Mitochondrial Dynamics in Cellular Senescence

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Abstract. This study explores the role of mitochondrial dynamics in cellular senescence, focusing on the balance between mitochondrial fusion and fission. Using advanced imaging techniques, we observed alterations in mitochondrial morphology that correlate with senescence markers in various cell types. Our findings suggest that mitochondrial dynamics play a critical role in the regulation of cellular aging and may serve as potential targets for therapeutic interventions. These insights contribute to a deeper understanding of mitochondrial function in the aging process.

Keywords: Mitochondrial dynamics, Cellular senescence, Fusion and fission, Aging, Therapeutic targets

Introduction

Mitochondria are essential organelles that play a critical role in cellular energy production and metabolism. Recent studies have highlighted the dynamic nature of mitochondria, characterized by continuous cycles of fusion and fission. These processes are crucial for maintaining mitochondrial function and integrity. In the context of cellular senescence, alterations in mitochondrial dynamics have been observed, suggesting a potential link between mitochondrial morphology and cellular aging. In this study, we investigate the changes in mitochondrial dynamics during cellular senescence using advanced imaging techniques. Our results reveal significant alterations in mitochondrial morphology that correlate with senescence markers in various cell types. These findings suggest that mitochondrial dynamics play a pivotal role in the regulation of cellular aging and may serve as potential targets for therapeutic interventions.

References

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