DNA damage or oxidative stress. While these cells initially serve as a protective mechanism to prevent damaged cells from turning cancerous, they accumulate over time and start secreting harmful molecules that promote chronic inflammation and tissue dysfunction.



Senolytics in Disease, Ageing and Longevity (Healthy Ageing and Longevity Book 11)

by Baby Professor(1st ed. 2020 Edition, Kindle Edition)

★★★★☆ 4.4 out of 5

Language : English

File size : 9066 KB

Text-to-Speech : Enabled

Screen Reader : Supported

Enhanced typesetting : Enabled

Print length : 425 pages



Chronic inflammation is a key driver of multiple age-related diseases such as cardiovascular disease, neurodegenerative disorders, cancer, and diabetes. By targeting and removing these senescent cells, senolytics hold great potential for not only treating these diseases but also extending healthy lifespan.

Potential Benefits of Senolytics

Researchers have conducted numerous studies in animal models, demonstrating the potential benefits of senolytics in promoting healthy ageing and longevity.

These studies have shown that the removal of senescent cells can lead to improvements in overall health, reduced age-related pathologies, and increased lifespan.

One study conducted on mice found that when senescent cells were eliminated, the lifespan of the mice increased by 36% on average. Additionally, the mice displayed improved physical function, reduced tissue degeneration, and lower incidence of age-related diseases.

Another study focused on senolytics' impact on age-related diseases specifically. The researchers discovered that senescent cell removal significantly reduced the development of atherosclerosis, Alzheimer's disease, and osteoporosis in genetically modified mice. This suggests that senolytics could potentially prevent or delay the onset of these diseases in humans as well.

Promising Senolytic Drugs

Several senolytic drugs are currently being investigated for their potential in improving healthy ageing and longevity. One of the most well-known senolytics is a combination of dasatinib and quercetin. This combination has shown promising results in preclinical studies, with improvements observed in age-related cardiac dysfunction, frailty, and overall health.

In addition to the dasatinib and quercetin combination, other senolytic compounds such as navitoclax, fisetin, and ABT-263 are also being explored. These compounds have demonstrated senescent cell elimination in various tissues and have shown potential in reducing age-related diseases.

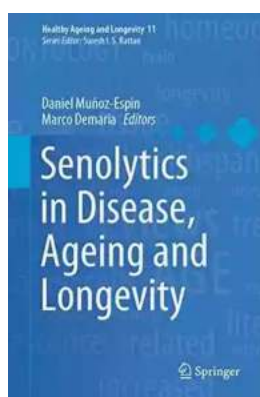
The Future of Senolytics

While senolytics offer exciting prospects for healthy ageing and longevity, further research is still needed to fully understand their long-term effects and safety profiles. Clinical trials are currently underway to evaluate the efficacy and safety of senolytic drugs in humans.

It is important to note that senolytics are not a magical solution to reverse ageing entirely. However, they hold great promise in improving healthspan, reducing age-related diseases, and extending the period of healthy life.

The field of senolytics has opened up new possibilities for combating age-related diseases and promoting healthy ageing and longevity. By selectively targeting and removing senescent cells, senolytics have shown potential in improving overall health, reducing age-related pathologies, and extending lifespan.

As research continues to unfold, we may witness the development of more effective senolytic drugs that can revolutionize the way we approach ageing. Ultimately, the goal is to live not just longer, but healthier lives as we age.



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This book offers comprehensive information on the new and rapidly evolving science of identifying and targeting senescent cells, and on the exciting prospect of new diagnostic and therapeutic opportunities for stopping, and even reversing, the progression of disease and the deterioration of the human body due to ageing.

According to recent United Nations data, by 2050 one in six people worldwide will be older than age 65, with peaks rising to one in four people in Europe and North America. Remarkably, the number of persons aged 80 years or older is expected to triple, from 143 million in 2019 to 426 million in 2050.

First documented in the 1960s, the concept of cellular senescence as an underlying cause of ageing has been established in the course of the last decade. Using genetically engineered mouse models, researchers have demonstrated that the selective elimination of senescent cells can block and even reverse a number of age-related dysfunctions and pathologies, promoting both better health and longer life in the elderly. These include cardiovascular diseases; neurological disorders; type 1 and type 2 diabetes; inflammatory diseases; fibrosis; geriatric syndromes; chronic diseases resulting in organ dysfunction; the integrity of the musculoskeletal system; and cancer. Some senolytic agents have already progressed into trials. These include UBX0101 for the treatment of osteoarthritis (now in phase II), a cocktail of dasatinib and quercetin for the management of idiopathic pulmonary fibrosis and chronic kidney disease, and ABT-263 in combination with senescence-inducing chemotherapies for the treatment of advanced solid tumours.

In addition, the book discusses pathways to early phase clinical trials and translational approaches in medicine and ageing, highlighting new opportunities as well as current limitations, challenges and alternatives. Given its scope, it will

benefit a broad audience of advanced educators, researchers, graduate students and practitioners.



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