

Portable MRI For Real-Time Cancer Margin Assessment Inside The Operating Room

June 2023

### The clear opportunity

### > Who we are:

A device company in initial commercial-stage, bringing trusted MRI technology into the operating room to enable real-time excised tissue margin assessment in cancer surgery





Every surgical cancer treatment starts and ends with big question marks

- Is this really the target tissue?
- Have I removed enough?
- Where shall I sample for diagnosis?

# THE ANSWERS ARE WORTH \$ BILLIONS IN AVOIDABLE HEALTHCARE COSTS.

### THE CURRENT SITUATION IN BREAST CANCER

Doctors do not know in real-time whether or not they are getting all cancerous tissue when they perform surgery, and instead take their **BEST ESTIMATE.** 

- SURGEONS TAKE AN EDUCATED GUESS AT TISSUE REMOVAL
- TISSUE SAMPLE IS SENT TO PATHOLOGY
- PATHOLOGIST TAKES BEST ESTIMATE AT WHERE TO SAMPLE EXCISED TISSUE TO ASSESS MARGINS FOR CANCER
- SURGEON RECEIVES REPORT FROM PATHOLOGIST

cancer free

cancer found

Surgeon has to call patient **2nd surgery is required !** 

### THE ANSWERS ARE WORTH \$ BILLIONS IN AVOIDABLE HEALTHCARE COSTS.

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Surgeon has to call patient

### 2ND SURGERY IS REQUIRED !



#### Amount of 1<sup>st</sup> and 2<sup>nd</sup> Breast Conserving Surgeries per Region 2021 (K Unit)

	<u>Europe</u>	<u>USA</u>	<b>Rest of World</b>
1 <sup>st</sup>	338	190	351
2 <sup>nd</sup>	89.9	46.2	97.8
Re-excision rate	26.60%	24.32%	27.86%

Source: Globocan, SamanTree Medical, Intellectual Capital and QYResearch, 2022

# THE SOLUTION

### A Breakthrough for Expansion of MRI Applications

- Portable MRI on a cart
- Fully Shielded
- No contrast media
- No MD specialty needed
- No patient contact
- Workflow compatible
- Low cost = Affordable
- FAMILIAR, TRUSTED, SIMPLE, ACCURATE & AFFORDABLE

#### WE'VE TRANSFORMED MRI FROM THIS...



...TO THIS NEW MRI

**FORM FACTOR** 

### **OUR SOLUTION**

Create a digital map of the tissue's surface to show the surgeon specific areas of concern - in real-time, during surgery

### **IMPACT**

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Better intra-operative decisions, fewer reexcisions, dramatically lower costs of care, enhanced quality of life, improved outcomes

### CLEAR CANCER DETECTION WHEN IT'S NEEDED MOST





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# **MRI = TRUST = CREDIBILITY**

Diffusion-weighted MRI is the trusted modality for differentiating malignant vs benign tissue

\* Guo et. al., Differentiation of Clinically Benign and Malignant Breast Lesions Using Diffusion-Weighted Imaging, J. MRI, 172-178, 2002.

\* Tsushima et al., MR Differential Diagnosis of Breast Tumors Using Apparent Diffusion Coefficient on 1.5-T, J. MRI, 249-255, 2009.

#### **Diffusion-Weighted MRI**



Restricted diffusion (slower diffusion) Lower ADC (Apparent Diffusion Coefficient) Higher T<sub>2</sub>\*

Free diffusion (faster diffusion) Higher ADC Lower T<sub>2</sub>\*



### ONLY CLEARCUT PROVIDES REAL TIME ANSWERS THAT DO NOT REQUIRE ANY EXPERTISE !

### FOR THE PATHOLOGIST:

Targeted sampling reduces workload and improves diagnostic accuracy



**Optical picture** of the surgically excised tissue shows suspicious malignant places

### FOR THE SURGEON:

Intra-operative real-time margin assessment reduces re-excision rate



**ClearCoast™ MR scan** shows suspicious malignancy in the tissue surface (the margin)



# CLINICAL Development

- 1. Moshe Papa, Tanir Allweis et al., An Intraoperative MRI System for Margin Assessment in Breast Conserving Surgery Initial Result From a Novel Technique\_J.Surg.Oncol 2016
- 2. American Society of Breast Surgeons (ASBrS) 2017
- 3. Marc Thill, Magnetic Resonance Imaging System for Intraoperative Margin Assesment, J.Surg.Onco 2021
- 4. DS- Dynamic Scan

<b>PUBLISHED 2016</b>	<b>PUBLISHED 2017</b>	<b>PUBLISHED 2021</b>
P2P         POINT-TO-POINT <sup>1</sup> POC study, 22 patients, (n=77 samples), Israel	M2N         MARGIN-TO-MARGIN <sup>2</sup> ClearSight <sup>™</sup> 1st revision, 220         patients (n=758 aspects),         USA, Europe	© <b>N2N-II MARGIN-TO-MARGIN-II</b> <sup>3</sup> ClearSight <sup>™</sup> with DS <sup>4</sup> , 60 patients (n=348 aspects), Europe
<ul> <li>Scientific study to show accuracy of core technology</li> </ul>	<ul> <li>First "real world" study</li> <li>High sensitivity shown for different cancer types</li> </ul>	<ul> <li>Innovation of Dynamic Scan</li> <li>Sensitivity &amp; Specificity best in class</li> </ul>

Specificity better than

competition, but below

what's possible with MRI

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- High accuracy vs. pathology
- Compelling proof of concept

- Improved pathology analysis to detect positive margins
- High threshold met for global commercialization

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# VOICES WITH EXTENSIVE CLEARCOAST™ SYSTEM EXPERIENCE



"ClearCoast™ portable, diffusion weighted MRI system delivers analytical guidance surgeons trust so they can know in realtime if there has been a complete tumor resection. This is a major advancement in the use of MRI."

Barry Rosen, MD, Director of Breast Centers at Advocate Good Shepherd Hospital and AMITA/Alexian Brothers Medical Center, Illinois, USA and ClearCut CMO.



#### "

The ClearCoast<sup>™</sup> System is an impressive engineering feat. For the first time, surgeons have an imaging technology we know, trust and can easily use within the operating room to direct our decisions around how much, or how little, tissue that should be removed in breast cancer conservation surgeries. We were able to see for ourselves the potential of this technology to dramatically reduce the need for 2<sup>nd</sup> surgeries."

Prof Marc Thill, MD, PhD Chief of Obstetrics and Gynecology, Agaplesion Markus Hospital, Frankfurt, Germany

# **INTELLECTUAL PROPERTY**

Novel, proprietary MRI platform technology enabling miniaturization and simplification of excised tissue imaging

Groundbreaking invention for the expanded use of MRI technology

- 10 patents granted in the US, EU, China, Japan and India
- Additional 8 patent applications pending

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# EUROPEAN Launch in 2022

### **pfm**medical

- Pan-European leader in breast reconstruction surgery
- Exclusive, 3 years, minimums, clinically collaborative
- Direct and dominant in key large markets
- Large strategic investment into ClearCut
- Large internal investments in support of launch



# **PROJECTED MILESTONES**

- > 2022 ClearCoast™ European launch
- > Q4/2023 Initiation of feasibility study of ClearCoast<sup>™</sup> first additional application (outside breast cancer)
- > Q4/2023 ClearCoast™ ROW (outside Europe and US) launch
- > 2024 Completion of development of ClearCoast<sup>™</sup> next generation system
- > 2025 ClearCoast<sup>™</sup> FDA approval and US launch



### **DOMINANT FEATURES AND PERFORMANCE... AND THE TRUST OF MRI**

APPROACH	EASE OF USE	ACCURACY	ASSESSMENT TIME	CELL TYPE	CAPABLE OF PATHOLOGY Testing yes=good	COMMENTS
Histopathology	-	+++	Days - weeks	+++	No	Gold standard
Frozen Section	Workflow disruption	++	30-60 min	++	No	Limitations in fatty breast tissue, limited availability
RF Spectroscopy (i.e.: Dilon/Dune)	++	+	Few minutes	-	No	High rate of false positives, user dependent, expensive
OCT / Confocal Microscopy (i.e.: Perimeter Medical / SamanTree)	+	+++	Few minutes	+	No	Scant clinical data, user dependent, complex images
Fluorescent dye (i.e.: Lumicell)	++	?	Few minutes	-	No	Phase I/II drug trials, small statistics, not workflow compatible
ClearCoast™ MRI (ClearCut Medical)	+++	+++	Few minutes	-	Yes	MRI is TRUSTED High precision accuracy, user independent, pathology guidance



# FULL FOCUS TODAY IS ON BREAST CANCER

#### PREVALENCE

#### 1 out of 8 women will develop breast cancer, with 2.1 million new cases diagnosed annually WW

#### LUMPECTOMY 1ST CHOICE

#### **SAVINGS OPPORTUNITY**

Breast conserving surgery (lumpectomy) is the initial treatment of ~75% of breast cancer cases in the US & EU \$2 billion dollar health care systems savings opportunity in US & EU by eliminating avoidable 2<sup>nd</sup> surgeries



# **MAJOR PLATFORM OPPORTUNITY**

ClearCoast<sup>™</sup> MRI System may be valuable in additional cancers







PROSTATE







### DOMINANT FEATURES AND PERFORMANCE... AND THE TRUST OF MRI

APPROACH	EASE OF USE	ACCURACY	ASSESSMENT TIME	CELL TYPE	CAPABLE OF PATHOLOGY Testing Yes=good	COMMENTS
Histopathology	-	+++	Days - weeks	+++	No	Gold standard

### Why will ClearCoast<sup>™</sup> MRI become the Standard of Care? *Familiar, Trusted, SIMPLE, Affordable, Highly Accurate*

ClearCoast™ MRI (ClearCut Medical)	+++	+++	Few minutes	-	Yes	MRI is TRUSTED High precision accuracy, user independent, pathology guidance
Fluorescent dye (i.e.: Lumicell)	++	?	Few minutes	-	No	Phase I/II drug trials, small statistics, not workflow compatible
OCT (i.e.: Perimeter Medical)	+	+++	Few minutes	+	No	Scant clinical data, user dependent, complex images



# **THE LEADERSHIP TEAM**



#### **HEZI HIMELFARB**

**Chief Executive Officer** 

- Successful executive with more than 30 years of management experience in hi-tech and medical device companies
- Executive roles at InStent (sold to Medtronic), Remon (sold to Boston Scientific), IceCure (traded in TASE and Nasdaq), Microbot (traded in Nasdaq) and O2Cure
- B.Sc. In Electronic Engineering and MBA, both from Tel-Aviv University

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### EYAL KOLKA

Founder, Executive Director

- Serial entrepreneur. Founder and Executive Director of Pi-Cardia; Formerly founder, CFO and SVP of Bus. Dev. of TopSpin Medical
- B.Sc. in physics and mathematics in the Talpiot program; M.Sc. in physics from the Hebrew University; MBA from Tel-Aviv University



#### **EREZ GOLAN**

Founder, Executive Director

- Serial entrepreneur. Founder and CEO of Pi-Cardia (aortic valve repair); former founder and CEO of TopSpin Medical
- B.Sc. in physics and mathematics as part of the Talpiot program; M.Sc. in MRI physics from the Hebrew University



### **BOAZ DOVRIN**

VP, R&D and Operations

- Leading programs of Multidisciplinary products for more than 30 years and Medical Device programs for more than 13 years. Played major role in product development as part of the R&D organizations at Philips Healthcare, Lumenis and Elbit Systems.
- B.Sc. Aeronautics and Space Engineering in Technion, Israel; MBA from Bar-Ilan University, Israel.



#### **ANNA LEVIN**

**Director**, Clinical Affairs

- Over a decade of experience managing clinical trials, regulatory pursuits and operations in a wide range of successful development activities of medical devices in addition to other accomplishments within the pharmaceutical industry
- BSc in Medical Laboratory Sciences, from Hadassah College, and a MSc in Management of Technology, from the Hebrew University



#### **MIKE BERMAN**

Chairman

- Experienced medical device entrepreneur and investor
- Previously President of Boston Scientific/Scimed

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### The Coast is Clear.





