

# CARDIAC DISTRESS DIAGNOSTIC DEVICE

Date: July 2020

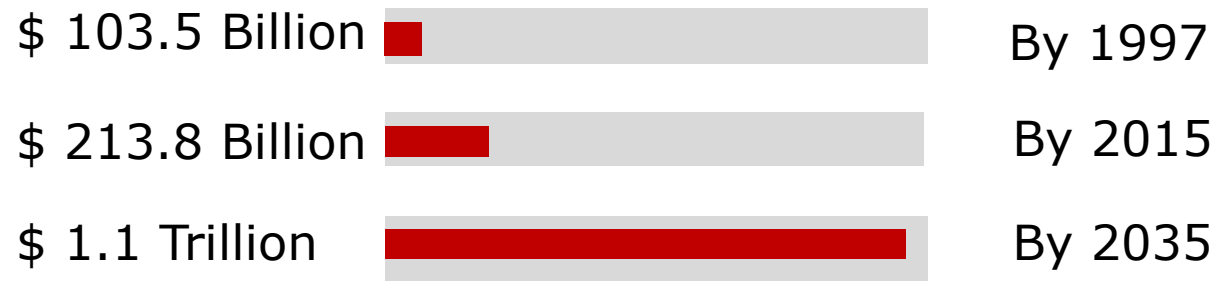
# CVD is the primary cause of death in the world today

## ➤ 31% of all deaths worldwide

17.9 million people die each year from Cardiovascular diseases (CVD), an estimated. (about 49,000 a day)



## ➤ A heavy economic burden to governments worldwide : expected to reach \$1.1 trillion by 2035.

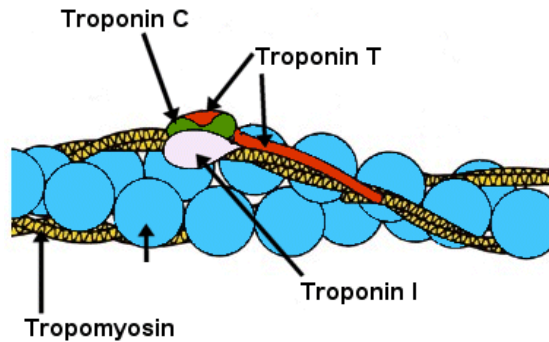
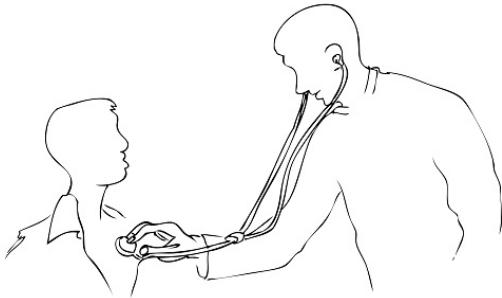


# A man walks into a doctor's office with chest pain...

## Procedure

## Troponin Protein

## Solution



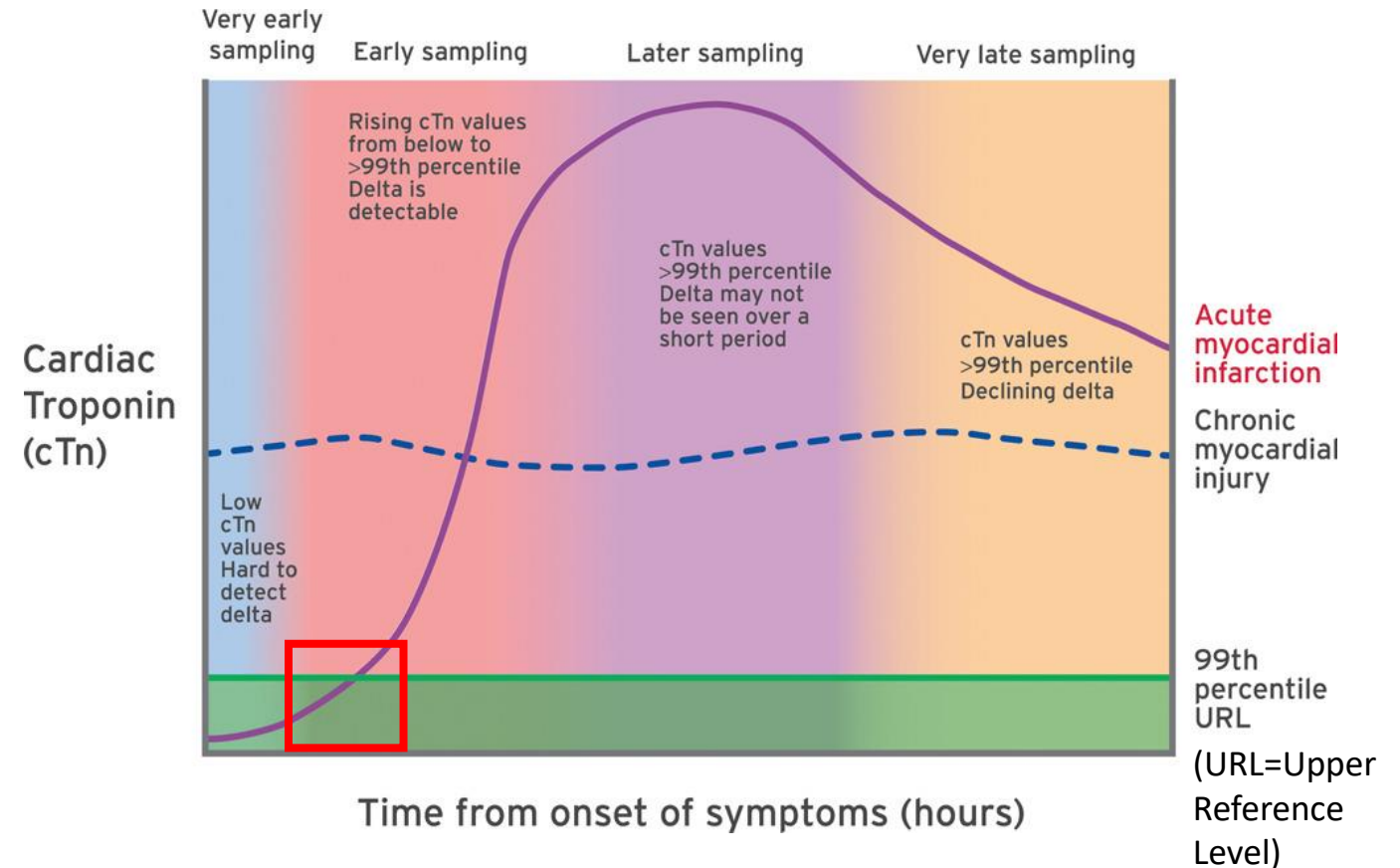
\* For Illustration Only

# Troponin plays a key role in the measurement of Cardiac Disease

**High levels of cardiac troponin are an indicator of myocardial infarction**

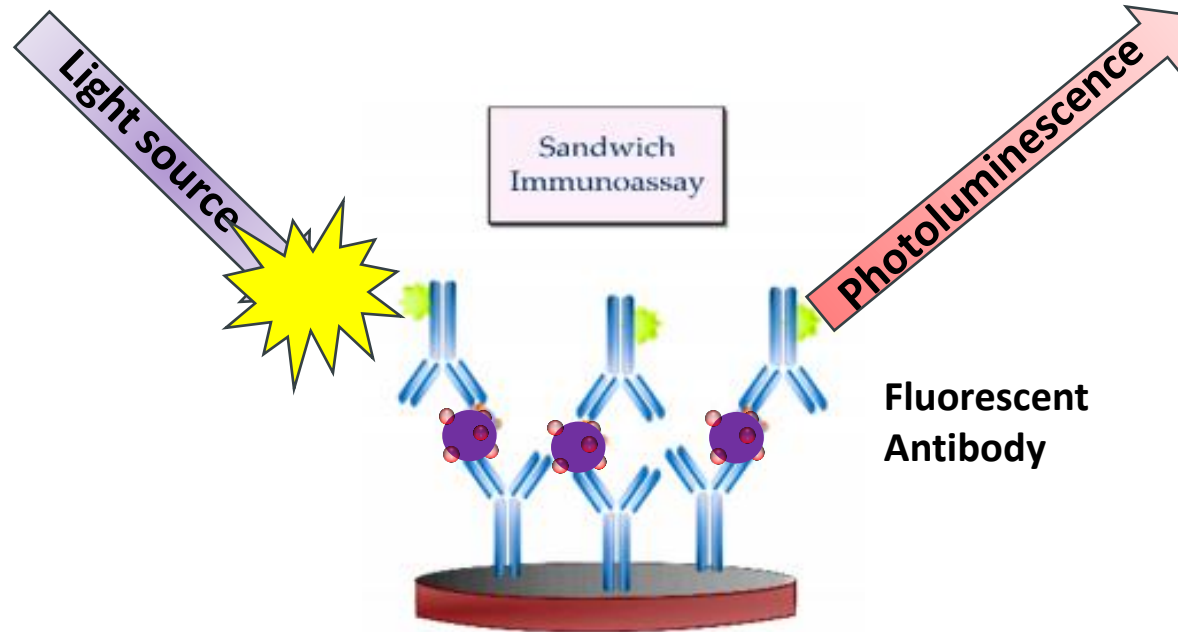
**Levels of Cardiac Troponin**  
have a high prognostic value.

**All guidelines recommend**  
measuring the concentration of  
Cardiac troponin for Acute  
Coronary Syndrome patients.



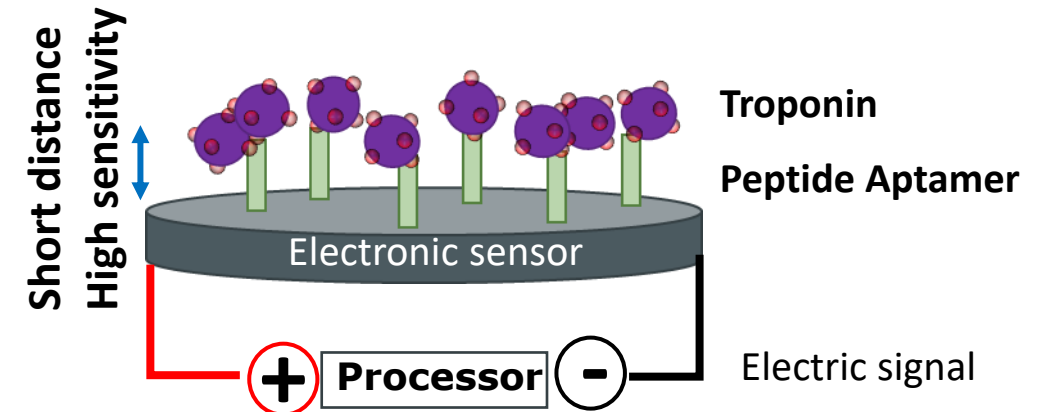
# Differentiation between technologies

## Current technology



- Need for photonic measurement
- Need for expensive labelling
- Multistep process

## Our technology



- Troponin close to the sensor surface (1-2 nm)
- Sensing is enabled

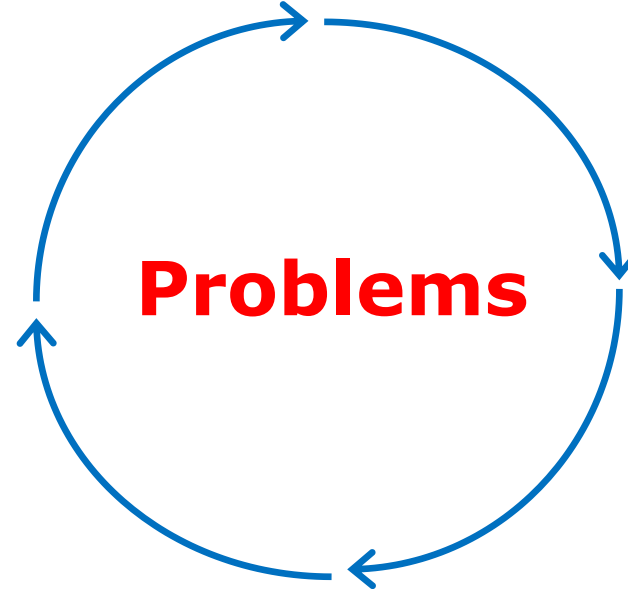
# Problems of current diagnostic methods

## **Sensitivity limitation**

The usage of antibodies requires Photoluminescence measurements.

## **No high throughput Screening (HTS)**

Photoluminescence does not allow high throughput sensing.



## **No Label Free**

All EXISTING Cardiac Biomarkers Diagnostic Devices use reagents to label Troponin in the blood for Photoluminescence detection.

## **Time-consuming method**

Impossible to measure in whole blood, it is necessary to fractionate the blood.

## High Sensitivity

100X more sensitive to Cardio Troponin molecules than current cardio diagnostic devices.

## High Throughput Screening (HTS)

Measuring the sample with several hundred sensors at once for good statistics.

**Solution**

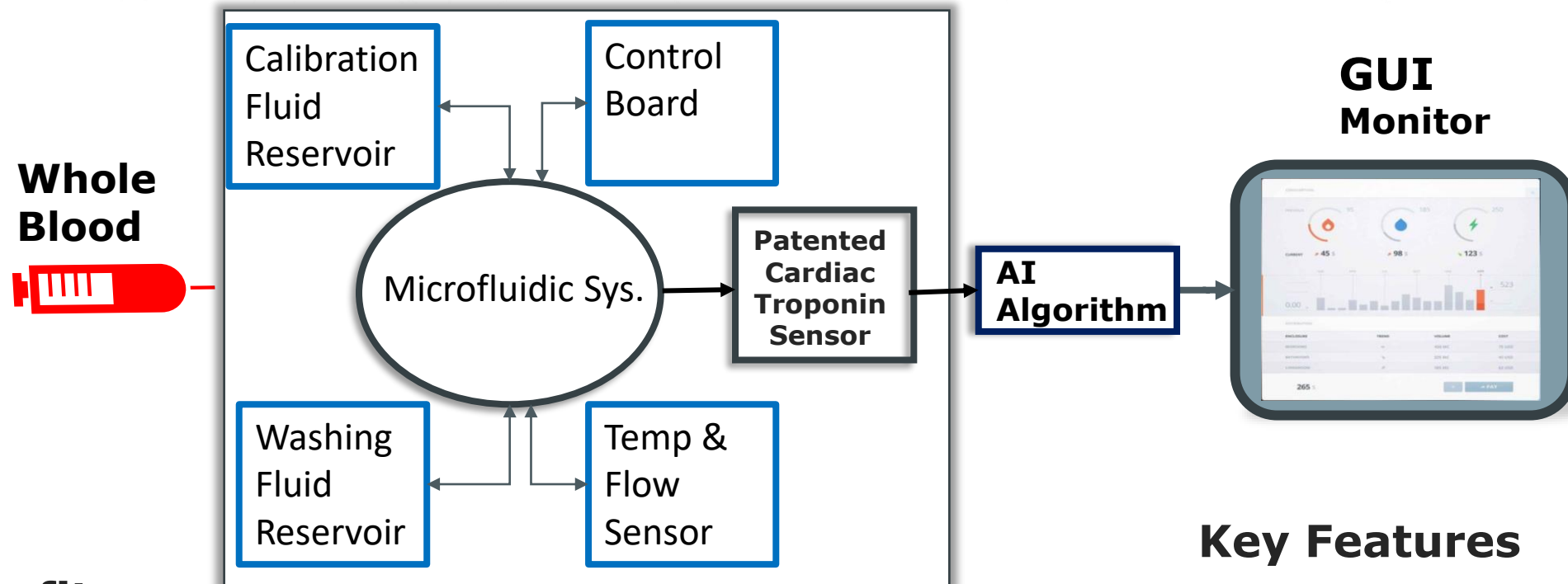
## Label Free

No added reagents.  
A direct whole blood diagnosis.

## Real Time

Processing 10X time faster than current devices

# POCT device - flow chart schematics



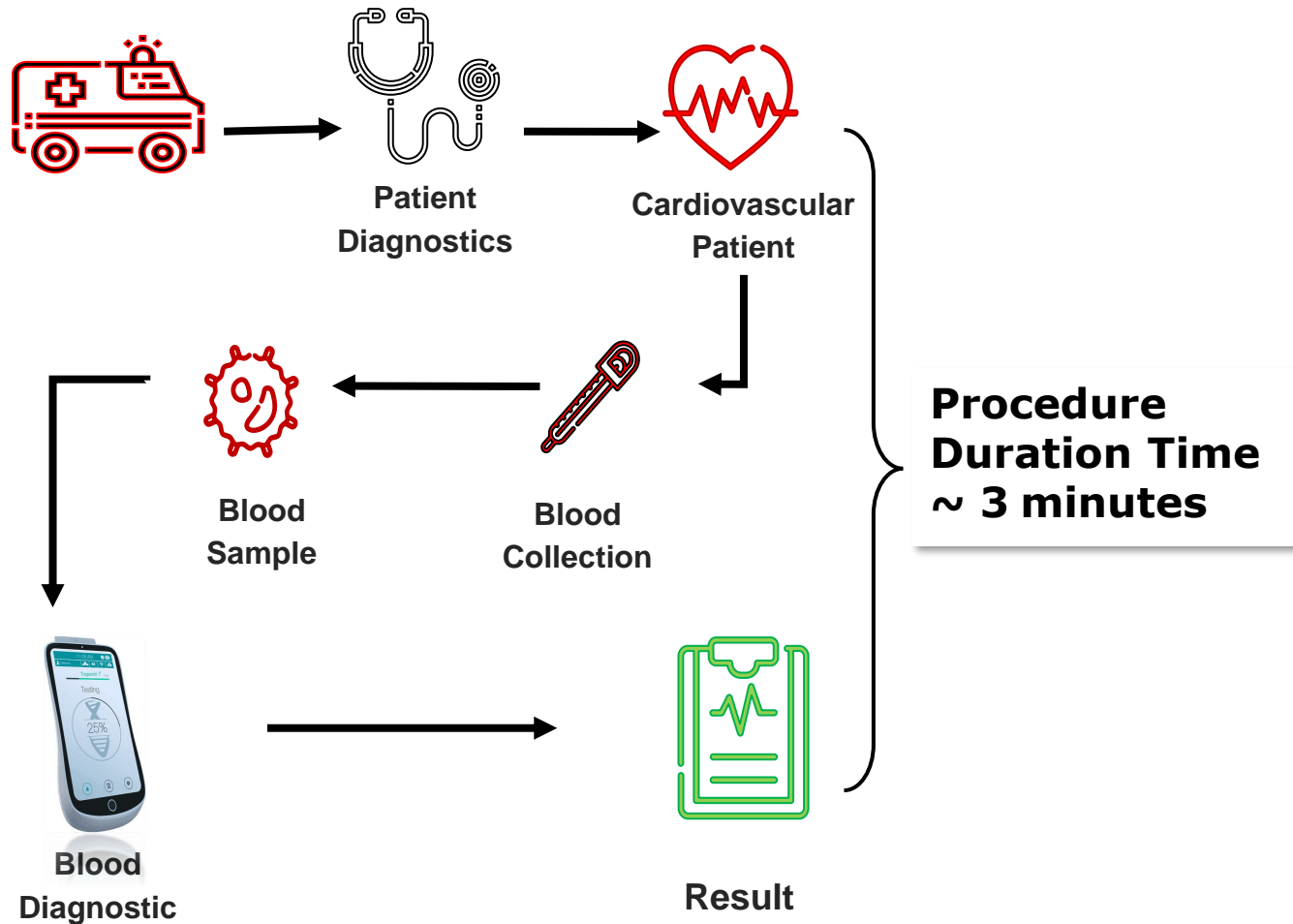
## Benefits

- Easy to use
- Small size
- Robust
- Affordable Price

## Key Features

- Embedded AI algorithm
- Automatic washing and calibration between assays
- Multifunction display
- Mobility Wi-Fi/Bluetooth connectivity

# POCT Rapid Deployment



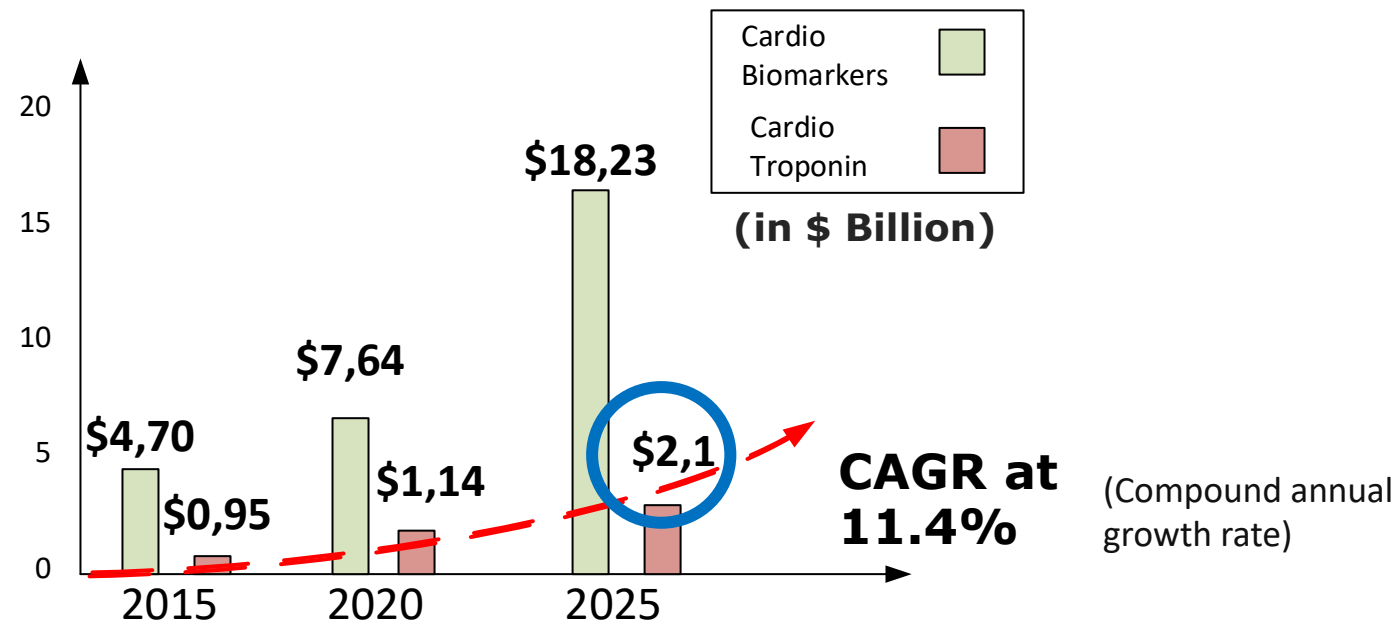
## Ideal For:

- **Hospitals & Emergency rooms**
- **Private Clinics & City Cardiologists**
- **Ambulatory Services**
- **Emergency Room**
- **Surgical & Medical Reanimation**
- **Preventive Diagnostics**
- **Laboratories**
- **Passengers airplanes**

# Cardiac Biomarkers market size

## A market full of potential showing double digit growth

Troponins I and T are the leading revenue-generating segment in the global cardiac biomarkers market due to its accuracy detect cardiac events.

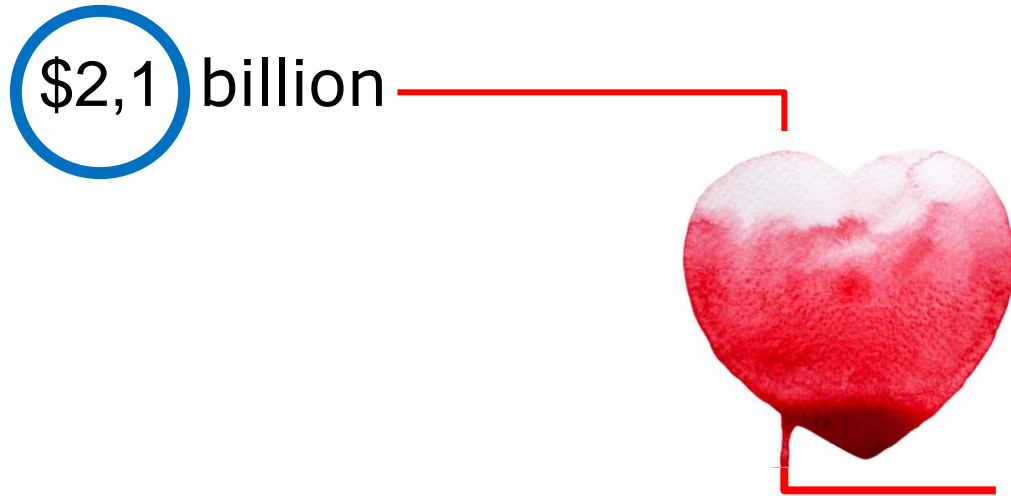


Sources: <https://www.grandviewresearch.com/industry-analysis/cardiac-biomarker-market>

<https://www.globenewswire.com/news-release/2019/01/16/1696736/0/en/Global-Troponin-Market-to-Reach-Valuation-of-US-1-990-Mn-by-2025-QY-Research-Inc.html>

<https://www.alliedmarketresearch.com/cardiac-biomarkers-testing-market#:~:text=The%20global%20cardiac%20biomarkers%20testing,11.4%25%20from%202019%20to%202026>

## Estimated Global Cardiac Troponin Diagnostic Market



The global cardiac Troponin testing market size is projected to reach \$2,1 billion by 2026, growing at a CAGR (Compound annual growth rate) of **11.4%** from 2019 to 2026.

**10%**

Our target Market Share  $\Rightarrow$  **\$210 Million**

Sources: <https://www.grandviewresearch.com/industry-analysis/cardiac-biomarker-market>

<https://www.globenewswire.com/news-release/2019/01/16/1696736/0/en/Global-Troponin-Market-to-Reach-Valuation-of-US-1-990-Mn-by-2025-QY-Research-Inc.html>

<https://www.alliedmarketresearch.com/cardiac-biomarkers-testing-market#:~:text=The%20global%20cardiac%20biomarkers%20testing,11.4%25%20from%202019%20to%202026>

# Cardiac Point of Care Test comparison chart

**Spectants testing far ahead of cardiac POCT (point of care test) competitors in terms of sensitivity & processing time**

POCT Competitors	Detection Method	Blood Labeling	Sensitivity ng/l	Processing time (min.)
<b>Spectants</b>	<b>Electrical</b>	<b>No</b>	<b>0.05</b>	<b>3</b>
<b>Abbott i-STAT</b>	Photoluminescence	Yes	80	7
<b>Siemens Stratus CS 200</b>	Photoluminescence	Yes	70	14
<b>Roche Cobas h 232</b>	Photoluminescence	Yes	No reported	14
<b>Trinity Pathfast</b>	Photoluminescence	Yes	36	15
<b>LSI Med. Corp.</b>	Photoluminescence	Yes	29	17
<b>Philips Minicare I-20</b>	Photoluminescence	Yes	50	17
<b>Alere Triage</b>	Photoluminescence	Yes	50	20
<b>Radiometer AQT90 FLEX</b>	Photoluminescence	Yes	23	20
<b>Response Biomedical</b>	Photoluminescence	Yes	10	20
<b>BioMerieux</b>	Photoluminescence	Yes	10	20

# Milestones and Estimated Costs

M1

PEPTIDE TESTING

M2

POCT PROTOTYPES

M3

COMMERCIALISATION

## 1. Proof of Concept

- Process Optimization in Laboratories
- Estimated Cost **€ 800K**
- September 2020 - May 2021

**1<sup>st</sup> Milestone**

## 2. POCT Design

- Electric Design
- Mechanical Design,
- Optimization
- Estimated Cost **€ 6,7M**
- January 2021 - June 2023

## 3. Prototypes

- Certification CE, FDA Patents
- Third-Party Validation
- January 2022 – December 2023

**2<sup>nd</sup> Milestone**

## 4. Industrial Production

- Production and assembly
- Shipping first batch

From September 2023

## 5. Marketing and Distribution

- Marketing and Distribution
- From September 2024

**3<sup>rd</sup> Milestone**

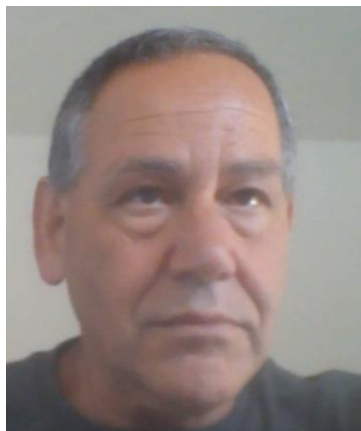
## 6. Market Launch

- **September 2024**

# The Team



Guideon Khalifa Kapan  
**President**



Amir Lichtenstein  
**R&D Director**  
Post: Surface Bio-electronics  
Ph.D. Biochemistry  
M.Sc. Biophysics  
B.Sc. Applied Mathematics



Stive Prégent  
**Technical Director**  
PhD: Biological Physics  
Post: Biotechnology and  
Nanomaterials  
MSc: Physical Chemistry  
of Surfaces



Dr. Olivier LE DREF.  
**Medical Advisor**  
PhD M.D. Cardiology / Radiology  
and Cardiovascular interventionist.

# A Growing Team

## MEDICAL ADVISORS

Dr. Olivier le Dref

## MANAGEMENT

Guideon Khalifa Kapan  
President

## BOARD OF DIRECTORS

?

## R&D Department

- Dr. Amir Lichtenstein  
Scientific Director
- Dr. Stive Pregent  
Technical Director
- Ehud Hahami  
Algorithm and software
- Chai Ezerzer  
Symthera
- Electronical Ing.
- Mechanical Ing.

## QC Department

- Dr. Stive Pregent  
Technical Director
- Ehud Hahami  
Algorithm and software
- ? QC Director  
(2022)

## Com. Department

- Ehud Hahami  
Algorithm and software
- ? GUI (2021)
- ? GUI (2021)
- ? DATA SQL  
(2021)

## SALES Department

- Guideon Khalifa Kapan  
President
- ? SALES Director  
(2022)

## ADMIN Department

- Guideon Khalifa Kapan  
President
- ? ADMIN Director  
(2021)

## Production Department

- Chai Ezerzer  
Symthera
- ? Product Director  
(2022)

In collaboration with:



**Marie Lannelongue Hospital**



**Hôpital Paris  
Saint-Joseph**

GROUPE   
HOSPITALIER  
 **PARIS**  
SAINT  JOSEPH

Spectants S.A.S  
20 rue le Sueur  
75016 Paris  
France  
Phone : +33 1 44 05 03 05  
Mail : [info@spectants.com](mailto:info@spectants.com)  
Web : [www.spectants.com](http://www.spectants.com)

Thank you