

# 3D Printed Eyeglasses for Dry Eye Disease

## Product

3D printed eyeglasses

## Indication

Dry eye disease

## Value Propositions

- ▶ Increase ocular humidity to therapeutic levels
- ▶ Custom design to fit individual facial features

## Market

- ▶ \$5.08 billion - Global dry eye disease treatment market in 2021
- ▶ CAGR of 4.31% (2022-2030)

## Intellectual Property

- ▶ PCT pending\*
- ▶ Available for licensing

## Contact

Heather Callahan  
heather.callahan@cuanschutz.edu

Ref# CU4886H

303-724-0220  
cuanschutz.edu/cu-innovations

## Background on CU4886H

Dry eye disease affects millions of individuals in the US. The disease is characterized by reduced tear film production by the meibomian glands with repeated cycles of inflammation causing ocular surface damage. Standard of care includes using frequent artificial tears, applying hot compresses to the eyelids, utilizing humidifiers, and undergoing meibomian gland expression in order to restore ocular moisture. Eyeglasses offering “moisture chambers” are available to increase relative humidity around the orbit for individuals with dry eye disease. However, while effectively increasing moisture around the ocular surface, many individuals feel uncomfortable wearing these glasses due to their bulky appearance.

## Technical Innovation

A team led by Drs. Stephen Petty and Cristos Infantides have created aesthetically pleasing 3D printed eyeglasses for the treatment of dry eye disease. The glasses are custom made using a 3D scan of each individual’s face for optimal fit and comfort. The design forms a seal nasally, superiorly, and inferiorly around the orbit while leaving the temporal area more open to allow for air circulation and limit fogging during normal activities. The moisture chamber is designed to be less obvious in order to increase social comfort for the user. Use studies have demonstrated that the glasses raise ocular humidity to therapeutic levels with a near complete reduction in the tear evaporation rate. The inventors believe that their dry eye glasses can reduce reliance on artificial tears and prevent inflammatory damage to the ocular surface while providing a stylish frame design.

### Traditional Dry Eye Frame



### Novel Frame Design



\*PCT/US2020/044498—“Eyeglass Frames for Treatment of Dry Eye Syndrome and Corresponding 3D Printing Systems and Methods”