

WORLD EYE AND VISION CONGRESS

May 20-21, 2019 | Dubai, UAE

Rescuing retinal cells *in vitro* in age related macular degeneration

Sonali Nashine¹, Anthony Nesburn^{1,2}, Baruch D Kuppermann¹ and M Cristina Kenney¹

¹University of California, USA

²Cedars-Sinai Medical Center, USA

Age-related macular degeneration is one of the primary causes of blindness in the United States as well as worldwide. The purpose of the present *in vitro* study was to test the hypothesis that natural compounds will rescue RPE cells from AMD mitochondria-induced damage, thereby rescuing AMD retinal cells. Our long-term goal is to develop a personalized treatment strategy for AMD patients. Herein, we treated AMD RPE transmitochondrial cells with naturally occurring antioxidants and neuroprotective compounds that are available as over-the-counter medications. AMD RPE transmitochondrial cells had identical nuclei but differed in mitochondrial DNA (mtDNA) content. Cell

survival, free radical production, oxidative stress, and mitochondrial health was examined and compared between untreated AMD cells and the AMD cells treated with natural compounds. Treatment with natural compounds improved cell survival and mitochondrial health, reduced free radicals and oxidative stress, mitigated cell death, and increased live cell number in AMD cells compared to their untreated counterparts ($p < 0.05$). In conclusion, the natural compounds used in this study might serve as effective, inexpensive, and non-invasive therapeutic options and might help in the development of a personalized treatment strategy for AMD patients.

Biography

Sonali Nashine is an eye research scientist, her work is focused on retinal degeneration wherein the long-term goal is to identify therapeutic targets. During the course of research, she worked on models of retinal degenerative diseases, including retinitis pigmentosa, glaucoma, and age-related macular degeneration to identify candidate protective molecules. The ideal drugs will prolong the longevity of retinal cells, delay cell death, thereby saving vision.

sonali.uci@gmail.com