

Study suggests stem cells may repair dying retinal cells

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Researchers at St. Erik Eye Hospital and Karolinska Institutet have for the first time successfully transplanted human retinal pigment epithelial cells derived from stem cells into eyes that are similar to human eyes. The researchers have developed a unique method of creating mature cells differentiated from embryonic stem cells. When transplanted into the retina of human-like animals, the cells protected against experimental macular degeneration.

The study is published in *Stem Cell Reports*.

The most common cause of central visual acuity and reading vision loss among older people in the Western world is the widespread age-related

disease [macular degeneration](#). The eye disease results when the supporting cells behind the retina, the "[retinal pigment epithelium](#)" cells, slowly die, causing the [retinal cells](#) that support vision – the rods and cones – to die as well. The disease has two forms: a wet and a dry form. The wet form can now be halted with drugs, but 90 per cent of patients have the dry form, which currently has no effective treatment.

"Our results suggest that stem cell treatment may help patients with the dry, and so far untreatable, form of macular degeneration," says Anders Kvanta, Senior Consultant at St. Erik Eye Hospital and Adjunct Professor at Karolinska Institutet, which performed the study together with stem cell researchers Outi Hovatta and Fredrik Lanner.

More information: Alvaro Plaza Reyes et al. Xeno-Free and Defined Human Embryonic Stem Cell-Derived Retinal Pigment Epithelial Cells Functionally Integrate in a Large-Eyed Preclinical Model, *Stem Cell Reports* (2016). [DOI: 10.1016/j.stemcr.2015.11.008](https://doi.org/10.1016/j.stemcr.2015.11.008)

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