

# 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

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# **INVENTORS**

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#### 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

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