



*The sustainable alternative to
the heart transplant shortage*

Deck 2023

www.procope-medicals.com



”

Our mission is to provide heart failure patients with a state-of-the-art artificial heart, giving them the hope of a longer and healthier life. With more than 18 million people affected by severe heart failure worldwide, we are committed to making a significant impact in the fight against heart failure.

“



S.Chabane, Co founder & CEO

The burden of Heart Failure

Leading cause of death in the world

The impact of heart failure on individuals and society is tremendous



60 Million

Number of heart failure patients worldwide

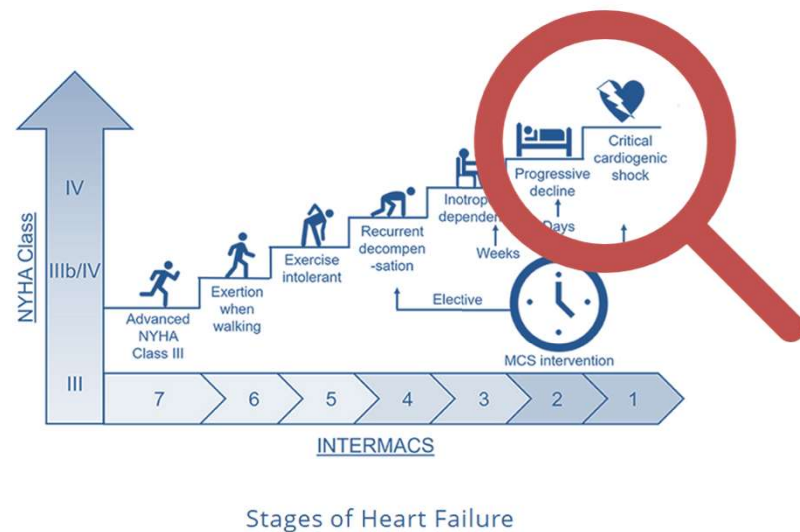
1 on 5

The lifetime risk of developing heart failure

Heart failure: A strong shortage of grafts

Severe heart failure is on the increase worldwide...

And access to heart transplantation is limited by a shortage of heart transplants.



170 000

of patients with severe heart failure on waiting list



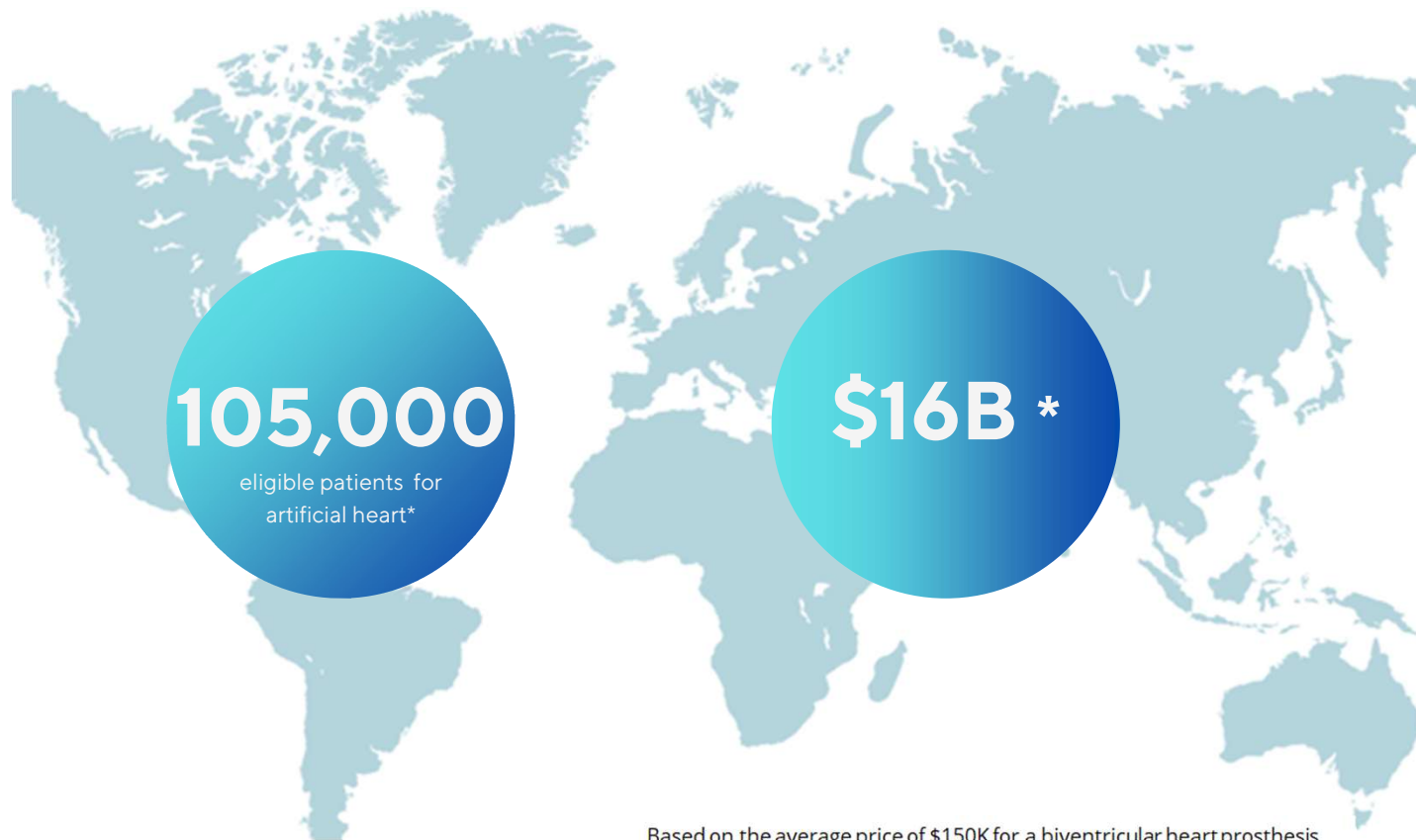
3%

only receive a transplant

A technological alternative to heart transplantation is now a global emergency

Sources: U.S. Centers for Disease Control and Prevention, American Heart Association, National Institutes of Health.
<https://www.ahajournals.org/doi/full/10.1161/JAHA.122.027852#jah38256-fig-0003>

Addressable global market



**25%
growth by
2040**

Based on the average price of \$150K for a biventricular heart prosthesis

Competition

Syncardia - designed in the 80'S - is the only Total Artificial Heart on the market today



	SynCardia	CARMAT	REALHEART	BiVACOR	PROCOPE MEDICALS
Total Artificial Heart	Yes	Yes	Yes	Yes	Yes
Pulsatile	Yes	Yes	Yes	No	Yes
Noiseless	No	Yes	Yes	Yes	Yes
Self-regulated system	No	Yes	Yes	Yes	Yes
Morphological compatibility	Yes	No	?	Yes	Yes
Without transcutaneous cable (sources of infection)	No	No	No	No	Yes

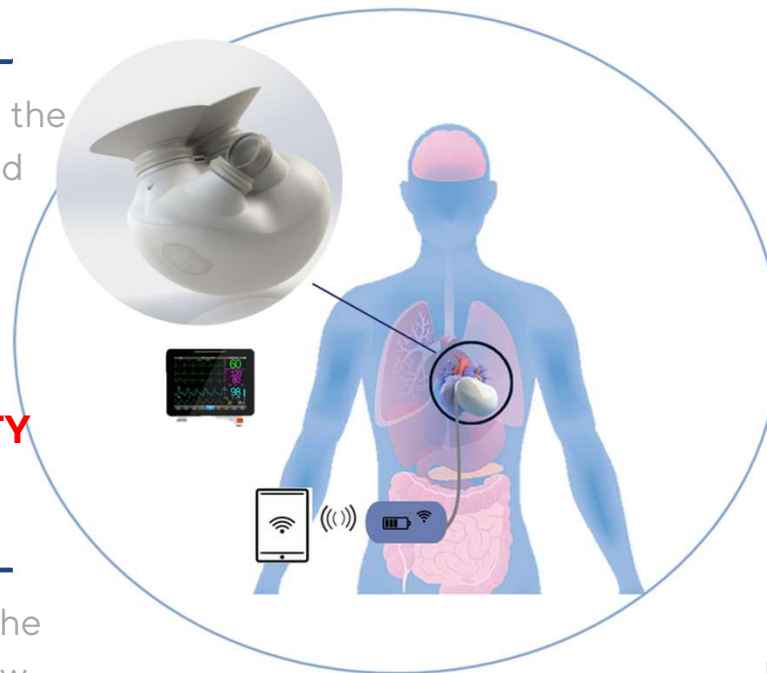
PROCOPE Medicals' Value Proposition

COMPATIBLE WITH ALL MORPHOLOGIES

Available in 2 sizes 50 & 70cc, the design is made to facilitate and secure the implementation

MIMICS THE PULSATILITY OF THE HEART

Synchronous functioning of the prosthesis regulates blood flow according to the patient's physical activity



WIRELESS AND FULLY IMPLANTABLE

No external transmission by cable, thus eliminating the risk of infection which is the 1st cause of mortality

REMOTE PATIENT MONITORING

Physiological parameters monitored by medical teams remotely

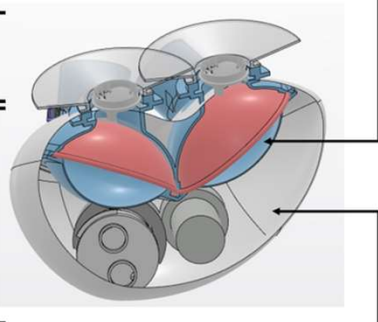
The technology



PROCOPE Medicals is 100% owner of the pneumatic innovation of its medical device. This innovation is protected by an international patent (Europe, USA, Canada, Japan, China, South Korea)

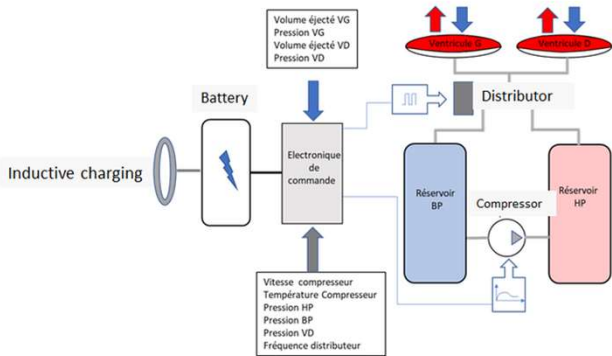
Suturable Interface

Artificial ventricles
A biocompatible hybrid membrane provides the air/blood interface



Electro-pneumatic technology
Pulsatile pressure generation to ensure synchronous movement of the 2 ventricles

Electro-pneumatic prosthesis



A complementary team

Co-founders & Board

Scientific Board



Said Chabane
CEO- Scientific Director



Samuel Plumejault
Technical Director



Stéphanie Gouraud
Operations &
Communication Director



Jean Christian Roussel
Head of the CTCV
Department
Nantes University Hospital
PhD of cardiac surgery



MD PhD Thomas Senage
Cardio-Thoracic Surgeon

R&D team



Pierre Fleurance
R&D Design Engineer



Alba Thio i Pera
Biomedical Engineer
CIFRE in 2023



Jeanne Bonnin
R&D Design Engineer



Joris Thobie
R&D Design Engineer



Marie Dallibert
Community Manager



Céline Garnier
Office management

Sylvie Sesmat
PhD- Research Engineering -
Systems Dynamics

Daniel Pierrat
Expert CFD Fluid Engineering

Muriel Vayssade
PhD- University Professor -
Specialist in biomaterials

Dr Gilles Marcillaud
Surgeon

Samuel Durand
Mechanical Engineering &
Materials Design

Eric Bideaux
PhD- University Professor -
Systems Dynamics



R&D Milestones reached

Concept feasibility & Design Validation

2023

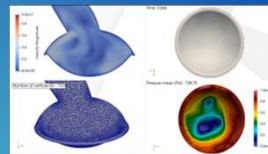
ANATOMICAL VALIDATION
Compatibility test



Tests of compatibility with virtual implantations (3d segmentations) and real implantations (bodies)

to

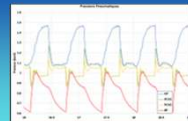
NUMERICAL SIMULATION
Haemodynamic optimisation



Numerical simulation of blood flow by CFD to validate hemodynamic requirements (development of a specific calculation code)

2017

EXPERIMENTAL VALIDATION
Proof of Concept



Tests bench & characterization of the prototype performances
Validation of the behavior of the prosthesis with a Mock (Blood circulation simulator)



Roadmap

Preclinical trials start in 2024

Clinical trials - first in man

Market

2024 - 2027

2027- 2030

2030

TRL5

TRL6

TRL7

TRL8

Biocompatible and self-regulated pre-clinical version of the prosthesis

Clinical version of the prosthesis with implantable battery & remote monitoring system

AMM
Production & Marketing

Recruitments

From 2022 to 2026: 7 to 17 talents

From 2027 to 2030: 27 to 60 talents

Patents

Strategy for filing and protecting complementary patents

Compliance

Continuation of the MDR* regulatory plan & ISO 13485 quality system

On the market

Funds obtained

Funds raised to date : 2,6 M€

1.210.000€

40 000€
founders' initial capital

1 170 000€
Business Angels

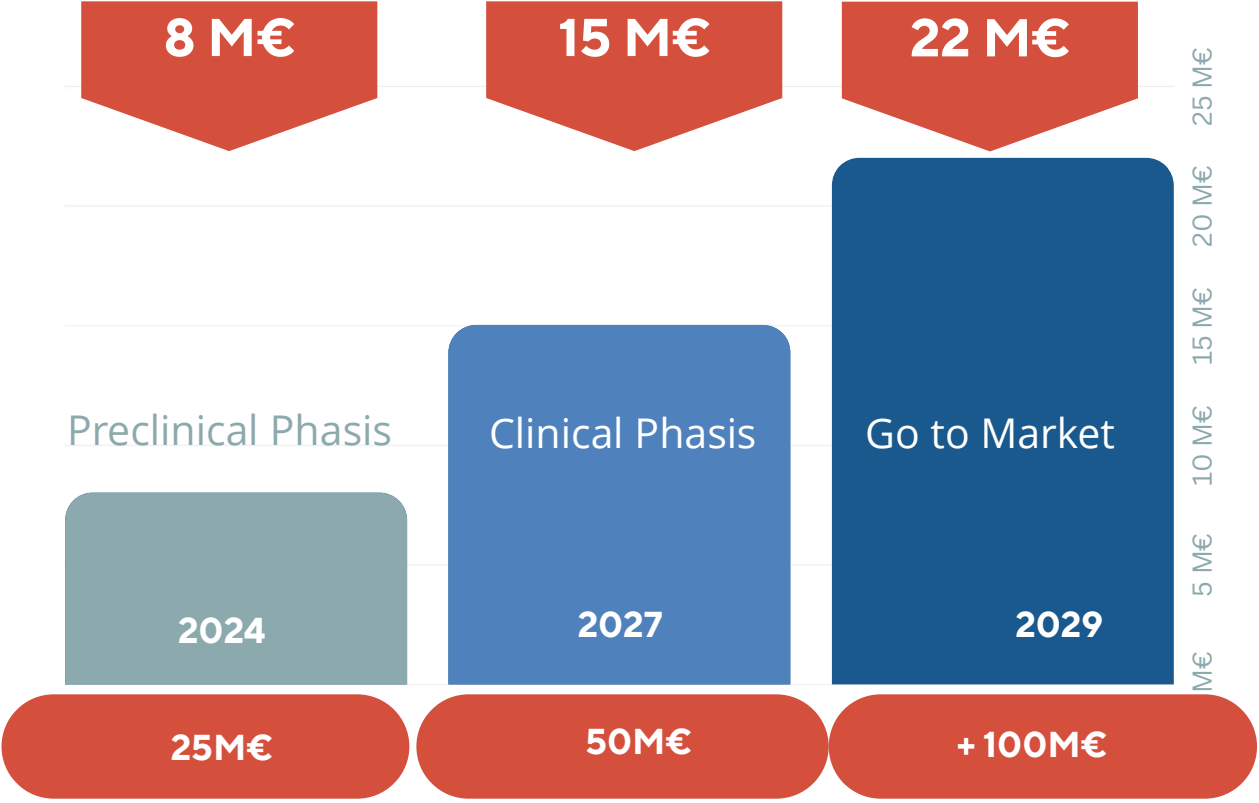
1.370.000€



Capital needs

Sources of financing :

- Venture Capital
- Private Equity
- Banks (private, BPI)
- Subsidies (European)
- IPO



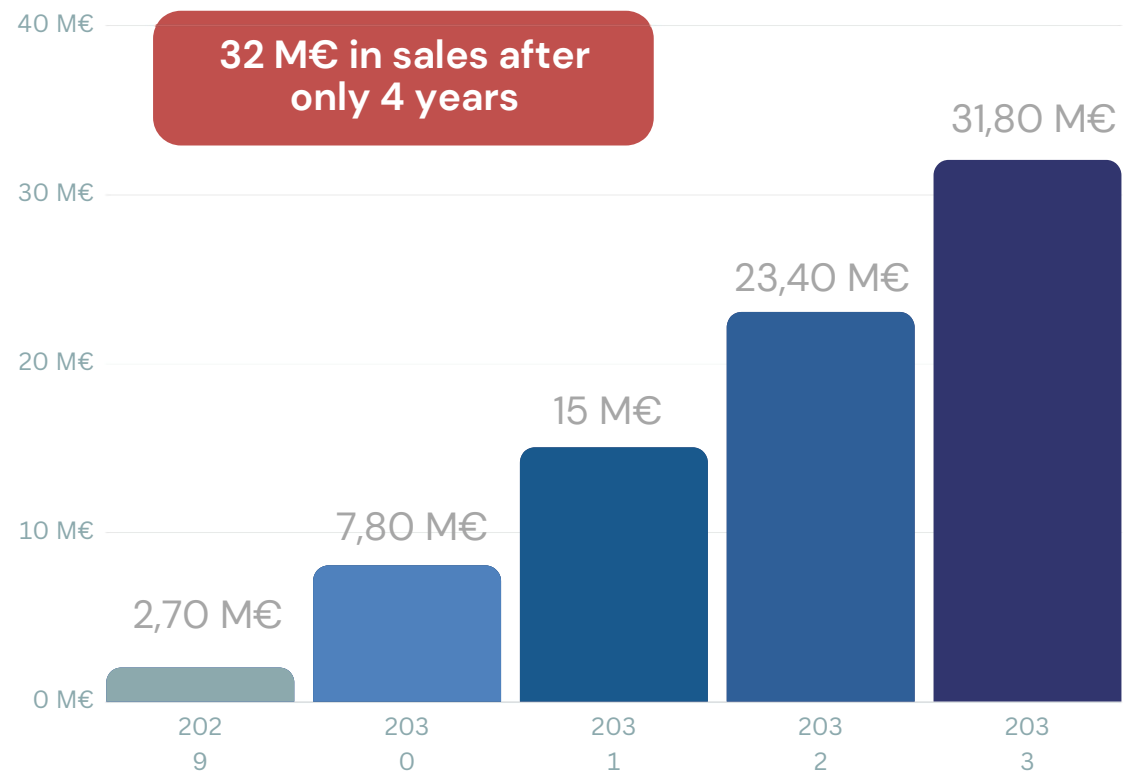
PROCOPE Medicals 's valuations

BUSINESS

SALES FORECASTING TREND

Distribution through a network of medical partners, mainly to hospitals in Europe and the United States

Growth driven by training and promotion of the therapeutic solution to specialists, and the implementation of a prospecting approach by sales teams.



THANK YOU

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