



LifeTec Group™

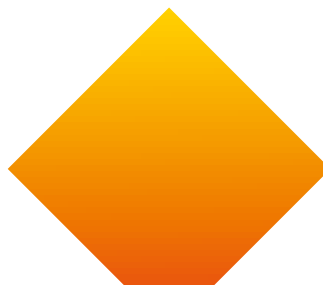
01 _ PRECLINICAL CRO

02 _ TECH & TRAINING

03 _ ACCELERATION



PHYSIOHEART™
PLATFORM



PHYSIOHEART™ PLATFORM

An ex-vivo beating heart model for assessment of cardiac devices and therapies

The PhysioHeart™ is an isolated autonomous beating heart model that approaches the in vivo situation as close as conceivable. It works with a living heart, which is perfused with real blood, displays natural electrophysiological behavior, muscle contraction, heart valve behavior and hemodynamic performance. The system is compatible with a variety of imaging modalities, such as CT, MRI and ultrasound.

The use of slaughterhouse hearts reduces the need for animal research and the required ethics approval,

ensuring short timelines and providing a smart and efficient preparation for animal and pre-clinical studies.

The use of living tissue adds value to the studies, especially where the effect of treatments on the living myocardium is important. On PhysioHeart, it is for instance possible to measure the performance of pacemakers and leads, while evaluating the feasibility and success of the lead placement and instantaneously assess the effectiveness visually, hemodynamically, and electrophysiologically.

FEATURES & BENEFITS



"Preparing the PhysioHeart platform for MRI imaging at the Amsterdam Medical Center"

- PhysioHeart is a valuable tool to assess the functionality and feasibility of cardiology and heart surgery devices and procedures.
- The platform and protocols are applicable to different species.
- When using slaughterhouse tissues, the PhysioHeart is an ethically well-considered platform, partly reducing the necessity for animal research.

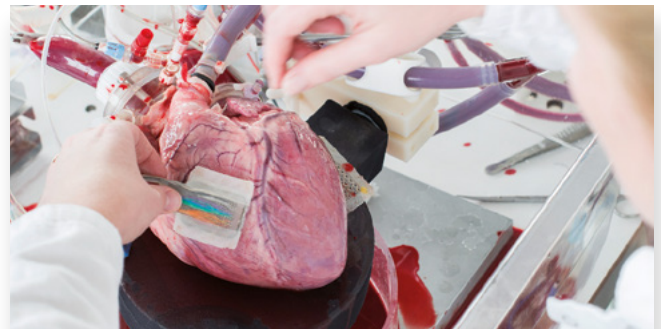
- The living heart tissue is ideally suited to study myocardial contraction, electrophysiological properties or tissue perfusion.
- PhysioHeart can be easily customized to fit specific needs, e.g. to create pathological situations or specific access routes.
- Cardiac performance can be tuned to simulate different clinical scenarios, e.g. heart failure, using adjustable pre- and after loads, pacing, drugs or oxygen levels.
- Clear circulation fluid allows endoscopic visualization of your intra-cardiac intervention.
- Like in a clinical setting, medical imaging techniques can be used with PhysioHeart, e.g. CT, 4D flow MRI, ultrasound, fluoroscopy, etc.
- Multiple pressure and flow sensors allow for hemodynamic monitoring before, during and after an intervention.
- The effect of the intervention can be observed instantaneously in the change in cardiac performance of the heart.
- Highly skilled operators support you during your studies and training sessions.

EXAMPLES OF USE

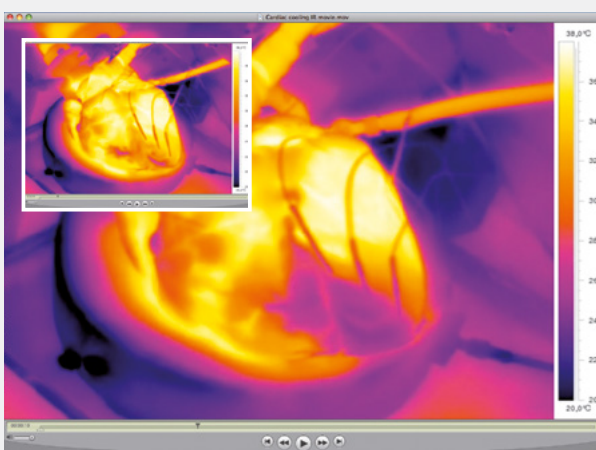
- Assessment and feasibility of (intra-)cardiac device delivery, deployment and functionality, for example for minimally invasive devices.
- Hemodynamic performance studies of interventions such as valve repair or replacement (TAVI), ventricular support, or drug therapies.
- Electrophysiological studies, such as pacing, sensing, mapping, ablation or resynchronization.
- Cardiac tissue perfusion, protection or regeneration, e.g. stem cell therapy, reperfusion injury or infarct size reduction strategies such as cardiac cooling.
- Structural heart imaging or cardiac blood flow imaging to assess new device and therapies, or to support development of new imaging protocols, e.g. 4D flow MRI or CT perfusion.
- Intra cardiac visualization as follow-up study on hearts explanted after chronic studies.
- Applying a lifelike setting to train physicians with efficient protocols under image guidance.



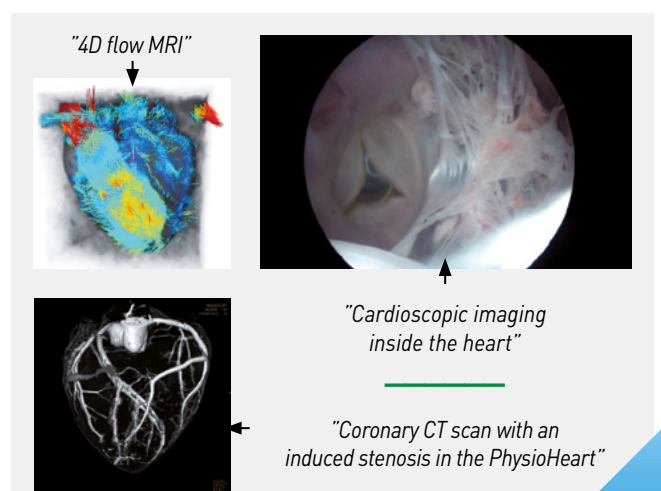
"LVAD connected to the apex of the PhysioHeart to study circulatory support strategies"



"Mapping electrophysiology with electrode grids on the PhysioHeart"



"Thermal imaging of intracoronary cooling in an induced infarct area in the PhysioHeart"



PHYSIOHEART™ PLATFORM

"PhysioHeart platform is a platform as a service."

WHAT'S IN IT FOR YOU?



- Obtaining relevant data in a realistic and highly-controlled test environment, time and cost efficient and without the need for animal testing.
- Combination of clinical and non-clinical measurements and a well-controlled test environment will lead to better understanding of the therapy and the potential shortcomings in its early development stage.
- Steep learning curve with safer and better prototype assessment will significantly speed up development and lead to improved success rate in further pre-clinical research.

For further information



please contact:

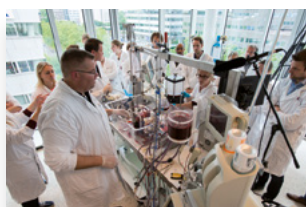
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PRECLINICAL CRO



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