

White Dwarf: Cross-Polarized White Light Slide-Free Imaging

Tech ID: 31989 / UC Case 2020-538-0

ABSTRACT

Researchers at the University of California, Davis have developed a method for imaging a tissue sample using white-light reflectance microscopy.

FULL DESCRIPTION

Traditionally, formalin-fixation and paraffin-embedding (FFPE) tissue processing with microtome sectioning and staining have proven to be the most practical and logistically-feasible method for handling, preserving, and evaluating tumor samples. However, FFPE-based processing is sub-optimal for molecular assays and cannot be used for certain applications due to its inherent limitations related to fixative, heat, and solvent-induced nucleic acid fragmentation and degradation. In addition, diagnosticians are confronted by two serious challenges: (1) the increasing number and complexity of ancillary molecular diagnostic tests; and (2) the requirements for these tests to use ever-smaller biopsy samples. These shortcomings demonstrate the need for more effective tissue preparation and diagnostic methods that do not require FFPE.

Researchers at the University of California, Davis have developed a method for imaging a tissue sample using reflectance microscopy. Light is used to illuminates a stained tissue sample, which can be thick, fresh, or fixed, but unsectioned tissue. This technique allows for analysis within minutes of acquiring a tissue specimen. Sample preparation steps such as dehydration, paraffin-embedding, sectioning, and mounting the sample on slides are not required, thus reducing both the time and costs associated with acquiring high-quality tissue images.

APPLICATIONS

- ▶ Rapid analysis of a wide variety of tissue specimens

FEATURES/BENEFITS

- ▶ Images are brighter than those produced by current slide-free technologies
- ▶ Allows use of high-magnification lenses
- ▶ Imaging times in the low-milliseconds/frame, allowing for much faster large-field-of view imaging
- ▶ Compatible with immunofluorescence reagents
- ▶ More affordable than existing methods that achieve similar-quality images

PATENT STATUS

CONTACT

Andrew M. Van Court
amvancourt@ucdavis.edu
 tel: .



INVENTORS

- ▶ Fereidouni, Farzad
- ▶ Levenson, Richard M.

OTHER INFORMATION

KEYWORDS

Brightfield imaging, FFPE,
 Histopathology,
 Microscopy, Pathology

CATEGORIZED AS

- ▶ **Imaging**
 - ▶ Medical
- ▶ **Medical**
 - ▶ Diagnostics
 - ▶ Imaging
 - ▶ Screening

RELATED CASES

2020-538-0, 2019-597-0

| Country | Type | Number | Dated | Case |
|---------|------|--------|-------|------|
|---------|------|--------|-------|------|

| | | | | |
|---------------------------|-----------------------|-------------|------------|----------|
| United States Of America | Issued Patent | 12,019,250 | 06/25/2024 | 2020-538 |
| United States Of America | Issued Patent | 11,808,703 | 11/07/2023 | 2019-597 |
| Patent Cooperation Treaty | Published Application | 2021/252280 | 12/16/2021 | 2020-538 |

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- ▶ [Simple All-in-One UV Waveguide Microscope with Illumination Sectioning for Surface Morphology and Fluorescence Imaging](#)
- ▶ [Tissue Imaging Technique Using Reflectance Microscopy](#)

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

© 2020 - 2025, The Regents of the University of California

[Terms of use](#)

[Privacy Notice](#)