

A novel solution for a total artificial heart



PRINCIPAL INVESTIGATORS:
Tim Bierewirtz,
Marcus Granegger, PhD
Charité



SUMMARY

Heart transplantation remains the life-saving therapeutic option for patients with end-stage heart disease. However, the large heart transplant waiting list is the reflection of a severe and persistent shortage of donor hearts. Total artificial heart (TAH) is an artificial organ that mimics the native heart. It is designed to replace the heart in patients with end-stage heart failure as a bridge to heart transplantation. There are very few TAH solutions on the market and the one available are nonetheless risk prone regarding reliability, blood damage and thrombus formation. Hence, the aim of the project is to develop a functional prototype of an implantable, pulsatile TAH with superior performances by means of reliability, implantability and hemocompatibility.

PROJECT GOALS

- Manufacturing and assembly of fully functional prototypes
- Perform virtual and physical fitting studies
- Perform acute/chronic *in vivo* validation study within large animals

LONG-TERM GOALS

- Startup foundation or license to MedTech company
- CE certification as a medical device

PREVIOUS SPARK FUNDING

- Track 1 2019