

Microscopy System

Tech ID: 34038 / UC Case 2025-506-0

ABSTRACT

Researchers at the University of California, Davis have developed a microscopy system combining optical coherence and confocal fluorescence microscopy for accurate Dry Eye Disease diagnosis.

FULL DESCRIPTION

This technology introduces an innovative microscopy system that integrates multimodal optical coherence microscopy (OCM) with a confocal fluorescence microscope (CFM) to enhance the diagnosis of Dry Eye Disease (DED). By capturing and combining depth-sectioned cross-sectional images with contrast images of fluorescent molecule-labeled cells, it offers a superior visualization of the eye surface, enabling precise detection and diagnosis of DED and other corneal conditions.

APPLICATIONS

- ▶ Diagnostic imaging centers specializing in eye diseases.
- ▶ Research institutions focusing on ocular conditions and treatments.
- ▶ Development of diagnostic devices and systems for the healthcare industry.
- ▶ Pharmaceutical companies for the testing and validation of new treatments for Dry Eye Disease.
- ▶ Integration into clinical practices for routine eye health assessments.

FEATURES/BENEFITS

- ▶ Enhances image quality by integrating OCM and CFM technologies.
- ▶ Captures both depth-sectioned cross-sectional and contrast images for a comprehensive eye examination.
- ▶ Improves accuracy in diagnosing Dry Eye Disease and other corneal conditions.
- ▶ Detects specific fluorescent molecules, enabling precise disease identification.
- ▶ Supports a variety of fluorescent molecules, offering flexibility in diagnostics.
- ▶ Overcomes challenges in accurately diagnosing Dry Eye Disease, which currently relies on patient symptoms and routine testing.
- ▶ Expands visualization capabilities beyond traditional microscopy systems to identify DED.
- ▶ Provides a precise and comprehensive method for examining the corneal surface.

PATENT STATUS

Patent Pending

CONTACT

Victor Haroldsen

haroldsen@ucdavis.edu

tel: 530-752-7717.



INVENTORS

- ▶ Leonard, Brian
- ▶ Zawadzki, Robert J.

OTHER INFORMATION

KEYWORDS

confocal fluorescence
microscope, corneal
conditions, dry eye
disease, diagnostic
imaging, fluorescent
molecules, multimodal
optical coherence
microscopy,
ophthalmology, optical
coherence microscopy,
precision diagnosis,
three-dimensional
imaging

CATEGORIZED AS

- ▶ **Biotechnology**
- ▶ **Health**

- ▶ **Imaging**
 - ▶ 3D/Immersive
 - ▶ Medical
- ▶ **Medical**
 - ▶ Diagnostics
 - ▶ Disease:
 - Ophthalmology and
 - Optometry
 - ▶ Imaging

RELATED CASES

2025-506-0

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- ▶ Anti-microbial, Immune-modulating, Naturally-derived Adjunctive Therapies
- ▶ Velocity-based Clinical Optoretinography System

University of California, Davis
Technology Transfer Office
1 Shields Avenue, Mrak Hall 4th Floor,
Davis,CA 95616

Tel:
530.754.8649
techtransfer@ucdavis.edu
<https://research.ucdavis.edu/technology-transfer/>
Fax:
530.754.7620

© 2025, The Regents of the University of California
[Terms of use](#)
[Privacy Notice](#)