



# **Merchavia Holdings and Investments Ltd.**

## **Presentation for Investors – May 2020**



# A Forward-Looking Information

This presentation was prepared for summary and convenience only and is not intended to replace the need to review the reports issued by the Company to the public.

Full and comprehensive information regarding the Company and its business can be found in the periodic and immediate reports published by the Company on the website of the Israel Securities Authority [www.magna.isa.gov.il](http://www.magna.isa.gov.il). In addition, the forecasts are based on data, information and assessments available to the Company at the time of preparing this presentation, and the Company does not undertake to update and/or revise such forecasts and/or assessments in order to reflect events and/or circumstances that will occur after the date of presentation.

This presentation may include data and information that are not included in the Company's periodic and/or immediate reports as issued to the public or the manner in which they are presented in this presentation may differ from the manner in which they were included in the reports published by the Company to the public. In the event of a discrepancy between reports published to the public and the data in this presentation, only the data published by the Company in reports to the public by virtue of the requirements of the law should be regarded.

In this presentation, the Company has included, with regard to itself and with regard to companies held by it or related to it, forward-looking information, as defined in the Securities Law, 5728-1968. Such information includes, inter alia, forecasts, objectives, estimates, assessments and other information relating to future events or matters, the occurrence of which is uncertain and may be affected by factors that can not be predicted in advance and which are not under the Company's control. This includes technological and engineering difficulties, regulatory changes, difficulties or delays related to research grants, the scope of future financing sources and the ability to raise these resources in practice, changes in work plans, failure to obtain approvals of the relevant health authorities at the expected time, changes in technologies, changes in the target markets, the decisions of the Portfolio Companies not to continue the development of the products in the determined format due to any of the aforesaid factors and/or the occurrence of any of the risk factors that characterize the Company's operations. Forward-looking information relies on the estimates of the Company's management, which are based, among other things, on information known to the Company's management at the time of preparing this presentation, including assessments of the Company's markets, statistical and public data and publications issued by various bodies and authorities whose content has not been examined by the Company independently.

The realization of the forward-looking information in whole or in part or in a manner other than expected, or non-realization, will be affected, inter alia, by risk factors that characterize the Company's operations, as well as by developments in the economic environment and external factors affecting the Company in its areas of activity. We believe that the risks and uncertainties which discussed under 'Risk Factors' in our Annual Report and in our other filings with the ISA, could cause our actual results to differ materially from expected results. The Company cannot be certain that its assessments, plans and expectations will materialize and therefore the results of operations may differ materially from the results estimated or implied by this information.

You are advised, however, to consult any additional disclosures we make in our reports to the ISA.

The presentation does not constitute an invitation or an offer to purchase securities of the Company.

An aerial view of two modern skyscrapers with glass facades and balconies. A network of white circles connected by lines is overlaid on the right side of the image. A dark blue banner is positioned across the middle of the image.

# Business card

# Business card | Merchavia

An investment company specializing in investing in life science companies. The company has a strategic partnership with the innovation arm of the leading medical center in US - Cleveland Clinic.

The company invested in companies targeted to markets which are estimated in billions of dollars, in various fields. The company regularly reviews dozens of projects annually.

## The bottom line

We believe that the life science market offers huge opportunities for the medium term and that's the company's focus.

# Investment Strategy

- Targeting investments in companies with significant market potential.
- Emphasis on investments with a horizon of significant value increase in 18 months.
- Preference is given to investment in companies related to **Cleveland Clinic**.
- Applying a risk management process by the company's management.

# The Board of Directors

## Erez Alroy

Has served as director of SHL Telemedicine since its establishment. Previously served as CEO of SHL Israel. Holds an MBA from the Hebrew University in Jerusalem.

## Ophir Shachaf

Vice President – Business Development EHealth ventures. Formerly served as CEO of Hadasit Bio Holdings. Holds an MBA from the New York University.

## Ephraim Gerlitz

Manages the Goldstein family's business dealings in Israel. Holds senior positions, primarily in the real estate business, for over 20 years.

## Michal Aharon

Has over 15 years of experience as chief financial officer and in other senior positions. Currently serves as VP of Regulatory Affairs at Tambour Hefer & Co.

## Ilan Goldstein

Holder of a controlling interest in the company, certified lawyer (USA) with 40 years of experience in managing the Glodstein family's global real estate investment, plus about 15 years of experience in investment in high-tech and biotech companies.

## Eyal Arieli- pending on approval of GM

Experienced manager with proven success in establishing, growing and streamlining companies, Eyal was 26 years part of the Senior management, and in a variety of positions at Teva Pharmaceutical.

# Merchavia management

## Eli Arad | CEO

Has vast experience with Israeli startups and served in many leading roles in Israeli biomed companies (Bio-Cell, Biomedix Incubator, D Medical, NasVax, Integra, etc.). Has extensive experience in all areas of financial management. Previously served for seven years at accounting firm PWC Israel.

## Rani Lifshitz | Chairman of the Board

Attorney and economist with experience of over 20 years in various senior management positions in the fields of capital markets, finance and energy in Israel and globally.

# Members of the Scientific Advisory Committee

## **Eldad Yassur**

CEO of ARROW Israel. Arrow Electronics is a leading global distribution company that supplies electronic components and assemblies to high-tech and electronics companies in Israel and around the world, with a turnover of \$18 billion.

## **Prof. Avital Fast | IL**

Director of the Rehabilitation Department at Ichilov Medical Center. Served for 17 years as head of the Rehabilitation Department at the Montefiore Hospital in New York. Initiated several patents in the field of rehabilitation. Has an extensive network of contacts and entrepreneurial vision.

## **Dr. Arnon Chait | USA**

Founder and CEO of Cleveland Diagnostics, Inc. Has over 25 years of experience in NASA. Founded and led biomed companies, research companies and companies engaged in optical electronics.

## **Kevin Mendelson | USA**

Medtech and life sciences consultant to a diverse range of companies, including JUMPSTART, University of Pittsburgh, and more. Formerly served as VP of finance at CardioInsight which was sold to Medtronic in 2015.

## **Elhanan Streit | IL**

Active in investments for several decades, primarily at the international level. Served as Managing Director of the Weizmann Institute's Yeda Company and of Miles Laboratories (owned by Bayer Germany), Was involved in dozens of licensing agreements of developments in the life sciences.

# Our Vision



**To make advanced medical technologies accessible**

through a public investment arm in Israel for the world's leading medical technologies

# Our uniqueness



**Breakthrough  
innovation**



**Professionalism**  
A deep understanding  
of the medical  
business world



**Global networking**  
The most innovative  
medical centers  
in the world

## How the investment is carried out?

Finding a company or venture in Israel or globally

Discussion at the level of the Company's management

Initial due diligence

Detailed due diligence performed by consultants and/or Cleveland Clinic

Convening of the Scientific Advisory Committee

Board of directors

# Portfolio



**CDx**  
Cleveland Diagnostics



**cardiacsense**  
Watching over you



**RMDY**



**VEOLI**



**TrainPain**  
DIGITAL THERAPY FOR  
CHRONIC PAIN



**EfA**  
Engineering for All



**Juventas**  
THERAPEUTICS



# First Exit Significant Milestone

In October 2019 RMDY finalized a merger agreement with OptimizeRx (NYSE: OPRX) whose shares are traded on the NASDAQ.

OptimizeRx is a recognized leader in bridging the communication gap between pharma and providers with its digital health messaging platform.

The deal structure includes immediate payment and contingent earn out payments, all 50% in cash and 50% in shares.

Merchavia's share in the consideration until now was approximately 760K\$ (50% in shares and 50% in cash), Merchavia's total share of the consideration may increase in accordance with contingent earn out payments up to \$3.5 million. The total amount invested by Merchavia is \$0.5 million.

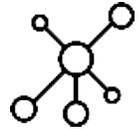
# CDx

*Cleveland Diagnostics*

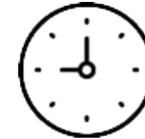


# About the company

An innovative and proven diagnostic technology platform intended for the diagnosis of cancer in the early stages using blood tests.

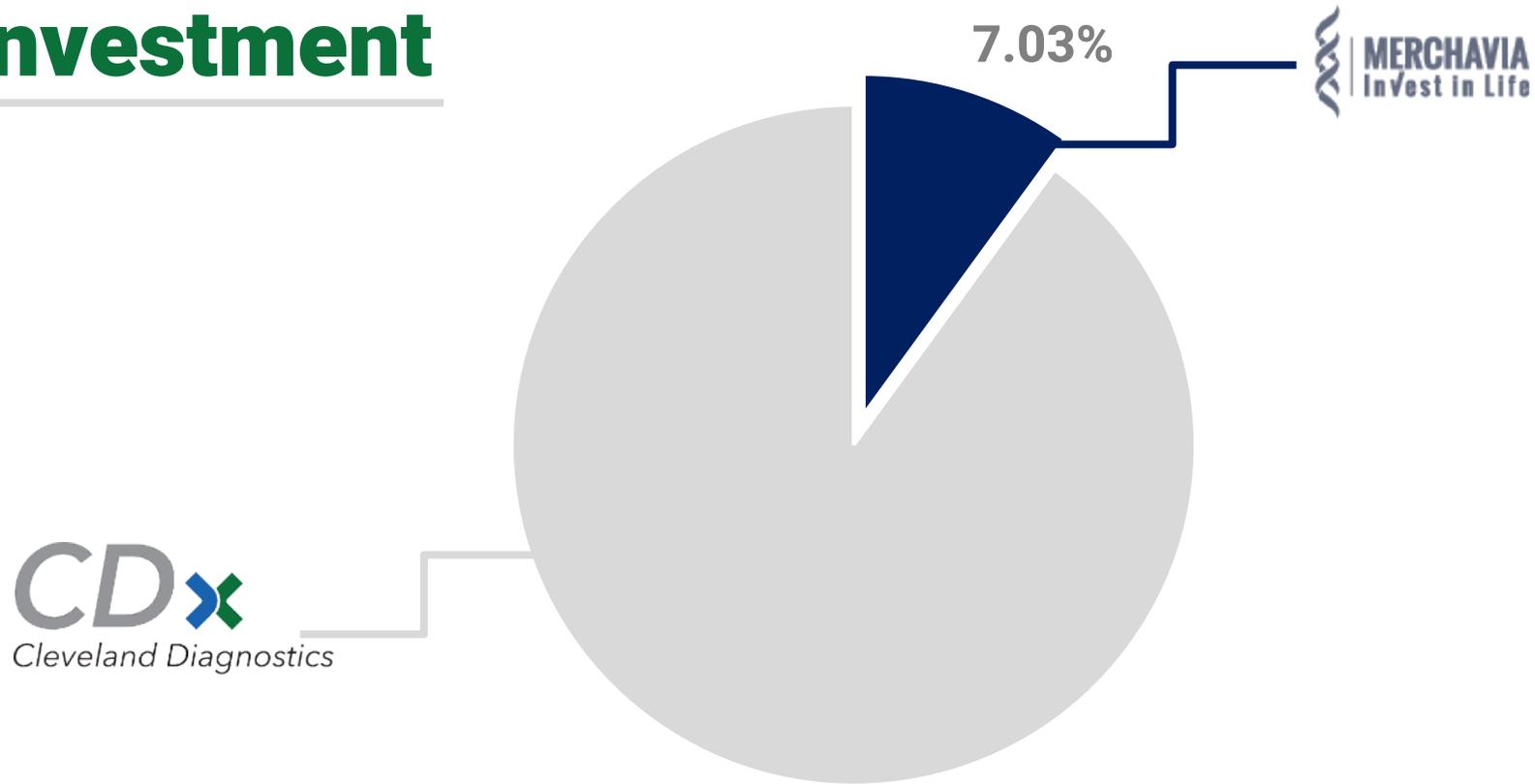


A breakthrough technology that detects a change in the structure of the protein linked to diseases (different type of cancers and neurodegenerative diseases)



Innovative blood test for prostate cancer

# The investment



---

In February 2015 Merchavia invested \$1 million according to CDx value of \$10 million. In March 2020, CDx completed raising \$7.5 million at a value of \$65 million pre money. Merchavia currently holds approximately 7.03% on a fully dilution basis.

# Clinical status

Multi-center clinical trial in the US, led by Dr. Eric Klein, head of the Glickman Urological & Kidney Institute at the Cleveland Clinic, medical center, who is considered a leading global expert in the field.

The trial itself and the extension trial, which included more than 800 male subjects, the IsoPSA test of CDx met both study objectives:

**1**

The test was able to reduce by approximately 45% the rates of unnecessary biopsies when diagnosing cancer patients at all grades of the disease

**2**

The trial proved that the IsoPSA test significantly better identifies patients with the potential for aggressive cancer needing treatment

Published in 

The Single-parameter, Structure-based IsoPSA Assay Demonstrates Improved Diagnostic Accuracy for Detection of Any Prostate Cancer and High-grade Prostate Cancer Compared to a Concentration-based Assay of Total Prostate-specific Antigen: A Preliminary Report. December 2017

# ✕ Manufacturing costs

## Low kit production cost (few dollars per unit)

The test is also a technological platform for breast cancer, Lung cancer, Alzheimer's disease and more....

## A tremendous potential to change the structure of the market

The possibility of replacing the existing test (PSA) and lead a market estimated at billions of dollars a year



## Significant milestone

---

The FDA has labeled IsoPSA as a "Breakthrough Device Designation". FDA Breakthrough Device designation is granted to novel medical devices that have the potential to provide more effective treatment or diagnosis of life-threatening or irreversibly debilitating diseases or conditions. Through the Breakthrough Device Program, Cleveland Diagnostics will work more closely and frequently with FDA to expedite its review of IsoPSA.

# ✕ The Huge Potential

CDx develops on the basis of this breakthrough technology additional tests for breast cancer, lung cancer and other disease diagnosis. Each of these markets is a multi-billion dollar market



# Near Term Goals

---

- **IsoPSA FDA approval- in submittal process to FDA.**
- **CMS reimbursement.**
- **IsoPSA test available through CDx own lab and external labs.**
- **Platform demonstration via additional tests in breast and lung cancers.**





# About the company

CardiacSense is a digital health company that has developed best-in class, wearable sensor technology with the sensitivity and specificity required for medical diagnosis and monitoring.



The Watch



The Wristband



The Clip

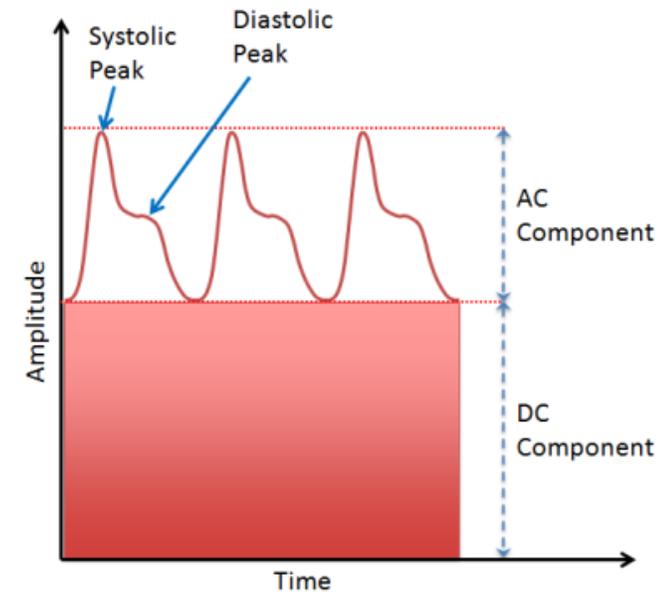
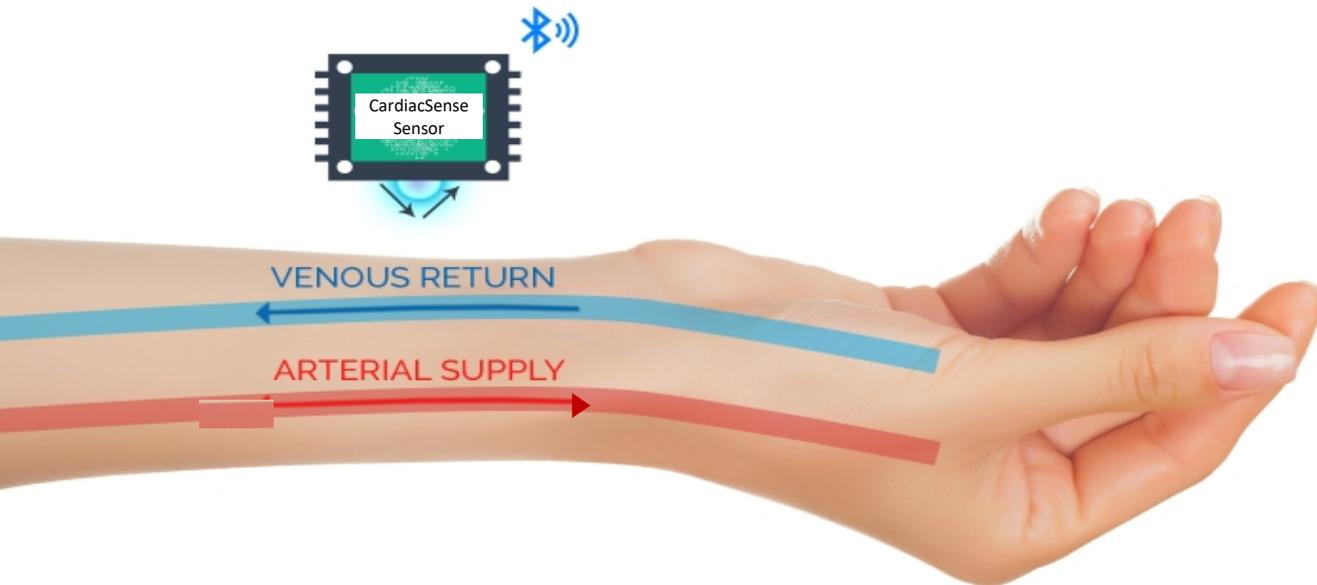


The Chip



# The Technology

UPG (Ultra photoplethysmography) sensor, unique optics improve signal-to-noise and power consumption.(single charge 4 days operating time).



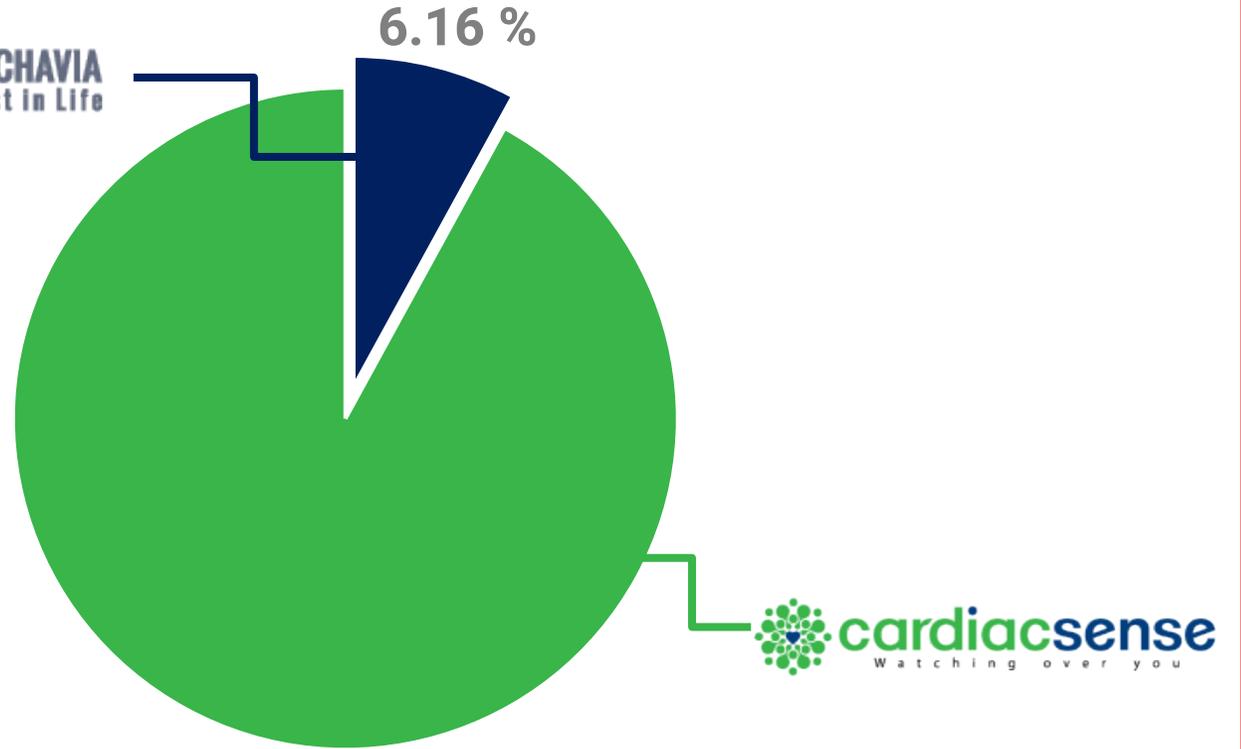


# Focus

The initial focus is on monitoring and detection of atrial fibrillation. Several other near-term applications are in development, including monitoring of other arrhythmias and vital signs such as blood pressure, respiratory rate, and oxygen saturation.



# The investment



---

In June 2017 Merchavia invested \$0.5 million in the company according to company value of \$6 million. In December 2019 Cardiacsense started a continuous raise at a company value of \$35 million. Merchavia currently holds approximately 6.16 % on a fully dilution basis.





# Clinical status

An initial clinical trial in patients suffering from atrial fibrillation was successfully completed at Ichilov Hospital in September 2016.

**Sensitivity:  
Over 99%**

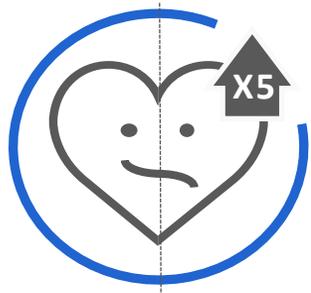
A preliminary clinical trial (Sourasky medical center) conducted in March 2019, included 24 subjects, compared heart rate obtained using Holter monitor, and heart rate indices obtained using the CardiacSense watch. The trial objective was to achieve an accuracy of 96%, and the results demonstrated **an accuracy of 99%**.

A pivotal clinical trial (Sourasky medical center, Rambam medical center, Sheba medical center) conducted in Q4 2019, which included 30 subjects, compared heart rate indices obtained using Holter monitor, and heart rate indices obtained using the CardiacSense watch. The trial objective was to achieve an accuracy of 96%, and the results demonstrated **an accuracy of 99%**.

**FDA requirements, 95% or higher sensitivity accuracy.**

**After successfully completing clinical trials for atrial fibrillation detection, the results were submitted for CE approval and FDA clearance.**

# Market Opportunity Atrial Fibrillation Detection



AF increases the risk of stroke by 5x and stroke severity by 5x



The cost of AF-related strokes (in the U.S.)



The cost of AF-related strokes (in Europe)



Long term monitoring is the only known effective solution for heart arrhythmias



# Commercial status

## Deals signed with distributors

Country	Smartwatch Units	Total Purchase Commitment
Argentina	6,500	1.5M\$
Turkey	16,500	3.7M\$
South Africa	32,500	7.5M\$
Australia	32,500	7.5M\$
Uruguay	5,250	1.2M\$
Spain Portugal and Andorra	24,000	5.55M\$
Chile	9,000	2M\$
Total	126,250	28.95M\$



# Near Term Goals

1. FDA and CE clearance for AF detection by the end of Q3 2020.
2. Batch of 3,000 watch units ready to market by the end of 2020.
3. Completion of a clinical trials in the fields of Respiratory rate by the end of 2020.
4. Completion of a clinical trial in the field of continuous blood pressure monitoring by the end of 2020.



**Mental stress analysis**



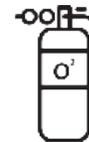
**Blood pressure**



**Respiratory rate**



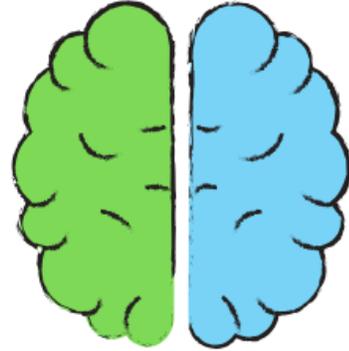
**Sleep analysis**



**Blood oxygen level**



**Falls monitoring**



# TrainPain

DIGITAL THERAPY FOR  
CHRONIC PAIN

# About The Company

TrainPain develops an interactive and adaptive Digital treatment for chronic pain through gaming.

The medical technological approach is based on a perception known in the literature, according to which the nervous system is particularly sensitive in chronic pain patients, and by training the system, pain levels can be reduced.

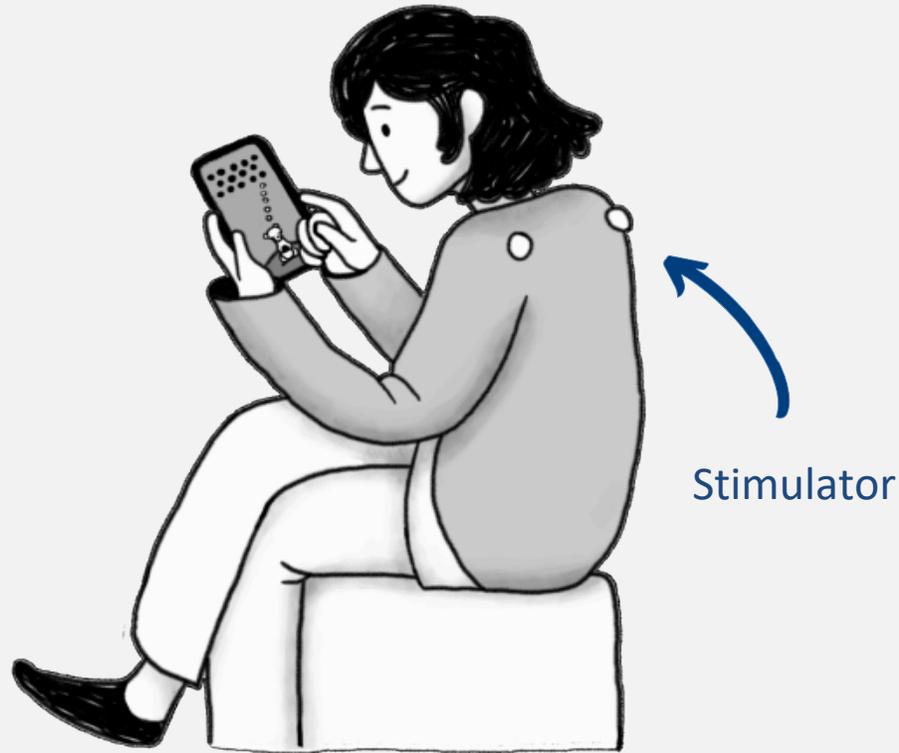
TrainPain approach is to train the brain to get better- on its own- at regulating nerve activity.

At the first stage the company plans to focus on patients with fibromyalgia, a disease that affects 3-6% of the population.

According to marketwatch, the chronic pain treatment market is expected to grow to about \$83 billion by 2024.

TrainPain was established in the eHealth Ventures incubator in which the Cleveland Clinic, the Maccabi Health Fund and the Amgen pharmaceutical are partners.

# Neuroplasticity Training Platform



## WHAT'S INVOLVED?

Small tactile stimulators worn on the body for 15 minute daily training session. Patients pay attention to body sensations to solve video game based puzzle.

## QUANTIFY SENSORY PERCEPTION

As patient plays the video games, the app assesses how the brain processes sensory information from the body.

## RETRAIN BRAIN NETWORKS

Daily sensory exercises help the brain get better at turning the volume down on noisy nerve messages. Algorithms learn about the patient and personalize the training program.

# Regulatory Strategy

## PHASE 1

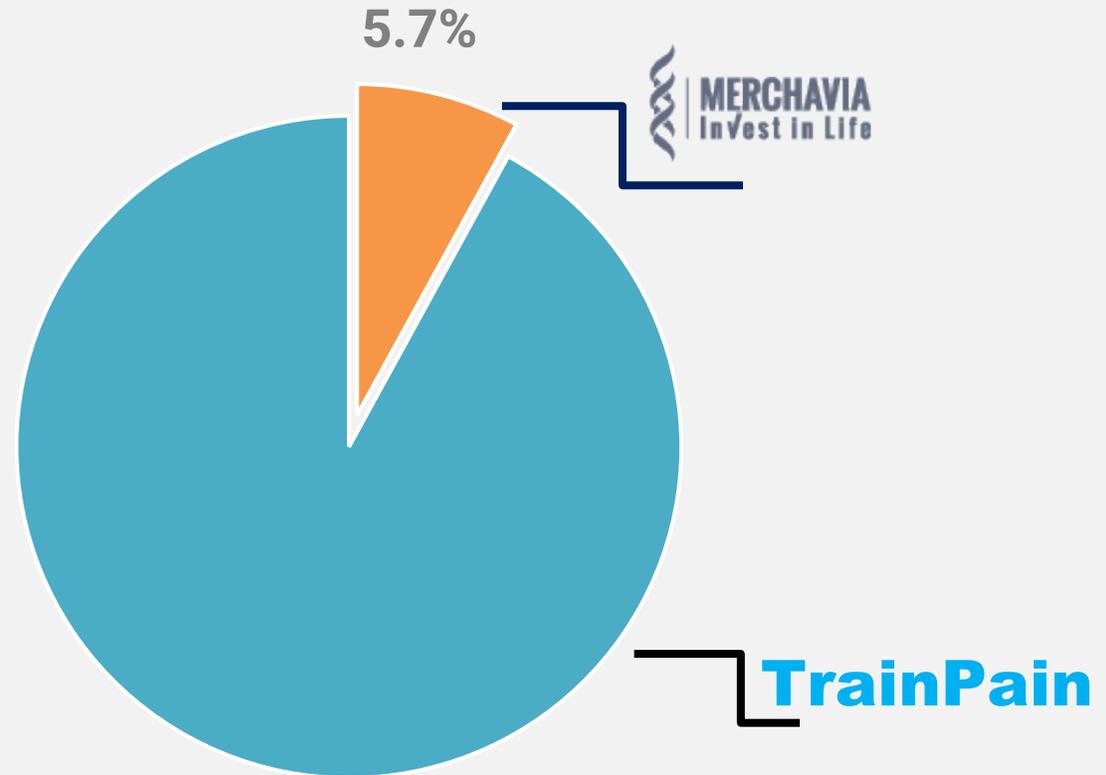
- **Early launch under FDA wellness exemption pathway. Use indirect medical claims (“reduce impact of chronic pain”)**



## PHASE 2

- **After clinical trials, pursue FDA de novo pathway to allow for stronger medical claims (“disease treatment”).**

# The Investment



---

In October 2018 Merchavia signed an investment agreement in the amount of NIS 600,000. Merchavia currently holds approximately 5.7% on a fully diluted basis.

# Near Term Goals

---

TrainPain's work plan for the next year during the incubator period includes, inter alia:

1. Clinical validation- clinical study to prove efficacy.
2. After clinical validation series A round for executing the commercialization and regulatory strategy.

*EfA*  
*Engineering for All*

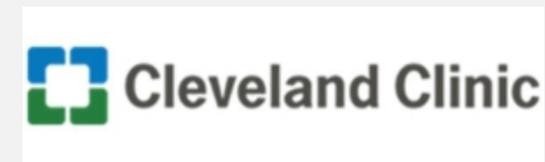
# About the company

EFA develops RevDx- a device that is used as a portable diagnostic laboratory to perform CBC (complete blood count) and other Hematologic tests.

CBC is the most requested test worldwide and physician's "best practice". Helps diagnosing infectious diseases, hematological malignancies and immune system deficiencies.

EFA's diagnostic system addresses the global need to minimize the overuse of antibiotics, and combines several advantages of ease of use and advanced technology, including a simple operation that does not require special training, and a connective and fully portable device.

The company was established in the eHealth Ventures incubator in which the Cleveland Clinic, the Maccabi Health Fund and the Amgen pharmaceutical are partners.



# The Technology

The developed system is a combination of several technological elements:

1. A disposable chip that can prepare the blood sample as required by laboratory microscopy tests.
2. A portable electro-optical device with a unique microscopy solution that can perform automatic microscopy and produce a high-resolution image of the blood sample, as in standard manual microscopic analysis.
3. The modularity of the system and the fact that it creates a standard blood sample for microscopy tests will enable EFA to offer a variety of tests and applications in the future.



**One-step  
Process**



**Proprietary  
Disposable  
BioChip**



**Smart RevDx  
Hand-held  
Device**



**Advanced  
Image-based  
Algorithms**



**Easy To Use  
User Interface**

# Addressing the Covid-19 pandemic challenges

## Fever case management at the community

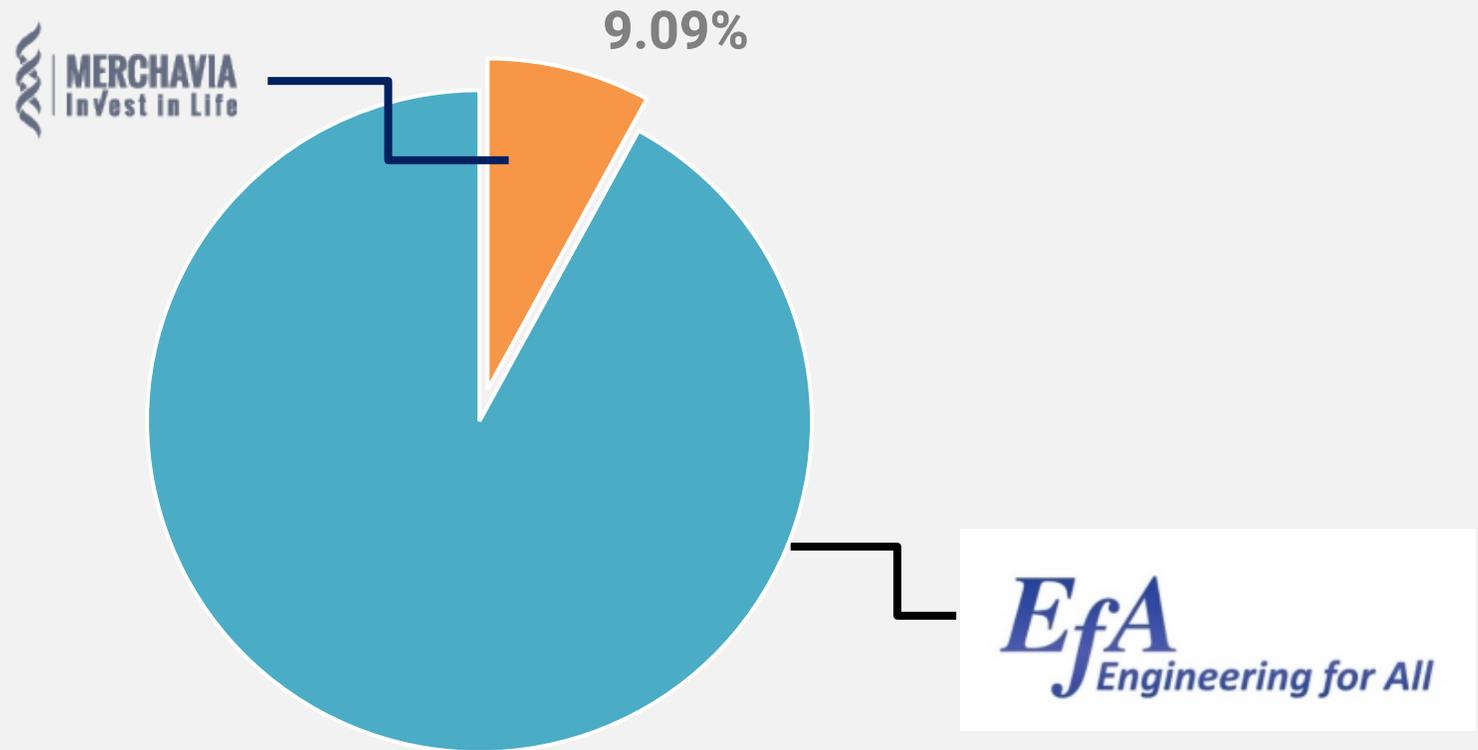
During these challenging times, diagnosis of fever bearing diseases is even more complicated for health services:

- ✓ The spread of the COVID-19 virus as a possible cause for a fever condition.
- ✓ The risk of not diagnosing other conditions such as a bacterial pneumonia.
- ✓ In-accessibility to medical services.
- ✓ The fear of patients from coming to the hospitals and clinics to be treated.
- ✓ Monitor changes in the clinical conditions of patients under home hospitalization.



**All of the above necessitate the need to diagnose and treat in the community without sending patients to hospitals and clinics !**

# The investment



In March 2019 Merchavia signed an investment agreement in the amount of 1 million NIS to be made in four installments, with immediate payment of 300,000 NIS and 3 payments in accordance with milestones. Merchavia currently holds approximately 9.09% on a fully diluted basis.

# Achievements and Milestones

## EFA's achievements after a single year in the incubator includes:

- EFA proved the microscopy-based effectiveness including the cell counting and differential algorithm.
- EFA finalized the patented unique sampling disposable chip.
- EFA filed 2 major patents in 10 countries (patent pending)
- EFA built a talented and highly experienced leading team
- EFA got LOIs from leading organization in the industry and are in contacts with distribution and strategic partners.
- Approval for IIA Covid19 challenges grant (May 2020) !!

## EFA's work plan for the next year during the incubator period:

- Completion of the development of a portable electro-optical device with a built-in microscope.
- Completion of algorithm development and image processing software.
- Clinical pilot trial.





# About the company

**VEOLI aims to redefine medical cannabis delivery by migrating novel technologies developed for the pharma industry to the cannabis space.**

**Veoli develops a unique rechargeable electrical cannabis inhaler device, the device utilizes mechanical energy only, produce an accurate dosage, has bluetooth connectivity to VEOLI App which manages dosing and capsules supply.**

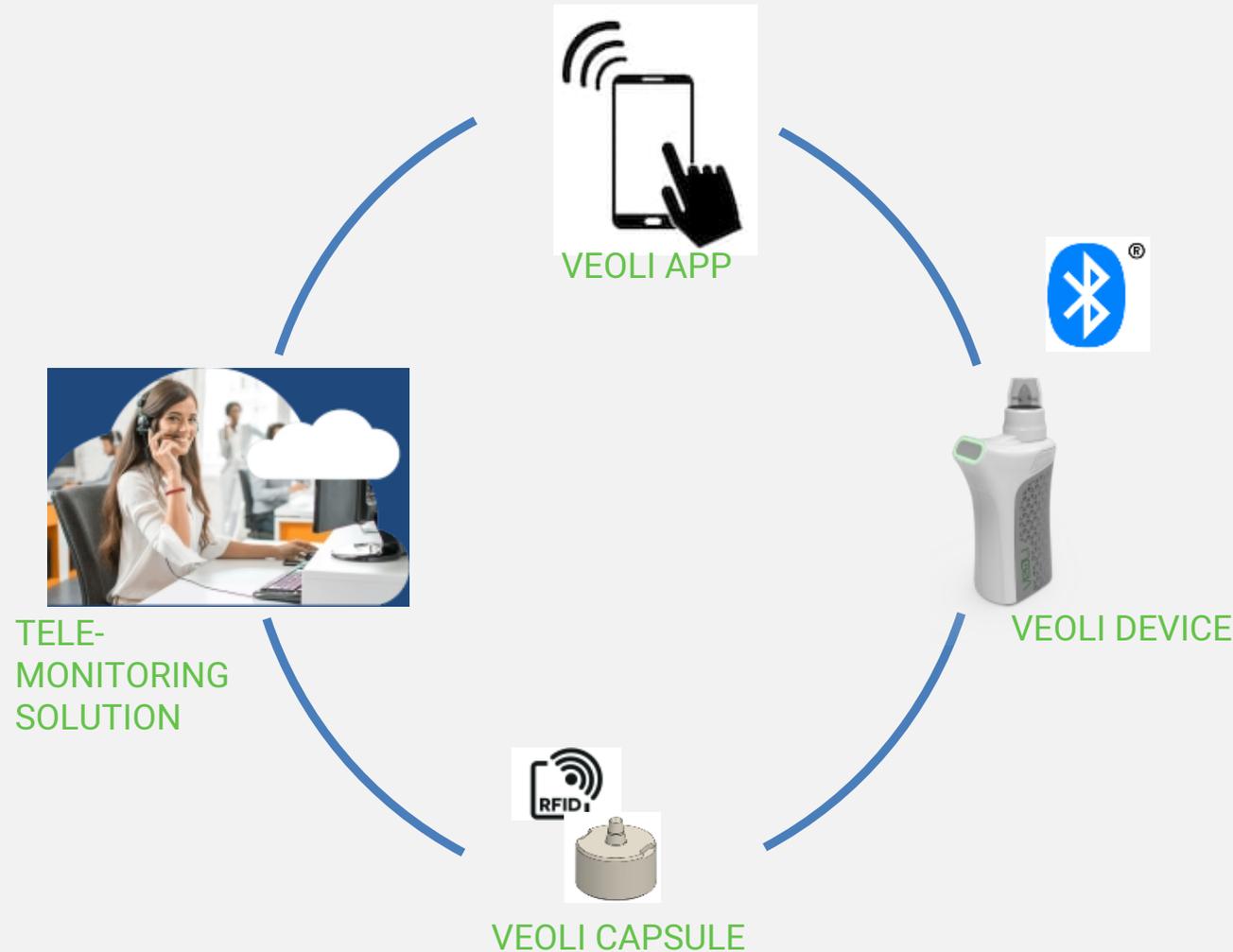
**Since there is no heating in the process, there is no change in the properties of the cannabis and no production of byproducts that usually occur during heating or burning.**

**Veoli Founded in early 2019, Licensed IP originally developed for the pharma industry. Main shareholder Sanara Ventures, healthcare investment platform established by Philips & Teva.**



# THE VEOLI SOLUTION

## End-to-End Personalized Cannabis Inhalation Treatment

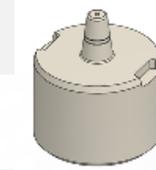


- Monitoring and accurate dosing
- Online support
- Electronic verification ensuring authorized usage - capsule type & dose per user
- The Most Effective Bioavailability

# GO-TO-MARKET & BUSINESS MODEL

- VEOI will collaborate with strategic partners, per territory, on their existing brands, as well as new products and indications VEOI will handle the tech transfer required for manufacturing in relevant territories.
- **Two revenue streams**
  - One-time sale of device.
  - Recurring revenues from royalties on sales of cannabis capsules.
- Reimbursement dependent on indication and territory (e.g. PTSD in Canada).

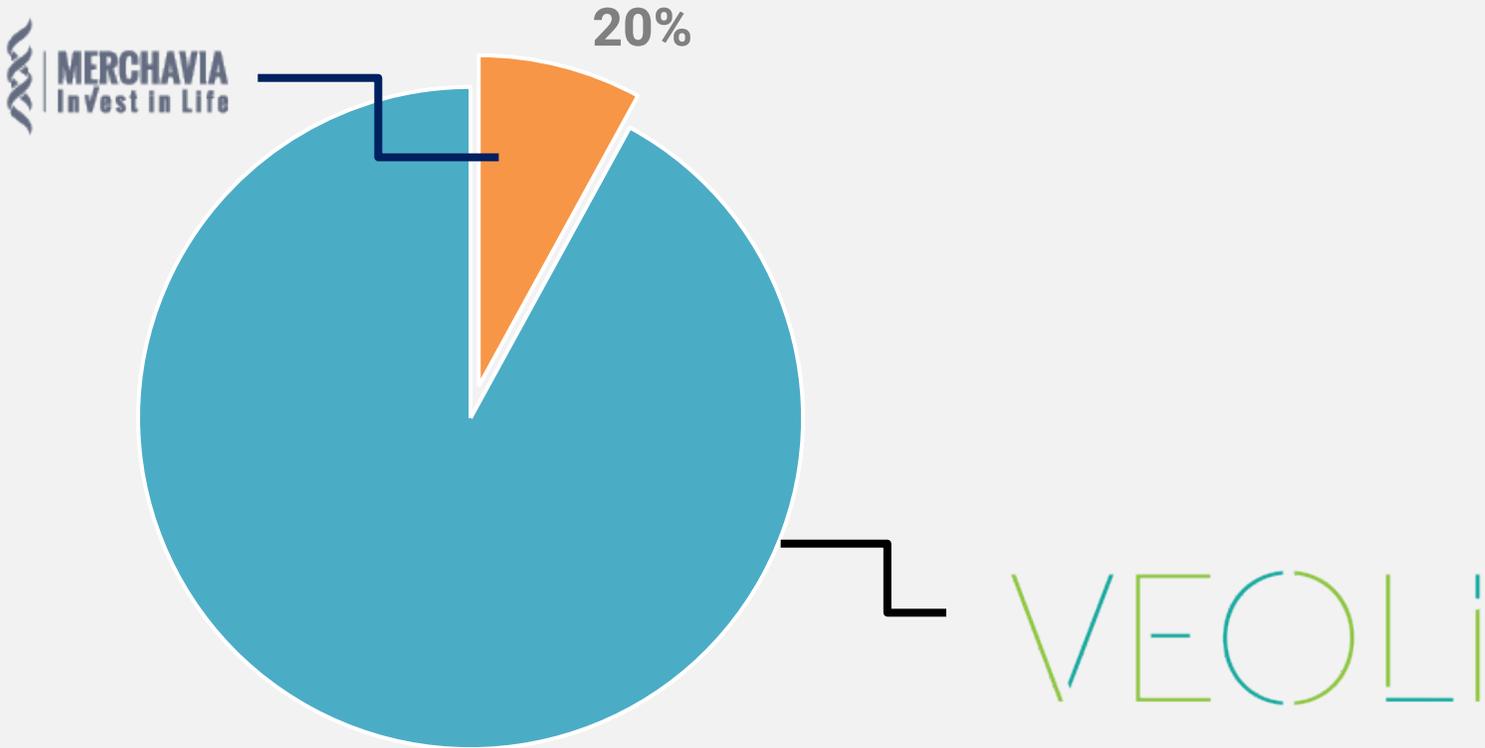
**VEOI CAPSULE**



According to marketwatch, the medical cannabis market is expected to grow up to \$39 billion by 2023.

Sales of cannabis concentrates to the cannabis market are expected to exceed \$3 billion in 2018.

# The investment



In March 2019 Merchavia signed an investment agreement in the amount of \$400,000. Merchavia currently holds approximately 20% on a fully diluted basis.

# Milestones

---

Veoli's work plan for the next year includes, inter alia:

1. Adaptation of the existing drug delivery system to cannabis Emulsion.
2. Conducting clinical trials to prove pharmacokinetics (effect of the substance on the body) and efficiency.
3. Closing working tested prototype in final design and moving to production.
4. CE & AMAR mark, Manufacturing & Sales readiness.



# Juventas Therapeutics

Juventas Therapeutics is a private, clinical stage biotechnology company developing novel non-viral gene therapies that activate natural processes to repair the body. Product candidate JVS-100 is a non-viral gene therapy that expresses stromal cell-derived factor -1, or SDF-1, a naturally occurring signaling protein that has been shown to recruit the body's own stem cells and promote tissue repair.

In November, 2018 Astellas Pharma Inc and Juventas Therapeutics have entered into an exclusive option and license agreement for Juventas' lead product candidate, JVS-100. The agreement grants to Astellas a license to conduct research and to develop JVS-100 through Phase 2a clinical studies with an option to acquire JVS-100 from Juventas for further development and commercialization.

Astellas currently plans to focus development efforts on the treatment of fecal incontinence (FI). Astellas will fund preclinical and clinical studies and be responsible for conducting development efforts directed toward the use of JVS-100 for the treatment of FI in a collaboration with Juventas.

The total amount invested by Merchavia is \$0.5 million, Merchavia currently holds approximately 0.6% on a fully dilution basis.

# Milestones

---

Milestones plan for the next year includes, inter alia:

1. Astellas execution of the option to Acquire JVS-100 Gene Therapy Program from Juventas.
2. Entering into Phase 2b clinical trials on the treatment of fecal incontinence.



# Upcoming events in the companies over the next 18 months



1. Adaptation of the existing drug delivery system to cannabis Emulsion.
2. Conducting clinical trials to prove pharmacokinetics and efficiency.
3. CE & AMAR mark, Manufacturing & Sales readiness.



1. Completion of the development of a prototype.
2. Completion of algorithm development and image processing software.
3. Clinical pilot trial.



With regard to the future payments to Merchavia, meeting sales targets for the end of 2020 and 2021.

## TrainPain

Clinical validation-clinical study to prove efficacy.



Execution of the option to Acquire JVS-100 from Juventas.



1. Initiation of marketing of ISOPSA.
2. FDA approval for ISOPSA test.
3. Progress in the development of another test based on this unique technology (breast cancer, Lung Cancer, Alzheimer's disease).



1. FDA and CE clearance for AF detection.
2. First Batch of 3,000 watch units ready to market by the end of 2020.
3. Completion of clinical trials in the fields of Respiratory rate and continuous blood pressure by the end of 2020.

**In April 2020 Merchavia has signed MOU with CDx Subject to the signing of a binding agreement, CDx will grant Merchavia exclusive rights for marketing and sales of the unique diagnostic test, IsoPSA, for the diagnosis of prostate cancer in Israel and other different geographical locations.**





**Merchavia Holdings and Investments Ltd.**  
Presentation for Investors

**Thank you**