



Method and System for Mapping and Analyzing Cardiac Electrical Activity

Technology number: 5529



Technology ID

5529

Category

Software

Life Sciences

Inventor

Nicholas Langhals

Hakan Oral

Omer Berenfeld

Grant Kruger

Further information

Katherine Pollard

kpollar@umich.edu

Learn more



OVERVIEW

Advanced 3D cardiac mapping for precise arrhythmia detection and ablation

- Higher accuracy in identifying electrical activity patterns and ablation points
- Useful for diagnosing cardiac arrhythmias, guiding ablation therapy

BACKGROUND

Current electroanatomic mapping systems for diagnosing cardiac arrhythmias employ either magnetic-based or impedance-based contact catheter localization, or non-contact balloon catheters with multi-electrode arrays. These technologies, however, have limitations. Contact-based systems may miss transient or hemodynamically unstable tachycardias, while non-contact systems, despite their broad coverage, often lack the precision necessary for pinpointing electrical activity patterns and identifying ideal ablation points. Accurate mapping and analysis of complex arrhythmias are crucial for effective treatment and minimizing risk. Existing methods fail to meet these needs, leading to incomplete diagnosis and suboptimal therapeutic outcomes. The demand for improved technology that provides detailed and accurate cardiac electrical activity patterns to inform effective ablation is critical to advance cardiac care.

INNOVATION

Researchers have introduced a multiple point basket catheter system capable of simultaneously mapping a three-dimensional region within the heart, improving the identification and analysis of cardiac electrical activity. Unlike traditional methods, this basket catheter can cover more extensive areas of the heart, providing detailed 3D activation maps that reveal precise patterns of electrical anomalies. This enhanced mapping capability allows for the accurate identification of potential sources of fibrillation and arrhythmia, significantly improving the accuracy of targeted ablation therapy. Real-world applications of this technology include the diagnosis of various cardiac arrhythmias and the guidance of therapeutic ablation procedures. This innovation holds the potential to elevate the standard of cardiac care by enabling more effective, tailored treatment strategies for arrhythmia management.

ADDITIONAL INFORMATION

INTELLECTUAL PROPERTY:

[US11564607](#) "Method and system for mapping and analyzing cardiac electrical activity"