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Team finds novel approach to treating age-related macular degeneration

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While oxygen is essential to our planet's life force and the way we function and stay healthy, high concentrations referred to as oxidative stress may very well be the cause of more than 70 widely-spread diseases such as cancer, heart disease, neurodegenerative diseases, and eye diseases including macular degeneration.

Scientists at Florida Atlantic University's Charles E. Schmidt College of Science, as well as the Charles E. Schmidt College of Medicine, have found that sulindac, a known anti-inflammatory drug, can protect against oxidative damage due to age-related macular degeneration (AMD), one of the primary causes of vision loss in the elderly. Their findings were released today in an article titled "Pharmacological protection of retinal pigmented epithelial cells by sulindac involves PPAR-α" in the prestigious *Proceedings of the National Academy of Sciences*.

"What happens in age-related macular degeneration is that the retinal pigmented epithelial or RPE cells, which are essential to nourishing the retinal cells, are damaged by oxidative stress," said Herbert Weissbach, Ph.D., director and distinguished research professor in the Center for Molecular Biology and Biotechnology within the Charles E. Schmidt College of Science. "Our studies show that sulindac can protect RPE cells in culture against oxidative damage, suggesting that it could be an inexpensive and relatively non-toxic therapeutic approach for treating age-related macular degeneration."

Oxidative stress is mainly due to the imbalance between the free radicals

produced within our bodies from the oxygen that we breathe in and the ability of the body to counteract or detoxify their harmful effects through neutralization by "antioxidants systems." This imbalance is the underlying basis of oxidative stress. Oxygen free radicals can also be produced by environmental agents including air pollution, radiation, cigarette smoking, excess stress and increased exposure to sunlight.

Many older people develop macular degeneration as part of the body's natural aging process. There are different kinds of macular problems, but the most common is age-related macular degeneration. AMD affects the macula, the part of the eye that allows you to see fine detail. AMD gradually destroys sharp, central vision, which is needed for seeing objects clearly and for common daily tasks such as reading and driving. Currently, no cures exist for the majority of age-related macular degeneration cases.

More information: Pharmacological protection of retinal pigmented epithelial cells by sulindac involves PPAR-α, www.pnas.org/cgi/doi/10.1073/pnas.1419576111

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