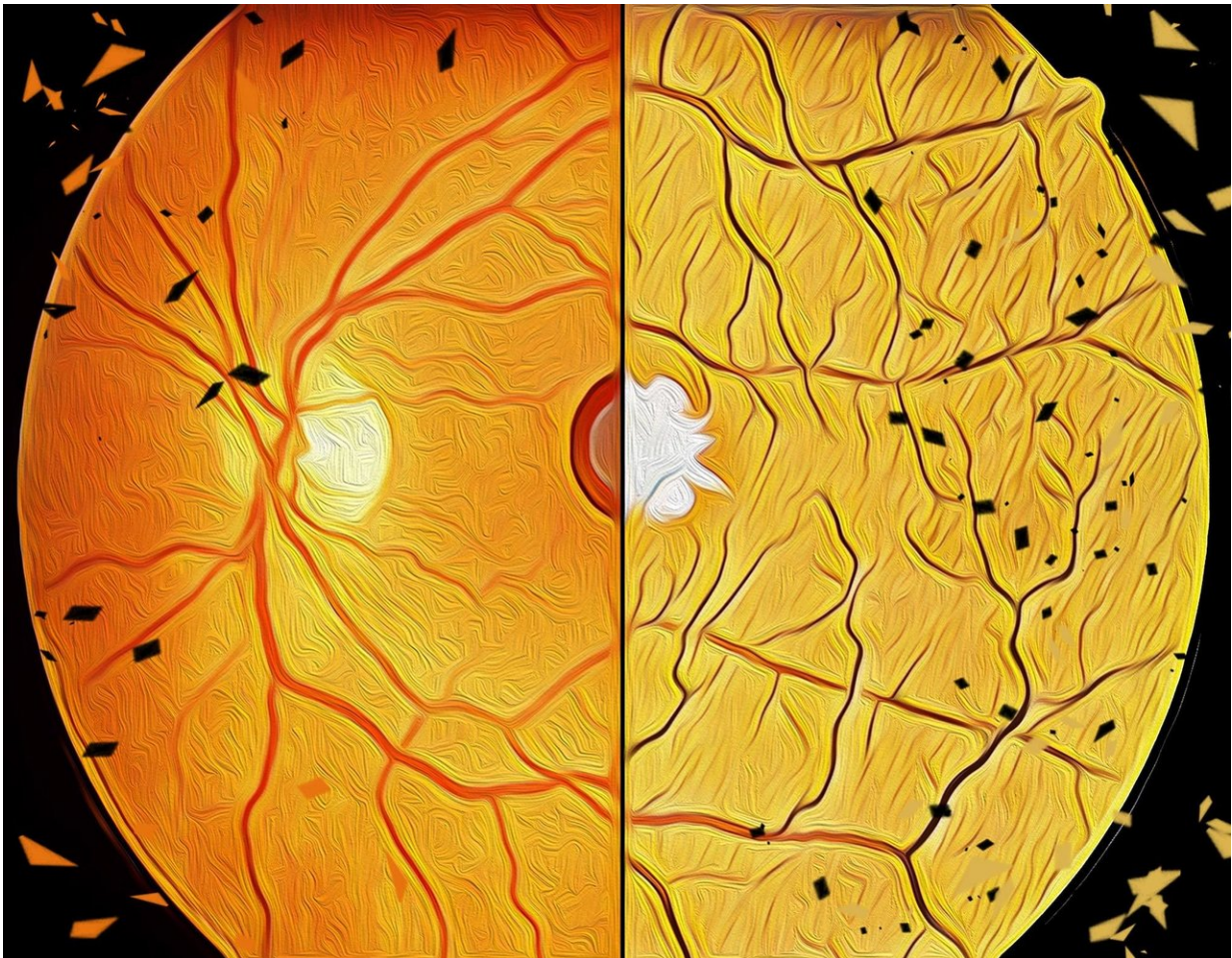# Pathomechanisms deciphered for the two most common age-related eye disorders

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Idiopathic epiretinal membrane (iEMR) and macular hole (MH) affect millions of aging people globally. Credit: M. Varjosalo

Population aging is a global phenomenon with profound medical implications. Tissue dysfunction associated with aging affects all vital organs, including the eyes. Various ocular structures are affected by aging, such as the macula, the functional center of the retina responsible for precise central vision.

Idiopathic epiretinal membrane (iEMR) and macular hole (MH) are the major vision-threatening vitreoretinal interface diseases that affect millions of aging people globally, making these conditions an important public health issue.

A research team led by Dr. Markku Varjosalo from the Institute of Biotechnology / HiLIFE, University of Helsinki, utilized label-free quantitative mass spectrometry to obtain an in-depth and global understanding of the complex and multi-factorial molecular pathomechanisms underlying the two most typical age-related vitreoretinal interface eye disorders.

The authors show that both iERM and MH are complicated pathological processes involving inflammation, extracellular matrix dysfunction and fibrosis.

Surprisingly, large number of neuronal proteins were abundant in the vitreous proteome of iERM and MH indicating the neurodegenerative background of these age-related pathologies, possibly opening new therapeutic avenues for treating these disorders.

"Currently, there is no known way to pharmacologically impact the development of these two vitreoretinal conditions, making our MS-based investigation a seminal study on shedding light on the role of various proteins in these disease processes," Dr. Varjosalo states.

More information: Tiina Öhman et al. Systems pathology analysis

identifies neurodegenerative nature of age-related vitreoretinal interface diseases, *Aging Cell* (2018). DOI: 10.1111/acel.12809

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