

Impact of Cellular Recharge Technology 8 (CRT8) Supplement Mix on Cellular Senescence and Autophagy in 2D Cellular and 3D Organoid Models

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Abstract : Introduction: Cellular senescence and autophagy are critical processes in aging and age-related diseases. This study examines the effects of Cellular Recharge Technology 8 (CRT8), a proprietary blend of certain supplements on both two-dimensional Human dermal fibroblasts (HDF) and three-dimensional organoid models. Some of the individual ingredients of CRT8 are known to individually have an effect on cellular senescence and autophagy, but their overall effect in the proprietary blend is unknown. The focus of this study is on the impact of CRT8 on cellular senescence and autophagy. Methods: Human dermal fibroblasts (HDF) were treated with CRT8 in 2D cellular studies, assessing effects on p16 (senescence marker) Mean Fluorescence Intensity (MFI), and LC3 (autophagy marker) MFI. The same CRT8 mix was applied to 3D organoid models, composed of HDF and endothelial cells, with results measured after 6 weeks of treatment, focusing on autophagy and senescence markers. Results: In 2D cellular models, CRT8 significantly reduced p16 MFI levels by 40%, indicating a potential decrease in cellular senescence, and increased LC3 MFI by more than 2-fold, demonstrating enhanced autophagic activity. Similarly, in the 3D organoid models, CRT8 significantly reduced p16 MFI levels by 63% and increased autophagic flux by 1.62-fold, further reinforcing its potential to reduce senescence and promote autophagy. Conclusion: CRT8 effectively reduces p16 levels and enhances autophagy in both 2D and 3D models, highlighting its potential as a powerful anti-aging intervention. CRT8 may be valuable in promoting cellular health and longevity.

Keywords : cellular senescence, autophagy, aging, supplements

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