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Australia works on retinal immune cells for preventing diabetes-related vision loss

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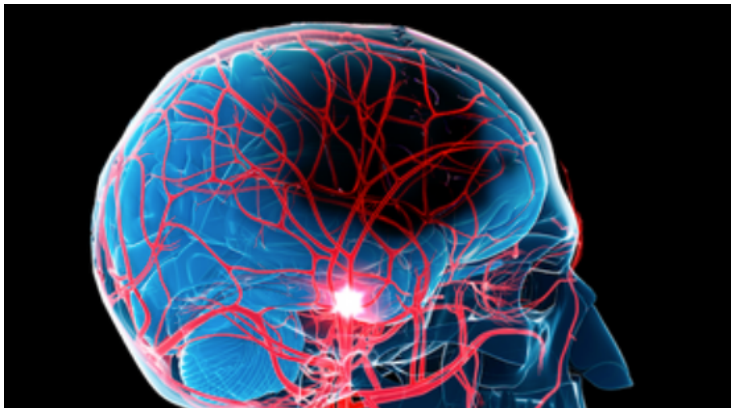
Findings may lead to new treatments that can be used from an early stage of disease, well before any loss of vision



New research could form the basis for developing life-changing therapies that limit the impact of diabetic eye disease, a condition that could potentially affect some 1.7 million Australians, suffering from type 1 and type 2 diabetes.

The University of Melbourne research uncovers how retinal immune cells change during diabetes, which may lead to new treatments that can be used from an early stage of disease, well before any loss of vision.

The research team found a specific type of immune cell, called microglia, contact both blood vessels and neurons in the retina and are able to change blood flow to meet the needs of neurons.

They identified the chemical signal by which the immune cells communicate with blood vessels, and demonstrated that immune cell regulation of blood vessels is abnormal in diabetes, a disease known to affect the blood vessels in the eye. The studies used preclinical animal models and a range of imaging methods that allowed researchers to see retinal immune cells in a living eye.

It is hoped the findings will help develop novel therapies for reducing the effects of vascular conditions of the retina and brain. These conditions include diabetes, Alzheimer’s disease and vascular conditions such as stroke or retinal vascular occlusions.