INNOVATION PARTNERSHIPS
UNIVERSITY OF MICHIGAN

Device for Left Atrial Appendage Closure

TECHNOLOGY NUMBER: 4872

Accelerate Blue Foundry - 2025 (Life Sciences)

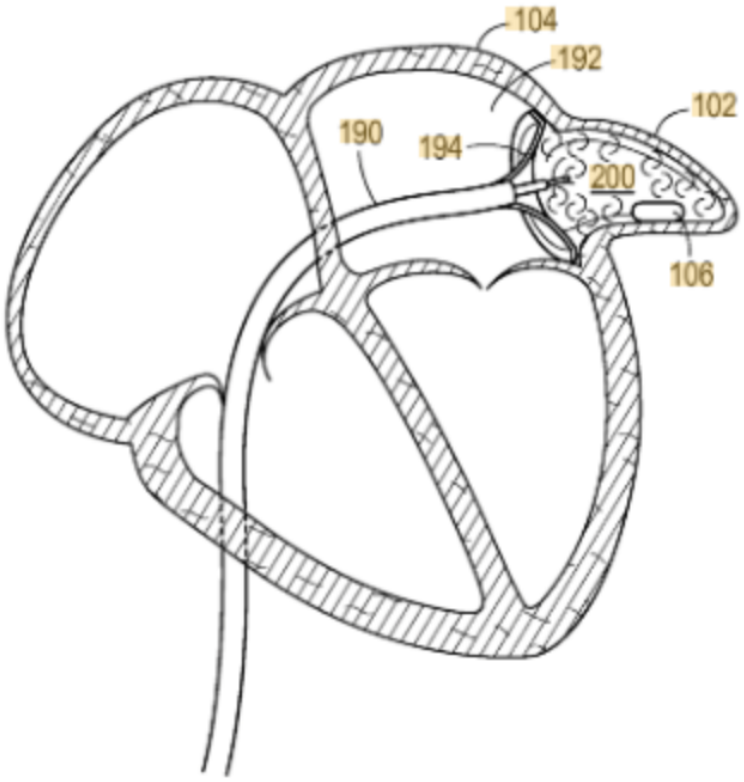


FIG. 3A

Technology ID
4872

Category
Medical Devices
Life Sciences
Accelerate Blue Foundry - 2025/Life Sciences

Inventor
Hakan Oral

Further information
Katherine Pollard
kpollar@umich.edu

View online

OVERVIEW

A new device addresses stroke risk in atrial fibrillation by safely and completely filling and sealing the left atrial appendage (LAA) with a biocompatible material—conforming to any LAA shape, eliminating sites for blood clot formation, reducing surgical complexity, and enabling access for more patients at a lower cost.

DESCRIPTION

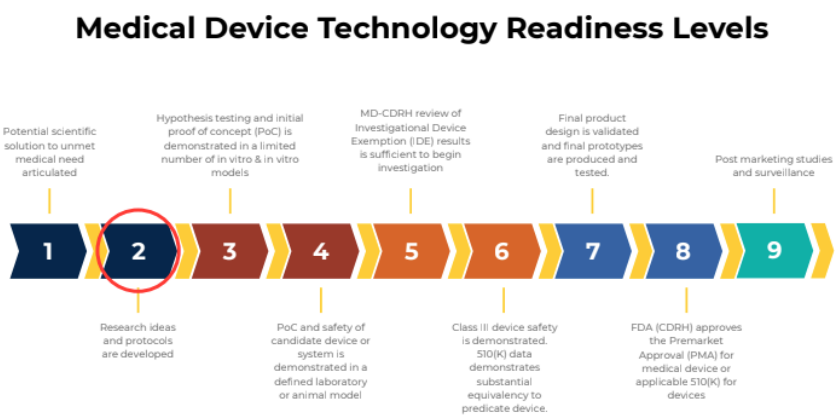
This technology introduces an implantable device that not only seals the opening of the LAA but also fills the internal space with an injected, biocompatible, inert material. During a minimally-invasive procedure, the device's cap is positioned to block the LAA orifice, preventing leakage, while the liquid material is injected directly or via a balloon to fully occupy the appendage. The liquid then solidifies to create a complete barrier to blood flow and clot formation. Unlike

current fixed-shape devices, this solution adapts to the patient's unique heart anatomy, avoids the need for complex imaging or expertise, and allows use in patients with existing LAA clots (which is a contraindication for current devices) or variable appendage geometries. Some versions utilize stimuli (e.g., heat, light, catalysts) to control the transition from liquid to solid, ensuring reliable and customizable sealing.

VALUE PROPOSITION

- **Universal Fit**: Conforms to any LAA anatomy, eliminating anatomical mismatch and incomplete closure—a significant issue with fixed-size devices.
- **Expanded Patient Eligibility**: Can be used even in patients with pre-existing LAA clots or anatomical exclusions, broadening the addressable patient population.
- **Simplicity and Affordability**: Streamlines the procedure, reduces the need for advanced imaging and skill, and is designed for cost-effective manufacturing and broad global access.

TECHNOLOGY READINESS LEVEL



INTELLECTUAL PROPERTY STATUS

All Issued Patents:

- US9011551 "Multimodality left atrial appendage occlusion device"
- EP2731493B1 - Validated in UK, France, and Germany

MARKET OPPORTUNITY

Stroke prevention in atrial fibrillation remains a critical, high-cost challenge affecting over 10 million Americans, with current LAA devices presenting complications, high costs, and anatomic limitations—especially in patients unable to take long-term anticoagulants. This adaptable, fillable device could see rapid and widespread adoption in hospitals, ambulatory surgical centers, and global health systems seeking more inclusive and cost-efficient solutions for AF stroke prevention. Ideal application areas include cardiology, minimally-invasive cardiac surgery,

and emerging markets currently priced out of existing technologies.

The global LAA closure market is projected to grow to $7B by 2034 (14% CAGR), fueled by rising AF prevalence and the clear need for safer, more effective solutions.