

# Optical Coherence Tomography in Biomedical Research

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## Editorial

Optical Coherence Tomography (OCT) was first reported in 1991 as a non-invasive, cross-sectional ocular imaging technology and today is that the most promising non-contact, high resolution tomographic and bio microscopic imaging device in ophthalmology

Optical coherence tomography is an imaging technique that uses low-coherence light to capture micrometer-resolution, two- and three-dimensional images from within optical scattering media (e.g., biological tissue). It's used for medical Imaging and Industrial Nondestructive Testing (NDT). Optical coherence tomography is predicated on low-coherence interferometry, typically employing near-infrared light. The utilization of relatively long wavelength light allows it to penetrate into the scattering medium. Confocal microscopy, another optical technique, typically penetrates less deeply into the sample but with higher resolution.

Optical coherence tomography is one among a category of optical tomographic techniques.[citation needed] Commercially available optical coherence tomography systems are employed in diverse applications, including art conservation and diagnostic medicine, notably in ophthalmology and optometry where it are often wont to obtain detailed images from within the retina. Recently, it's also begun to be utilized in interventional cardiology to assist diagnose arterial coronary disease, and in dermatology to enhance diagnosis.

OCT is an imaging method won't to generate an image of the rear of the attention, called the retina. The image is formed by precisely measuring the quantity of a dim red light that reflects off the retina. OCT is routinely wont to image the eyes of patients with glaucoma.

The thickness of the nerve layer within the retina is definitely measured with OCT. OCT is therefore being tested as a replacement thanks to follow patients with MS and test their recovery and response to treatments.

Participants also are asked to undergo a bedside neurological exam (if not already performed by their doctor) and vision testing (reading a special eye chart).

Total time required of the participant is about 45 minutes

OCT is beneficial in diagnosing many eye conditions, including:

- Macular hole
- Macular pucker
- Macular edema
- Age-related degeneration
- Glaucoma
- Central serous retinopathy
- Diabetic retinopathy
- Vitreous traction

OCT is usually wont to evaluate disorders of the nerves optics also. The OCT exam helps your ophthalmologist see changes to the fibers of the nerves optics. For instance, it can detect changes caused by glaucoma. OCT relies on light waves. It can't be used with conditions that interfere with light passing through the attention. These conditions include dense cataracts or significant bleeding within the vitreous.

OCT can function as a kind of optical biopsy and may be a powerful imaging. Sampling errors related to excisional biopsy, and to guide interventional procedures. During this paper, we review OCT technology and describe its potential biomedical and clinical title "Optical coherence tomography.

The main hardware components of the OCT include the scan acquisition optics, the interferometer, the spectrometer, the system computer and video monitor. Before scanning the patient looks into the imaging aperture and sees a green star-shaped target against a black background.

Optical coherence tomography (OCT) may be a well-established noninvasive. 3D imaging technique that has been utilized in medical application as a diagnostic tool. It's supported the analyses of sunshine interference properties generated by near infraredlight.

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