



 SPINCHIP™

**COMPANY  
&  
TECHNOLOGY  
PRESENTATION**

September 2022

*Strictly private and confidential*

# CONTENT

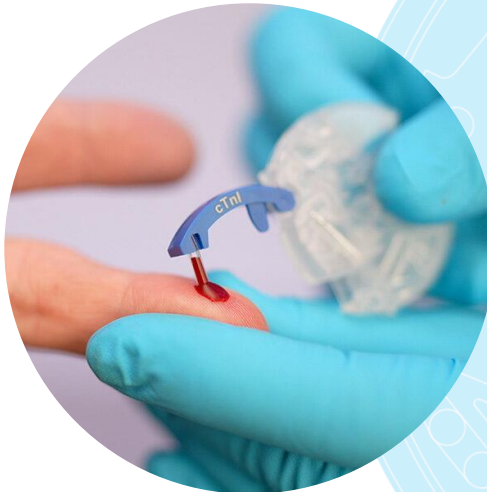
- 1 SpinChip company introduction
- 2 Unmet need
- 3 Proof of Concept
- 4 Go To Market strategy



# THE SPINCHIP PLATFORM DELIVERS LAB QUALITY TEST RESULTS CONVENIENTLY, RAPIDLY AND COST EFFECTIVELY

## 1.

Draw sample



- Integrated sampler
- Small sample (14µL)
- Same procedure for whole blood and plasma
- Closing the cartridge activates reagents

## 2.

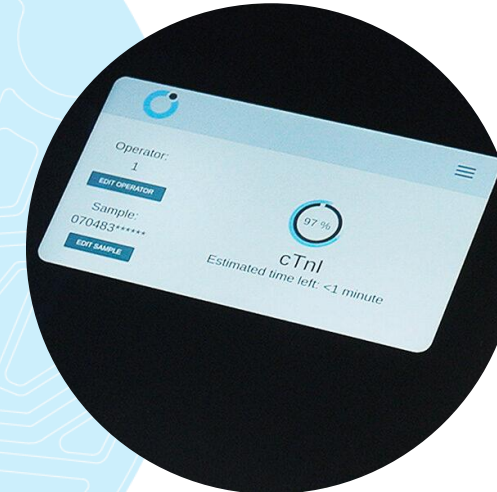
Insert cartridge



- Fully automated processing – dual axle centrifugation
- Centrifugal force controlling the microfluidics within the sealed cartridge including plasma from blood cell separation
- Vision based fluidics surveillance (fail-safes)

## 3.

Read result within minutes



- Result within 2-10 minutes
- Result read by one of the two readout systems
- Ultra-sensitivity, wide range and lab-level precision
- Built in auto-calibration
- State of the art connectivity



Click hand to see video

# MANAGEMENT TEAM WITH SUCCESSFUL TRACK RECORD

<p><b>Morten Jurs</b> CEO</p> <p>2021</p> <ul style="list-style-type: none"> <li>+30 years of leadership experience from senior positions in and healthcare, technology and IT companies</li> </ul>	<p><b>Stig Morten Borch</b> CSO &amp; founder</p> <p>2012</p> <ul style="list-style-type: none"> <li>+35 years of experience from R&amp;D management within medtech industry</li> <li>Inventor of SpinChip concept</li> </ul>	<p><b>Hamed Brodersen</b> CFO</p> <p>2021</p> <ul style="list-style-type: none"> <li>+25 years of management experience within large public companies and risk capital owned private companies</li> </ul>	<p><b>Alexis Garras</b> CBDO</p> <p>2021</p> <ul style="list-style-type: none"> <li>+25 years of experience in the pharmaceutical industry from senior positions</li> </ul>	<p><b>Corporate executives</b></p> <p><b>Extended management</b></p>
<p><b>Rolf Jahren</b> VP Instrument</p> <p>2015</p> <ul style="list-style-type: none"> <li>+20 years of experience with design of products manufactured in high volume for demanding and professional customers</li> </ul>	<p><b>Didrik Paus</b> VP Assay</p> <p>2016</p> <ul style="list-style-type: none"> <li>+15 years of experience covering a wide range of immunoassays</li> </ul>	<p><b>Torgeir Hamsund</b> VP Cartridge</p> <p>2015</p> <ul style="list-style-type: none"> <li>+25 years of experience within the medical device industry</li> <li>Skilled in Medical Devices, Design Management, Manufacturing Scale-up and Management</li> </ul>	<p><b>Monica Weiseth</b> VP QA/RA</p> <p>2021</p> <ul style="list-style-type: none"> <li>+20 years experience in Quality Assurance and Regulatory Affairs within IVD, Medical Devices and Lab</li> </ul>	<p><b>Jørn Vegard Helgerud</b> VP Procurement</p> <p>2021</p> <ul style="list-style-type: none"> <li>+20 years of experience within procurement</li> </ul>

# 49 HIGHLY SKILLED EMPLOYEES

**9**  
management  
team

**1**  
administration

**7**  
instrument  
development

**2**  
business  
development

**12**  
assay  
development

**4**  
QA/RA

**14**  
cartridge  
production  
development

Highly skilled  
workforce

More than  
**two-thirds**  
with master's degree or  
higher

**Solid organization built since last funding round. Additional 21 experienced FTEs added**

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# MAIN CHALLENGES WITHIN THE ANIMAL SEGMENT






## CHALLENGES

- 1 Often lab tests can be complicated and need technician background
- 2 With more remote locations for farm animals, running tests under difficult conditions can be challenging
- 3 Testing can be challenging with respect to mixing of reagents, materials and disposables
- 4 The health of animals may be determined by speed of results
- 5 Even with the new veterinary graduates expected over the next 10 years in the US, a shortage of nearly 15,000 veterinarians will likely still exist by 2030

## ADVANTAGES WITH POC TESTING

- Analysis of potential biomarker needs to be user friendly and intuitive to use, with minimal scientific and technical training needed
- Need reagents that are stable, have a long shelf life and do not require special storage
- The POC kits should contain all the materials and disposables necessary for the test
- POCT allows for massive time savings and easy access to complex technologies that will help keep animals healthy
- Quick, accurate measurements that are taken with ease and delivered telemedically to veterinarians from remote, rural areas are needed

# ANIMAL POCT GLOBAL MARKET

	Market attribute	Detail
	Global POC animal market size	2021: \$ 1.27B 2022: \$ 1.41B 2030: \$3.17
	Growth rate (CAGR)	2022-2030: 10.6%
	Largest geographical market	North America- 50%
<b>Drivers</b>	Main drivers of the veterinary point of care diagnostics market	Technological advancements, rising pet population & humanization, the need to reduce antimicrobial resistance, and expansion of service offerings by vet clinics
 Regulations for IVD Medical Devices	Regulatory requirements	FDA does not require makers of veterinary gadgets to list their products or register their businesses. FDA's pre-market approval (PMA) or notification [510(k)] procedure do not apply to devices intended to diagnose, treat, mitigate, or prevent diseases in animals
<b>Sample type</b>	Sample type insight	The blood/plasma/serum segment accounted for over 38% of the market by sample type in 2021. The urine segment is expected to grow the fastest
	Testing category	The market is divided into diagnostic imaging, parasitology, bacteriology, virology, cytology, hematology, serology, clinical chemistry

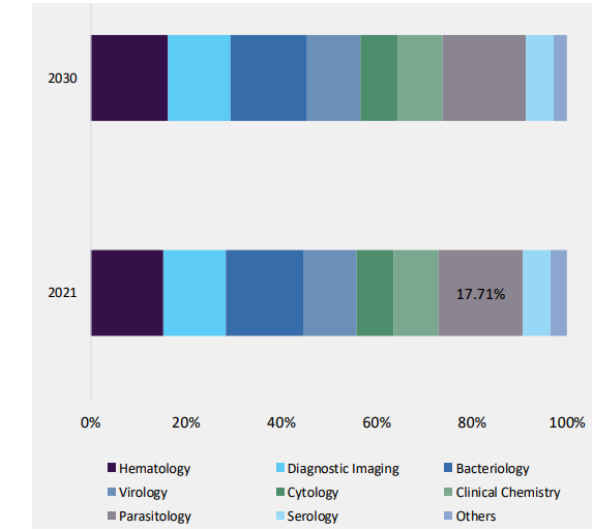
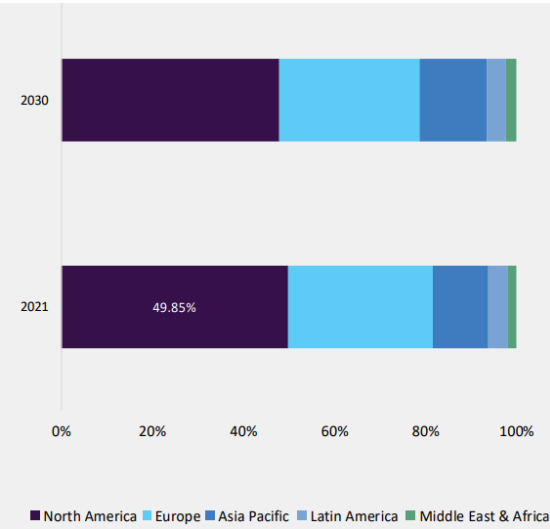
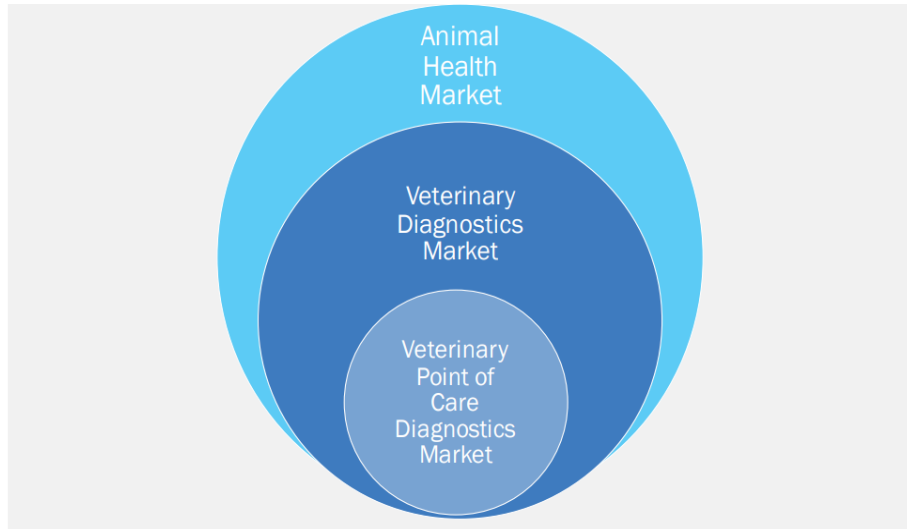


# ANIMAL POCT GLOBAL MARKET

**Global POC animal market size: 2021-\$ 1.27B  
2022: \$ 1.41B 2030: \$3.17**

**N. America is biggest market (50%) followed by Europe and a growing Asia**

**Parasitology is greatest segment followed by bacteriology and hematology**

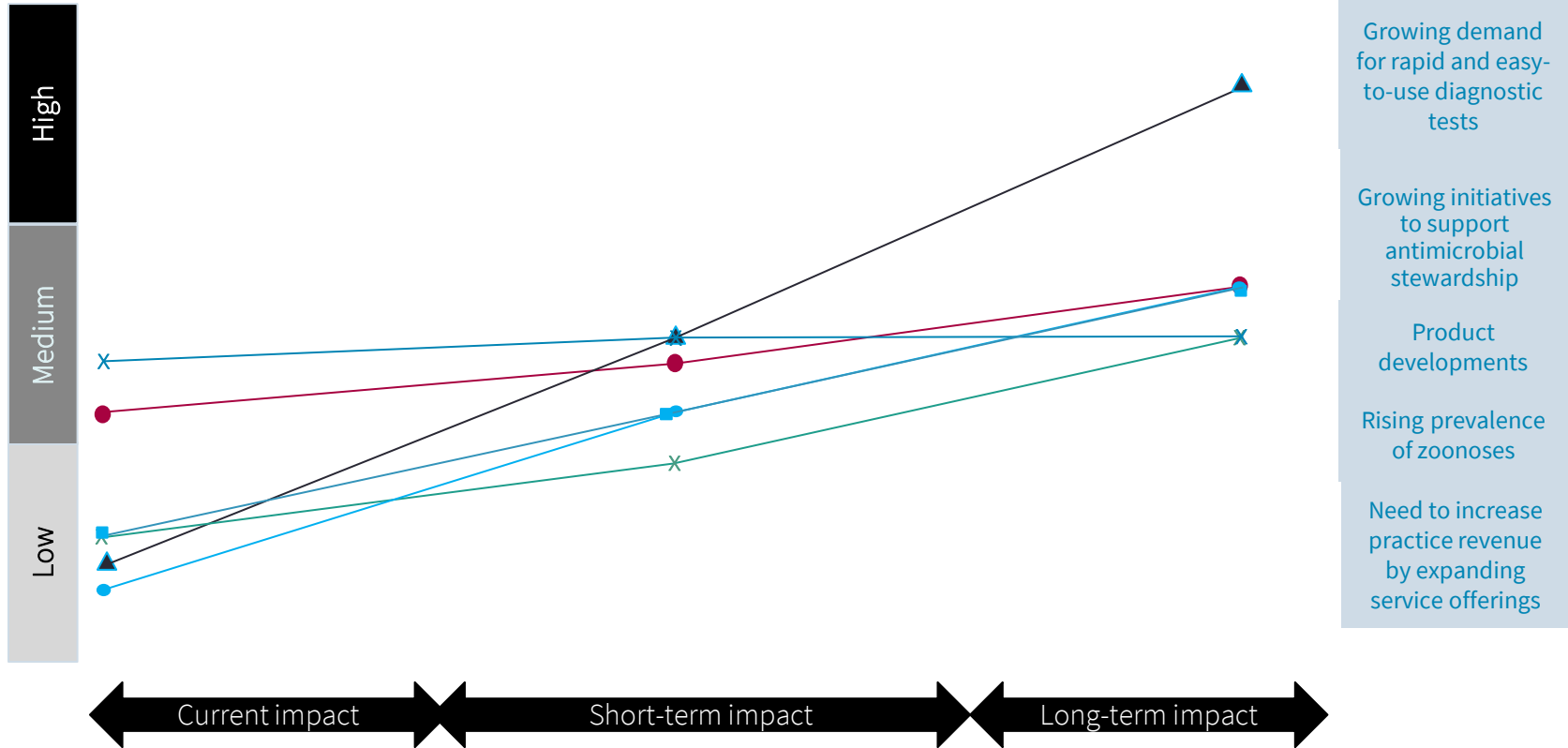


Source: WHO, U.S. CDC, FDA, Investor Presentations, Primary Interviews, Grand View Research

# DRIVERS OF MARKET: ANIMAL POCT GLOBAL MARKET

**Rising pet humanization and expenditure is #1 long-term driver**

**Market driver analysis (Current and future impact)**



- Rising pet humanization & expenditure
- Growing demand for rapid and easy-to-use diagnostic tests
- Growing initiatives to support antimicrobial stewardship
- Product developments
- Rising prevalence of zoonoses
- Need to increase practice revenue by expanding service offerings

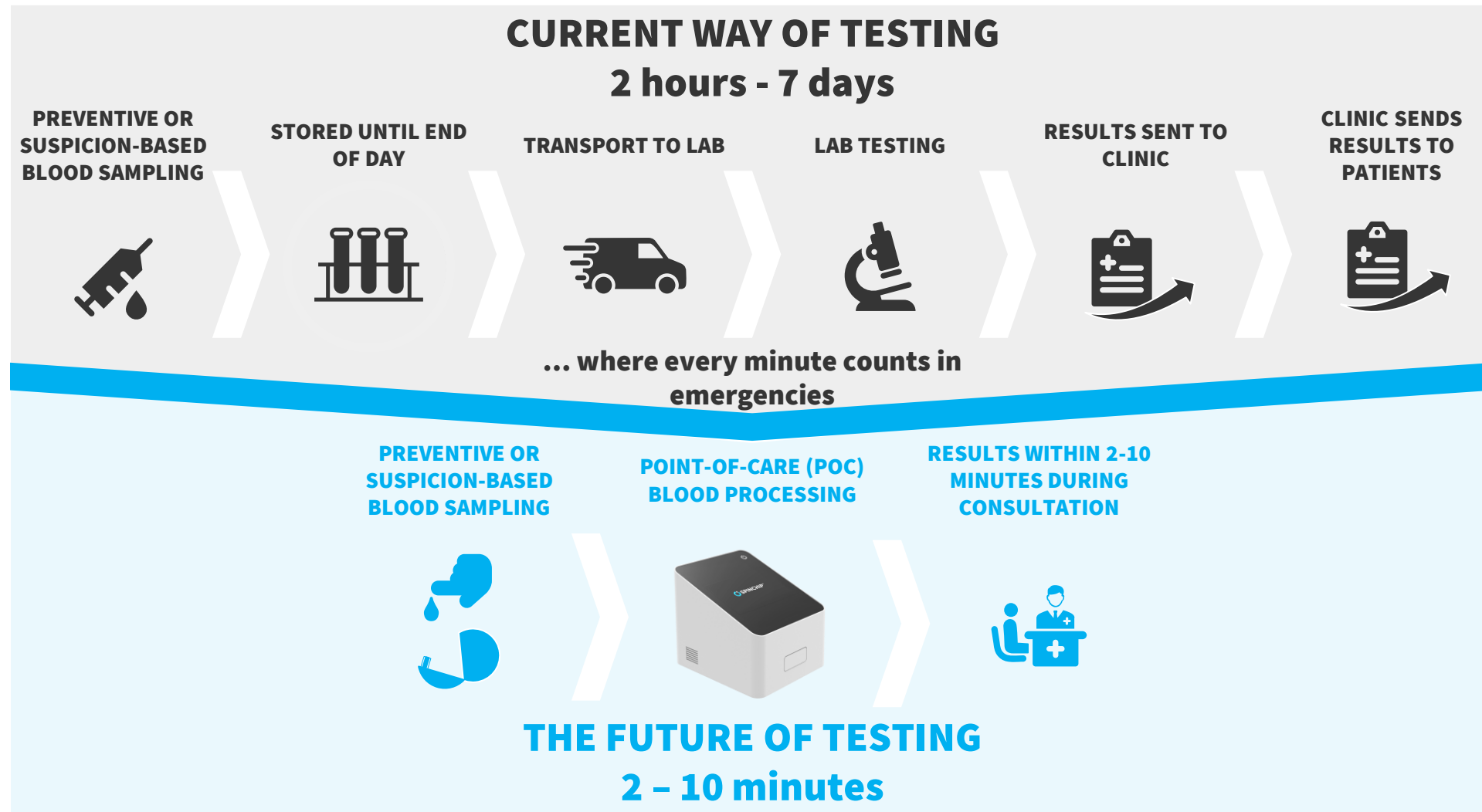
The image shows a person's hand with a small drop of blood on the index finger, positioned over a white SpinChip device. A gloved hand is holding a clear plastic cartridge. The device has a black top surface with the SpinChip logo and a power button. A semi-transparent white box with the SpinChip logo and name is overlaid on the left side of the device. A blue banner with white text is in the bottom right corner.

**SPINCHIP**

**SpinChip Human  
POC Business**

*Strictly private and confidential*

# CURRENT TESTING ROUTINES ARE INEFFICIENT



# MAIN CHALLENGES THAT EMERGENCY DEPARTMENTS FACE WITH RESPECT TO MI

CHALLENGES	MITIGATION
1 Very hectic and emotionally charged situations. Things need to be simple	<ul style="list-style-type: none"><li>• Analysis of potential biomarker needs to be user friendly and intuitive to use</li></ul>
2 Emergency department (ED) crowding represents an international crisis that may affect the quality and access of health care*	<ul style="list-style-type: none"><li>• Need quick result to screen incoming ED/urgent care patients for MI</li></ul>
3 Non-urgent ED visits. In one study, only 15% of ED visits were emergent or urgent, while 34% of visits were non-urgent. Of the remaining 50% of visits, half were non-urgent, meaning that over 50% of ED visits could be treated in a different setting. **	<ul style="list-style-type: none"><li>• Non-emergent patients need to be ruled out as quickly as possible to increase throughput of the right patients</li></ul>
4 Need to triage: determine ASAP the priority of the patient admitted with e.g., chest pain ASAP	<ul style="list-style-type: none"><li>• Need first quick result to determine priority for patients at ED level</li></ul>
5 ECG(electrocardiogram) is used by the experienced physicians and nurses to rule out whether you have a serious heart condition or not.	<ul style="list-style-type: none"><li>• A quick, accurate measurement can serve as precursor and complement for ECG to come</li></ul>

\*Ann Emerg Med. 2008 August ; 52(2): 126–136. doi:10.1016/j.annemergmed.2008.03.014.

\*\* <https://www.colleaga.org/article/running-more-efficient-emergency-department>



# PROOF OF CONCEPT: HIGH SENSITIVE CARDIAC TROPONIN MI IS STILL THE LEADING CAUSE OF MORTALITY AND MORBIDITY GLOBALLY

## 1 Acute myocardial infarction (“AMI”) and troponin

- AMI is the **leading cause of mortality and disability** worldwide
- Chest pain patients and patients with other symptoms suggestive for AMI represent **10%–20%** of all emergency departments admissions
  - **Prompt treatment** is essential as the mortality risk of patients with AMI increases with every hour of delay from onset of symptoms to treatment
  - Less than 20% of chest pain patients presenting to emergency departments suffer from AMI and a **PoC system for fast rule-out** of AMI has the potential to improve the flow of patients
- A **troponin** test measures the levels of troponin protein in the blood and is the **definitive standard marker** for AMI as troponin proteins are released when the heart muscle has been damaged, such as occurs with a heart attack
- Global POC cardiac market is estimated to USD ~2bn with a CAGR of ~12% going forward

~32m  
AMI and strokes worldwide  
every year



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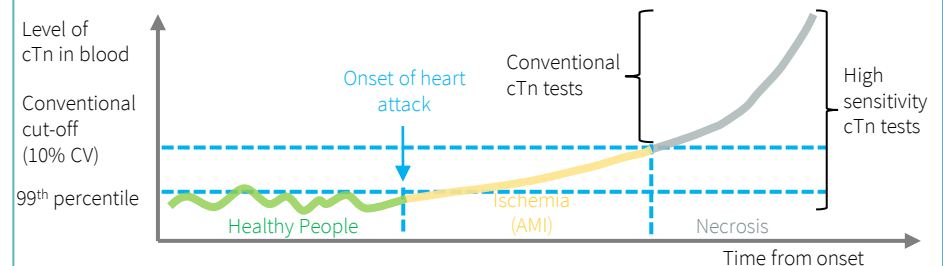
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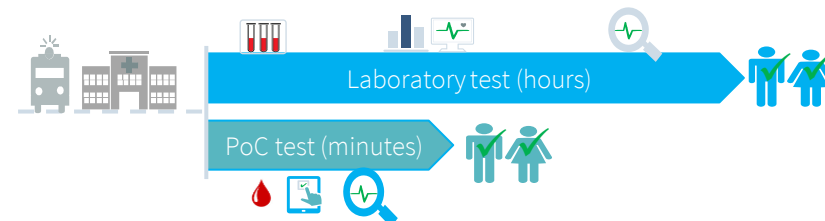
## 2 Why high-sensitive Troponin (hs-cTn)<sup>1</sup>

- High-sensitivity troponin testing of high importance as it can
  - ✓ detect AMI earlier (rule-in)
  - ✓ rule-out an AMI faster



## 3 Why hs-cTn at the PoC

- A rapid hs-cTn test at the PoC can
  - ✓ reduce delay in treatment initiation, thereby improving outcomes
  - ✓ reduce length of stay by improving process flow and patient discharge rates increasing hospital efficiency and patient satisfaction
- Rapid troponin testing currently dominated by tests which do not match the quality of laboratory analysis



Source: WHO; Mozaffarian C et al (2015); Lozano R et al (2012); De Luca G et al (2004); Nasrallah N et al (2011); Bhuiya FA et al (2010); Rubini Gimenez M et al (2014); Bingisser R et al (2012); Amundson BE & Apple FS (2015), MarketsandMarkets (2018)

1) Based on Hochholzer et al, figure included for illustration purpose



# BEST-IN-CLASS MULTI ASSAY PLATFORM WITH LAB QUALITY PERFORMANCE

Technology performance features		Analytical sensitivity	Analytical range	Accuracy	Precision	Reliability	Speed	Broad application	Multiplexing	
Analyzer	Dual-axe centrifugation	✓	✓	N/A	✓	✓	✓	✓	✓	UNIQUE
	Fluidic vision control and fail-safe system	N/A	N/A	N/A	✓	✓	✓	✓	✓	AMONG FEW
	Two optical read-out systems	✓	✓	✓	✓	N/A	✓	✓	✓	AMONG FEW
	Onboard multifunctional calibration device	✓	✓	✓	✓	✓	✓	✓	✓	UNIQUE
Cartridge	Microfluidics (fluidic acrobatics)	✓	✓	N/A	✓	✓	✓	✓	✓	UNIQUE
	Liquid and dried reagents	✓	✓	✓	✓	✓	✓	✓	✓	UNIQUE
	Integrated sample collection	✓	✓	✓	✓	✓	✓	✓	N/A	AMONG FEW
	Calibration info on cartridge (QR code)	N/A	N/A	✓	N/A	✓	✓	N/A	✓	AMONG FEW
	Fluorescent nanoparticles for hs immunoassays	✓	✓	✓	✓	N/A	✓	✓	✓	UNIQUE

LAB QUALITY PERFORMANCE

P  
O  
C

LAB QUALITY PERFORMANCE

AMONG FASTEST HS PLATFORMS

BROADEST TEST MENU POTENTIAL

POTENTIAL FOR 1st HS MULTIPLEXING

1

Notes: HS (hs): high sensitivity; Analytical sensitivity = ng/L; Analytical range = measuring range; Accuracy = Bias / deviation to target value; Precision = CV; Reliability = Number of aborted tests and fail safe system; Speed = time-to-result, turnover time, sample dwell time and max number of tests per hour; Broad application = potential number of tests on menu which is a function of number of sample types, analyte types and analytical principles the technology can handle; Multiplexing = capability to perform multiple tests on one cartridge; Unique means that to the best of the Company's management knowledge, no other competitor uses these technologies



# BEST-IN-CLASS MULTI ASSAY PLATFORM WITH LAB QUALITY PERFORMANCE

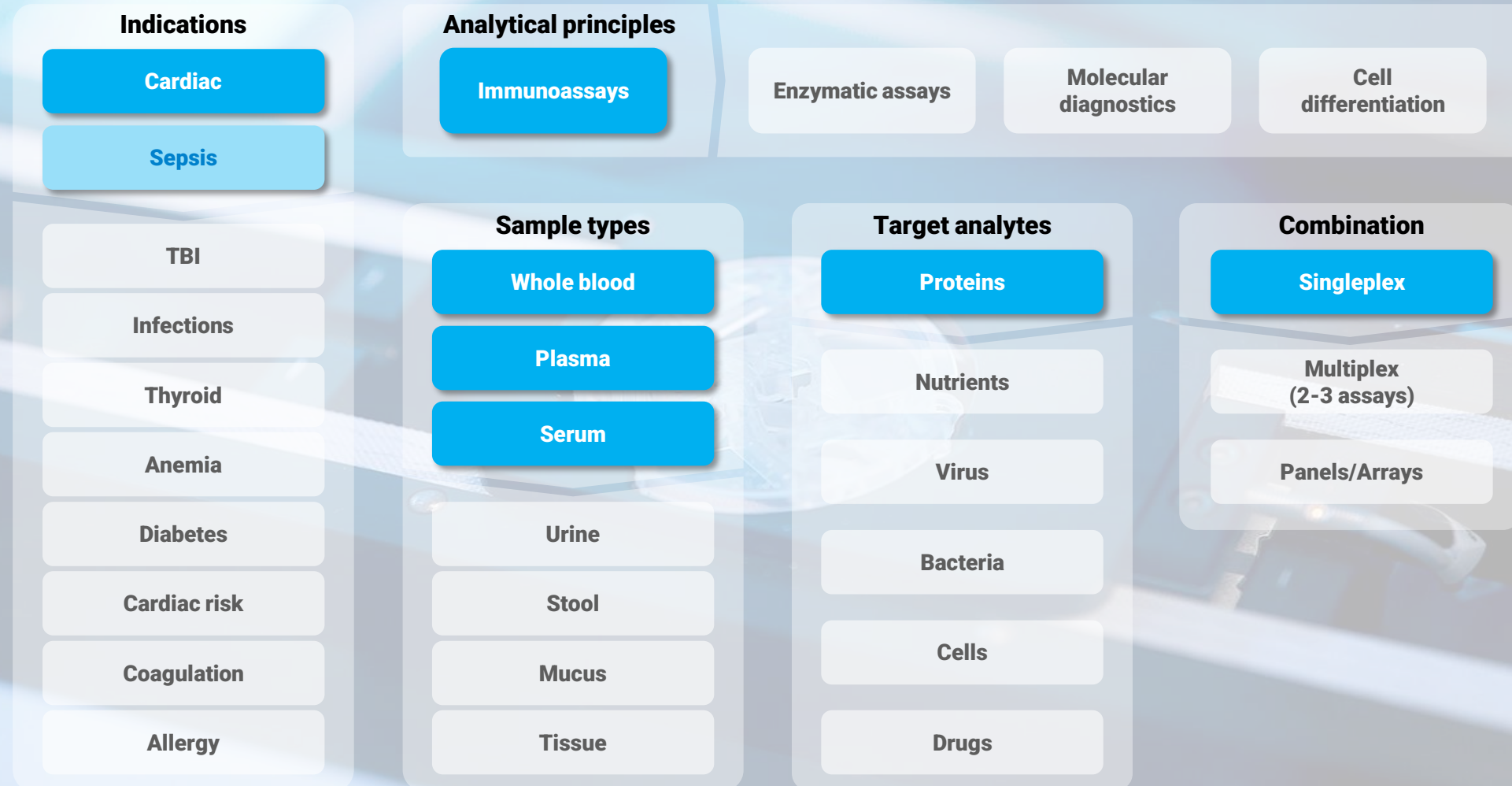
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	Calibration on cartridge (QR code)	N/A	N/A	✓	N/A	✓	✓	N/A	✓	AMONG FEW
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LAB QUALITY PERFORMANCE							AMONG FASTEST HS PLATFORMS	BROADEST TEST MENU POTENTIAL	POTENTIAL FOR 1st HS MULTIPLEXING	1

Notes: HS (hs): high sensitivity; Analytical sensitivity = ng/L; Analytical range = measuring range; Accuracy = Bias / deviation to target value; Precision = CV; Reliability = Number of aborted tests and fail safe system; Speed = time-to-result, turnover time, sample dwell time and max number of tests per hour; Broad application = potential number of tests on menu which is a function of number of sample types, analyte types and analytical principles the technology can handle; Multiplexing = capability to perform multiple tests on one cartridge



# ALL-IN-ONE PLATFORM DESIGNED FOR THE BROADEST TEST MENU

■ Current capabilities
 ■ Under development
 ■ Potential



The platform is designed to be the broadest platform in the POC industry allowing measurement of a variety of **target analyte types** according to a variety of **analytical principles**, in a variety of **combination of tests (multiplexing)** and based on **various sample types**

# Automated pilot production line established

**\$1-2**

TARGET COGS PER CARTRIDGE AT  
FULL SCALE PRODUCTION VOLUME  
(DEPENDING ON ANALYTES)

*Picture from in-house production line, click hand  
below for short video of SpinChip facilities*



# THIS PLATFORM CAN BE USED IN A WIDE RANGE OF SETTINGS



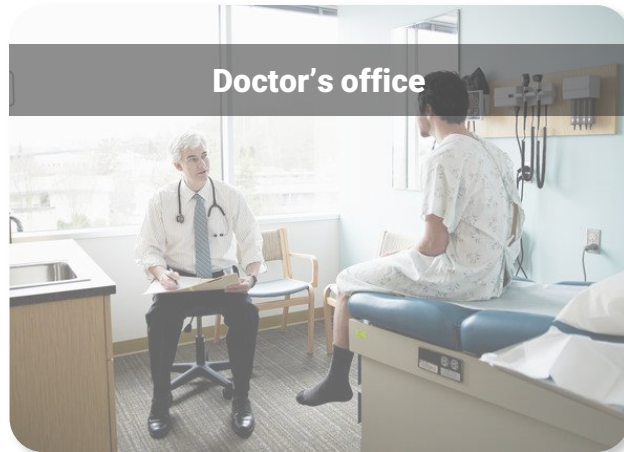
Hospitals / ED



Pharmacies



Doctor's office



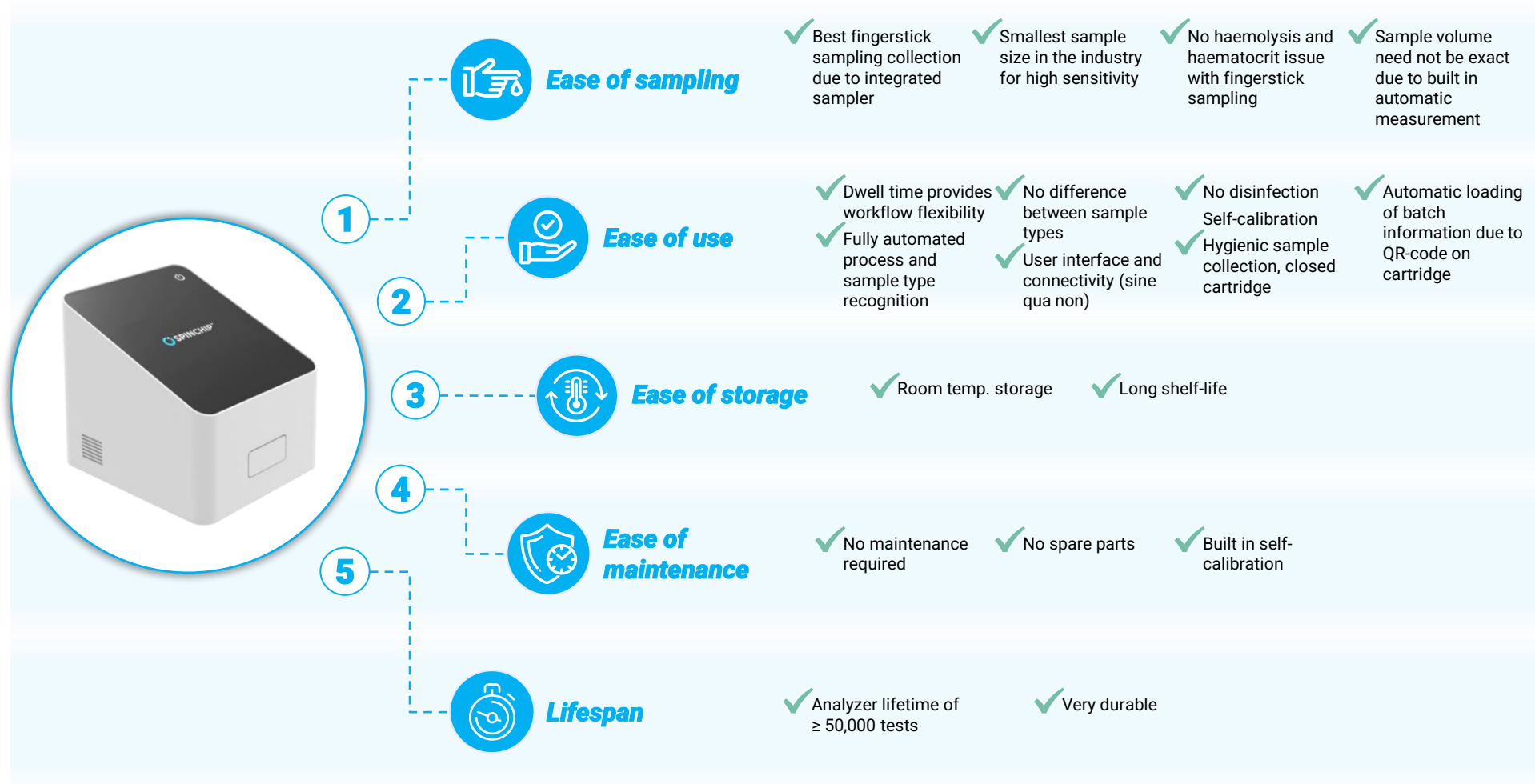
Drop-in clinics



Ambulances

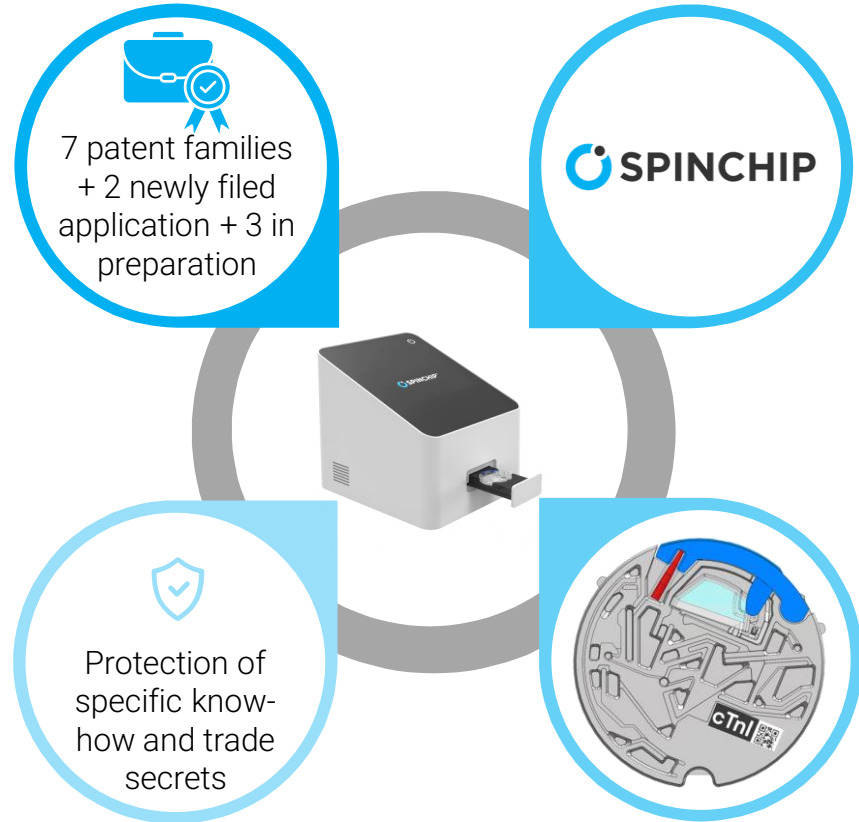


# SPINCHIP HAS A BEST-IN-CLASS PATIENT AND USER-FRIENDLINESS



# STRONG INTELLECTUAL PROPERTY RIGHTS (IPR) SECURED

## Strong IPR portfolio



**OVERALL PATENT EXPIRY IN 2040+**

## Granted and pending Intellectual Property (IP)

Patent	Filing year	Granted
Centrifugation apparatus <sup>(2)</sup>	2009	
Sample processing cartridge and method of processing and/or analysing a sample under centrifugal force	2009	
Method of analysis	2014	
Method of separation	2014	
Method of transferring beads	2014	
Rotating x-y table for fixed laser	2017	
Cartridge holder system	2017	
Processing Cartridge	2020	<i>Pending PCT scrutiny</i>
Method of microfluidic mixing	2022	<i>Pending Norwegian scrutiny</i>
SPINCHIP®	2022	

## Key competence and know-how

- ✓ Microfluidics development based on modulation, simulation, computer-aided design (CAD) and machine learning
- ✓ Instrument development and integration of advanced measuring systems, machine vision, electronics and embedded software
- ✓ State of the art rapid prototyping of microfluidic devices
- ✓ Immunoassay development
- ✓ Reagents formulation (freeze dried spheres)

Source: Company patent attorney (Onsagers)  
 Note: (1) 20 years patent protection from filing year; (2) Highly relevant prior art was cited in the international search report related to patent family 2 of the Company's IP portfolio

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## SPINCHIP WANTS TO SECURE A TRUE PARTNERSHIP

### SpinChip partnership business model

SpinChip is offering potential partners a unique AIO platform with:

- Attractive commercial terms
- Very highly competent R&D capabilities
- Development of new assays in collaboration with partners
- All products developed, manufactured, and produced (scale-up) and shipped by SpinChip from site in Norway
- Strong IP, know-how and trade secrets

SpinChip wishes through the offering of the unique AIO platform to:

- Team up with company(ies) with an attractive, global distribution network and complementary R&D competence for development of new assays
- Enter one or more licensing agreements with partner(s) before CE marking, based on
  - Sales and marketing of the diagnostic tests and SpinChip analyzer
  - Contribution to regulatory approval process in geographical territories
  - Licensing-fee milestones
  - Royalties



**SPINCHIP™**

**SPINCHIP CONTACT INFORMATION:**

ALEXIS GARRAS  
CHIEF BUSINESS DEVELOPMENT OFFICER  
+47 99 51 5432  
[AJG@SPINCHIP.NO](mailto:AJG@SPINCHIP.NO)

*Strictly private and confidential*