

[Request Information](#)

[Permalink](#)

In vivo optical biopsy applicator of the vaginal wall for treatment planning, monitoring, and imaging guided therapy

Tech ID: 29374 / UC Case 2018-244-0

BRIEF DESCRIPTION

Pelvic floor disorders (PFDs) afflict nearly 25% of all women and carry a host of symptoms that can drastically reduce quality of life. Despite their prevalence, the complex and varied nature of such PFDs make them difficult to diagnose and treat. Researchers at UCI have developed an entirely integrated system that, for the first time, provides real-time monitoring of the vaginal wall tissue during diagnosis and treatment, allowing for more thorough diagnoses and more effective treatment methods.

FULL DESCRIPTION

Pelvic floor disorders (PFDs) refer to a wide range of afflictions brought on by dysfunction of the pelvic floor muscles, and carry symptoms that can lead to incontinence, discomfort, and limited physical activity. Nearly 25% of all women are affected by some form of a PFD, with increased odds for women who have given birth (~30%) and women over 50 years of age (~50%). Currently, PFDs are one of the leading causes of gynecologic surgery. Despite their prevalence, PFDs are notoriously difficult to diagnose and treat due to the highly varied and complex nature. PFDs are most commonly diagnosed via medical imaging techniques, such as MRI and ultrasound. These techniques provide little information about the microstructure and chemical composition of the vaginal wall tissue, however, which are crucial factors in diagnosing early-stage PFDs and developing effective treatment plans. Additionally, as these techniques are expensive and time-consuming, they are not suitable for monitoring the long-term effects of PFD treatments. Without adequate tissue information, the diagnosis and treatment of PFD remain difficult tasks.

To this end, researchers at UCI have developed an integrated PFD treatment and monitoring device which allows for the real-time acquisition of vaginal tissue microanatomy. The system is built around the standard optical coherence tomography (OCT) technique, which provides 2- and 3-D images of tissue and muscle, includes a probe which is specifically designed for insertion into and investigation of the vaginal cavity. Other standard tissue characterization methods, such as ultrasound (to image large-scale tissue features) and photoacoustic spectroscopy (to determine the chemical composition of the tissue) can be incorporated into the OCT device, and collected via the same novel probe. The device can be outfitted with several standard PFD treatment methods, such as laser and radio frequency therapies and high intensity focused ultrasound. Clearly, such a versatile platform would, for the first time, allow for highly specific PFD diagnoses and real-time monitoring of treatment progress in a highly compact and versatile system.

SUGGESTED USES

In vivo optical biopsy applicator for the vaginal wall, for treatment planning, monitoring, and image-guided therapy

ADVANTAGES

· Versatile and powerful: The proposed OCT platform and vaginal probe are compatible with a number of other common imaging, monitoring, and treatment techniques. In addition to large- and small-scale imaging,

CONTACT

Alvin Viray
aviray@uci.edu
tel: 949-824-3104.



OTHER INFORMATION

CATEGORIZED AS

- » **Optics and Photonics**
 - » All Optics and Photonics
- » **Imaging**
 - » 3D/Immersive
 - » Medical
- » **Medical**
 - » Devices
 - » Diagnostics
 - » Disease: Women's Health
 - » Imaging
 - » Rehabilitation
 - » Research Tools
 - » Screening
 - » Therapeutics

the system can also provide both structural and chemical information of vaginal tissue microanatomy.

· Compact: All other functionalities are coupled in to the OCT platform externally, and function using the same vaginal probe.

· Provides treatment feedback: This system offers the unprecedented ability to monitor multiple tissue characteristics (appearance, chemical composition, stiffness, etc.) during PFD treatment in real-time.

RELATED CASES

2018-244-0

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	11,517,194	12/06/2022	2018-244
United States Of America	Published Application	20230125467	04/27/2023	2018-244

STATE OF DEVELOPMENT

In vivo studies ongoing.

UCI Beall
Applied Innovation

5270 California Avenue / Irvine, CA
92697-7700 / Tel: 949.824.2683



© 2018 - 2022, The Regents of the University of
California
[Terms of use](#)
[Privacy Notice](#)