Docket #: S19-061

Ultrathin Flexible Multilead Electrocardiogram Bandage for Arrythmia Diagnosis and Monitoring

This bandage-like multi-lead, continuous ECG monitoring device uses new stretchable electrode material developed in the Bao group to accurately and imperceptibly diagnose cardiac arrhythmia. The ultrathin, flexible nature of the bandage sensor enables stable positioning on the body and is very comfortable which increases patient compliance. This multi-lead ECG can detect a wide range of medical conditions that are not easily detectable in current single-lead ECG recording such as premature ventricular contraction (PVC).

Additionally, the multi-leads provide higher accuracy and more robust continuous data. Current ECG monitoring devices are bulky, uncomfortable to wear, and fall off easily. Addressing these shortcomings, the goal is to develop and commercialize this flexible multi-lead ECG bandage to significantly improve data accuracy and reduce disturbance to patient's daily activities.



Device Prototype

Stage of Development

- Lab scale prototype
- Planning small clinical study

Applications

- Continuous monitoring of arrythmia detection and diagnosis

Advantages

- **The first intrinsically stretchable ECG Patch** for electrophysiological measurements of cardiac activity
- **More accurate** - Multi-lead ECG vs. single lead provides more data and can detect arrhythmia types that cannot be detected by single-lead ECG
- **Unobtrusive, comfortable, small, and bandage-like** which provide better comfort and prevent device falling off from the chest
- **Very comfortable leading high user compliance**
- **Higher data accuracy and diagnostic yield**

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