

# Exploring Novel Signaling Pathways in Cellular Senescence

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**Abstract.** Cellular senescence is a vital process that plays a critical role in tumor suppression and aging. Recent studies have unveiled novel signaling pathways that regulate cellular senescence, providing new insights into potential therapeutic targets. This article reviews the recent advancements in understanding these pathways, emphasizing their implications in disease prevention and therapy. The identification of key molecules involved in these pathways holds promise for enhancing senescence-based interventions and designing innovative treatment strategies for age-related diseases and cancer.

**Keywords:** cellular, senescence, signaling, pathways, cancer

**Introduction:** The process of cellular senescence serves as a crucial barrier against cancer and contributes significantly to the aging process. Understanding the mechanisms of senescence has thus become pivotal for developing therapeutic interventions aimed at delaying aging and preventing cancer. Recent research has shed light on previously unidentified signaling pathways that control cellular senescence, offering new perspectives on its regulatory mechanisms. These novel pathways, characterized by unique molecular signals and interactions, present potential targets for therapeutic exploitation. The exploration of these pathways not only enhances our understanding of cellular aging but also opens avenues for the development of senescence-targeted therapies. This review aims to summarize the latest discoveries in signaling pathways involved in cellular senescence and their implications for future therapeutic strategies. By emphasizing the potential of these pathways in clinical applications, the article provides a foundation for future research into targeted anti-aging and

anti-cancer

therapies.

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### References

1. РІЗАК, Г. ВПЛИВ РІЗНИХ МЕТОДІВ СИНТЕЗУ НА ТОКСИЧНІСТЬ ТА ЕФЕКТИВНІСТЬ НОВИХ БІОЛОГІЧНО АКТИВНИХ СПОЛУК НА ОСНОВІ ТІСНОПРИМІДІНІВ. ПРОБЛЕМИ ХІМІЇ ТА СТАЛОГО РОЗВИТКУ Учредители: Publishing House Helvetica (Publications), (4), 15-24.