Catheter-Based Restricted Space Imaging Platform

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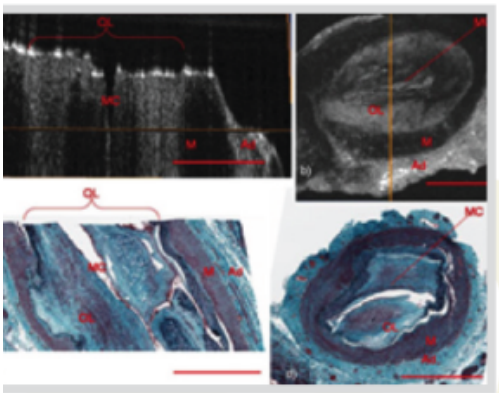
Technology description

A forward-looking imaging platform enabling cardiovascular and other restricted space catheter-based interventions and image-guided therapy
With side-viewing OCT/ultrasound catheter, endoscopic and angiography techniques established in clinics and surgical suites, there is currently no imaging platform that is small, sensitive and robust enough to be used in forward-viewing intravascular applications. As a result, there is an entire class of indications, including vessel occlusions that can’ t be imaged, nor therapeutically intervened in a non-invasive fashion, that are a potential market for this technology.

This simple forward-looking imaging catheter platform is small enough to be used in cardiovascular applications and serve as the ‘eyes’ for guided therapeutic device interventions. Key features include:
A forward-looking catheter-based imaging platform compatible with OCT and non-cardio ultrasound.
Can be integrated with ablation and other therapeutic means to target partial and total occlusions.
Small (1.5-2.0mm dia.) and flexible (~1cm rigid length) to be used in standard biopsy catheters, cardiovascular applications and other restrictive spaces of the body.
Other potential applications include GI, gynecological, and neurosurgery interventions.
Very low cost (~$100) compared with current side-viewing equipment.
Based on dissipative polymer and electrostatic vibrational physics.



Forward-Viewing Intravascular Imaging for Guided Therapeutic Intervention

This technology developed by UHN and Sunnybrook scientists and surgeons is a forward-looking imaging platform that enables cardiovascular and other restricted space catheter-based imaging as well as an image-guidance technique for therapeutic device interventions. Although side-viewing OCT/ultrasound catheter, endoscopic and angiography techniques are already established in clinics and surgical suites, there is currently no imaging platform that is small, sensitive and robust enough to be used in forward-viewing intravascular applications. As a result, there is an entire class of indications, including vessel occlusions that cannot be imaged, or treated with non-invasive techniques. The prototype device is small (1.5-2.0mm dia.), sufficiently flexible for cardiovascular applications and low cost (~$100) compared with current side-viewing equipment. Additional applications may include GI, gynecological and neurosurgery interventions.

Granted Patents US7,972,272, CA - N. Munce, V. Yang, A. Thind, B. Courtney

Publications

Munce, N.R., et. al., Ex Vivo Imaging of Chronic Total Occlusions Using Forward-Looking Optical Coherence Tomography.Lasers in Surgery and Medicine. 38:28-35 (2007).
Munce, N.R. et. al., Electrostatic forward-viewing scanning probe for Doppler optical coherence tomography using a dissipative polymer catheter.Optics Letters. Vol. 33, No. 6 (2008).

Application area

Enabling cardiovascular and other restricted space catheter-based interventions and image-guided therapy

Institution

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