Role of Autophagy in Cellular Senescence

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Abstract. This article investigates the role of autophagy in cellular senescence, a state of permanent cell cycle arrest that contributes to aging and age-related diseases. Autophagy, a cellular degradation process, is crucial for maintaining cellular homeostasis by removing damaged organelles and proteins. The study demonstrates how enhanced autophagy can delay the onset of senescence and promote cellular longevity. By elucidating the underlying pathways, this research offers potential strategies for therapeutic interventions targeting age-associated disorders through autophagy modulation.

Keywords: Autophagy, Cellular senescence, Aging, Homeostasis, Therapeutic interventions

Introduction

Cellular senescence is a biological process characterized by the irreversible cessation of cell division, contributing to aging and various age-related diseases. Autophagy, a lysosome-dependent degradation pathway, plays a pivotal role in cellular quality control by recycling damaged organelles and proteins. This study aims to unravel the relationship between autophagy and cellular senescence, focusing on how autophagic processes can delay senescence onset and enhance cellular longevity. By dissecting the molecular pathways involved, we provide insights into potential therapeutic approaches for age-related disorders by modulating autophagy.

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