SELF-SUSTAINABLE LEADLESS PACEMAKER

Where heartbeats become living energy

PRESS RELEASE

CAIRDAC a French startup, announces State-of-the-Art Self-Sustainable Leadless Pacemaker operated with a unique powering technology® based on heart's kinetic energy.

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Antony, France, May 12th, 2020, CAIRDAC has developed the world's first self-sustainable leadless pacemaker, dual-chamber compatible, that incorporates a unique inertial energy harvester capable of providing a renewable power supply to the device at every heartbeat.

A Full Paradigm Shift

Since the 60's implantable pacemakers have all been powered by a primary battery which needs to be replaced at depletion; this is particularly constraining when leadless devices are concerned wherein the battery capacity is even more reduced due to miniaturization. Replacement or re-implantation of a new leadless device is a complicated procedure and an expensive solution for patients and healthcare systems. Today, device longevity is THE major weak point of leadless pacemakers; moreover, and due to energy reserve limitation, current design fails to implement new desirable features such as dual-chamber (80 % of market) extended sensing and data transmission that are mandatory to fully access the market needs.

The market for implantable pacemakers was $3.7 billion in 2019 with strong growth potential driven by an aging population and the needs of China and India amongst the most important emerging countries.

Because of battery life, current products are leaving out significant segments of the population in need of pacemaker. CAIRDAC is pioneering a solution by-passing the primary battery used thus far; this allows extended longevity over 15 years instead of about 5 years expected for leadless products in the market today, and therefore can address larger segment of population while reducing drastically discomfort and infection risks for patients.

A Unprecedent Energy Performance In Leadless Pacemakers

Capitalizing on its multiple skill sets, and supported by its experienced group (13) of engineers managed by an executive team cumulating more than 120 years of experience in CRM & medical devices, CAIRDAC leveraged its assets and resources to be the first company in the world to successfully develop a self-sustainable pacemaker pledging over 15 years of lifespan. This energy performance was enabled by the use of proprietary piezoelectric energy harvester associated with its miniaturized ASIC "high-efficient power management circuit".

CAIRDAC's technology is protected by more than 30 patents classified into 12 families.

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What Sets CAIRDAC's SELF-SUSTAINABLE LEADLESS PACEMAKER Apart

Self-sufficient energy design: Thanks to a piezoelectric extender, the pacemaker converts the heart's kinetic energy into electrical energy; at every heartbeat the device is accumulating the electrical energy necessary to pace the heart in return; thus, creating a **perpetual cycle**.

New features in development:
Device-to-device HBC (Human Body Communication) capability
Accelerometer sensor
Self-health monitoring of the harvester
Data storage
Holter

Where Is CAIRDAC Today?

Currently, CAIRDAC's leadless pacemaker is in chronic preclinical testing phases with 3 European medical centers and is already showing encouraging results in terms of compatibility and in-situ performance.

"We are very proud and inspired by the encouraging preliminary results of our preclinical tests. The device shows reliable energy performance. This technology is a key building-block for next generations of leadless pacemaker, and this will reshape the patient's living conditions. The solution of CAIRDAC is in radical disruption with the way leadless pacemakers have been thought and conceptualized so far." **said An Nguyen-Dinh, CEO of CAIRDAC.**

Development Strategy - CAIRDAC Is Looking To Raise 15M€ By The End Of The Year

Founded by An Nguyen-Dinh (CEO) and the MedTech DOLIAM group presided by Etienne Flesch; CAIRDAC received an initial investment from its historical shareholder DOLIAM of more than 4M€ in order to validate the proof of concept and was granted by the European Commission (EC) more than 1,8M€ in funding within the H2020 framework program which demonstrates the innovative and uniqueness of its patented technology as well as the relevance of its development strategy.

To secure its product development roadmap, CAIRDAC is looking to raise 15M€ (12M€ in equity and 3M€ in non-equity) by the end of the year, to cover activities in pre-clinical GLP testing, pre-industrialization, V&V (Verification & Validation) and FIM (First In Men) pilot testing.

"*DOLIAM was convinced from the very early stage by this innovation that will improve the patient's quality of life. This is a breakthrough for both patients and healthcare professionals. A solution that will take the promising pacemaker's market to reach new perspectives wherein comfort of life, minimally invasive surgery and sustainability are common thread. DOLIAM is proud to be part of CAIRDAC's vision and continues to strongly support their efforts*", **said Etienne Flesch, Chairman and CEO of DOLIAM**.

CAIRDAC plans to complete its product development and market validation by 2025.

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ABOUT CAIRDAC

CAIRDAC is a perfect symbiosis of passion and experience. Indeed, the technology from CAIRDAC may be considered as the “Charing Cross” point for next generations of leadless pacemaker and even for other medical implants that would benefit from self-sustainable energy source. New products can be designed to last much longer, having more features, and enabling significant cost savings for healthcare systems.

CAIRDAC is striving to become the world leader in autonomous leadless pacing systems.

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