

Potential new treatment for severe dry eye disease

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Scientists have discovered a potential new treatment for a disease that causes severe dry eyes and dry mouth.

The study, led by researchers at RCSI University of Medicine and Health Sciences, is published in the current edition of *Scientific Reports*. The work was carried out in collaboration with the Royal Victoria Eye and Ear Hospital and the Cedars-Sinai Medical Centre.

Sjögren's Syndrome causes a patient's white blood [cells](#) to attack the body's tear and saliva glands, causing severe dry eyes and mouth. The dry and irritated eyes significantly impact their vision, day-to-day activities and quality of life.

The researchers compared samples from the eyes of patients with the [disease](#) to samples from healthy patients. They found that those with the disease had abnormal levels of a certain molecule that controls eye inflammation.

The molecule, microRNA-744, works like a switch, turning the production of cells on and off. The researchers found that high levels of this molecule

caused uncontrolled amounts of inflammation from cells that destroy the glands and damage the surface of the eye.

In a laboratory setting, the researchers were able to reduce this molecule, which in turn reduced the levels of inflammation.

"This is a first step toward a potential new treatment, and much more pre-clinical testing is needed before we can develop it into something that is ready for patients. However, our research provides the opportunity to possibly treat the root cause of the disease rather than just the symptoms," said Dr. Joan Ní Gabhann-Dromgoole, the study's co-author and lecturer at RCSI's School of Pharmacy and Biomolecular Sciences.

The researchers also found different levels of other microRNAs in patient cells compared to healthy controls. This could be used to help diagnose patients with Sjögren's Syndrome, for which there is currently no test.

The disease is most common between the ages of 40 and 60, with women nine times more likely to suffer from it than men. It is estimated to affect three to four percent of adults in Ireland.

More information: Qistina Pilson et al, miR-744-5p contributes to ocular inflammation in patients with primary Sjogrens Syndrome, *Scientific Reports* (2020). [DOI: 10.1038/s41598-020-64422-5](https://doi.org/10.1038/s41598-020-64422-5)

Provided by RCSI

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