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CARDIAC TISSUE IMAGING CATHETER

MEDICAL DEVICES

Imaging catheter that integrates existing steering, electrical mapping, and ablation technology to facilitate diagnosis and treatment of cardiac disease.

TECHNOLOGY TYPE

Class II/III
Imaging
Cardiology

STAGE OF DEVELOPMENT

- Animal studies found the device can distinguish atrial fibrous tissue with high sensitivity and specificity.

- Ongoing research to quantify atrial fibrosis progression and evaluate efficacy of ablation in animal models.

IP PROTECTION

PCT Pending

LEARN MORE

Reference Number: U-6303

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TECHNOLOGY SUMMARY

Atrial Fibrillation (AFib), the most common cardiac arrhythmia, causes serious tissue damage to the heart and increases the risk of stroke and heart failure. Existing ablation techniques only prove successful approximately 50 percent of the time because it is difficult to distinguish between diseased and healthy heart tissue.

A novel device improves ablation success by combining imaging, electrical mapping, and navigation. The device differentiates between healthy and diseased tissue with microstructural detail. The catheter and accompanying software also enables electrical mapping of the tissue's functionality. This allows clinicians to visualize tissue microstructure with functional data, providing an individualized atlas of regional structure and function that guides diagnosis and treatment. The device is deployed using a steerable sheath and integrates with existing ablation technology.

FEATURES AND BENEFITS

- Enables real-time visualization of tissue function and state in AFib patients.
- Increases sensitivity and specificity when distinguishing between healthy and damaged cardiac tissue.
- Improves ablation success by providing individualized mapping of cardiac tissue.

RECENT PUBLICATIONS

Huang, C., Wasmund, S., Hitchcock, R., Marrouche, N.F., Sachse, F.B. (2017). Catheterized fiber-optics confocal microscopy of the beating heart in situ. *Circulation: Cardiovascular Imaging. 10*(10): e006881.
doi: 10.1161/circimaging.117.006881

INVENTOR PROFILE

Frank Sachse, Ph.D., Associate Professor – Biomedical Engineering
Robert Hitchcock, Ph.D., Profile

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