

# Median Technologies Presentation Fredrik Brag, CEO

COWEN 37<sup>th</sup> Annual Health Care Conference March 6 – 8, 2017 - Boston, Massachusetts



Cowen 37th Annual Health Care Conference - March 6-8, 2017 - Boston, MA

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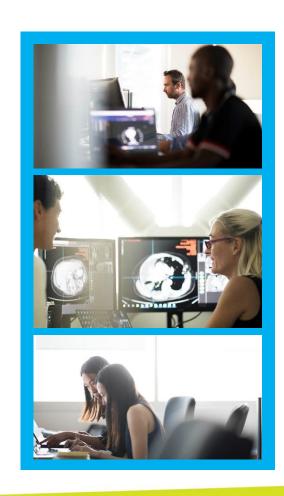
## Why we do what we do...



"At Median we see the person on the other end of the images"

Global Imaging Solutions for detection, diagnosis and monitoring of diseases

- A simple vision: "if we can spot and track a tank from space, we can spot and track a tumor."
- Saw a trend: imaging is critical for diagnosis, 600m procedures/year in the US alone. The image quality has improved drastically but the analysis of the information has not.
- **The unmet need:** provide more accurate diagnosis and better assessment of patient response to therapy.
- **Built a company:** to use innovative imaging technology to improve the objectivity and accuracy of imaging data and extract the most meaning from the image.
- WHY? Because there is a person struggling with illness on the other end of the images counting on us!



## Our origin, our history

### The Imaging Phenomics™ Company

- Medical image analysis is what we do and what we have always done since 2002.
- Extracting the most meaning out of an image with smart imaging technology blended with cutting edge science and unmatched expertise.
- Powered by Partnerships: Microsoft, Canon, FuRui, START, INRIA & other imaging labs.
- Headquarters in Sophia Antipolis, France and Woburn, MA USA.
- 100+ employees worldwide.
- €60m in financing raised in the past 2 years through NEA, Abingworth, Omega Funds, HBM, Polar, FuRui, etc.



Precision Medicine refers to the tailoring of medical treatment to the individual characteristics of each patient. Recent discoveries in the imaging of cancers have shown that tumor imaging features reflect underlying tumor pathophysiology. The whole set of these imaging features is called Phenomics, which are fingerprints of a specific disease embedded in medical images and a key part of precision medicine.



Median brings the power of Imaging Phenomics™ to the entire patient journey.

## Bringing the power of Imaging Phenomics™ to the entire patient journey



#### **IMAGING FOR CLINICAL TRIALS**

#### Advancing treatments of the future

Working with biopharmaceutical companies and leading medical centers around the world, we enable researchers to identify disease fingerprints from medical images. We're helping paving the way for new personalized and innovative medicines, more accurate and predictable diagnoses and better treatments.



#### **CLINICAL TRIALS**

Improve and optimize the assessment of new cancer drugs in clinical trials



Pharma, biotech companies & CROs.

#### **IMAGING FOR PATIENT CARE**

#### Identifying treatments that work

Imaging biomarkers provide a unique insights into treatment progress at every stage of a disease. In cancer for instance, comprehensive quantitative information plays an invaluable role in measuring treatment outcomes. Providing clear evidence of what works and what doesn't for each patient.



#### **PATIENT CARE**

Improve screening, diagnosis and monitoring standards of cancer patients



Government health agencies, hospitals, clinics, etc.

## Median is applying technology to enable cancer treatment



- After many years of research and some advances, cancer continues to be the one of the top 2 causes of death in the United States<sup>1</sup>, EU<sup>2</sup>, and China<sup>3</sup>.
- Most of the new immuno-oncology treatments still only have about 20% responders<sup>4</sup>
- The industry needs a more comprehensive approach to personalized medicine that uses phenomics, genomics, and big data to identify the best treatment for each patient.
- The use of AI/Machine-Learning to match individual disease characteristics to large databases of past histopathology with treatment outcomes can drive better success rates in oncology.
- Median strives to deliver this broad based solution by harnessing cloud-based data storage, real-time Al processing, and phenomic signatures to help treat patients.
  - 1. https://www.nimh.nih.gov/health/statistics/suicide/leading-causes-of-death-ages-1-85-in-the-us.shtml
  - 2. https://ec.europa.eu/health/major chronic diseases/mortality en
  - 3. http://www.worldatlas.com/articles/leading-causes-of-death-in-china.html
  - 4. https://www.statnews.com/2016/03/03/cancer-immunotherapy-neoantigens/

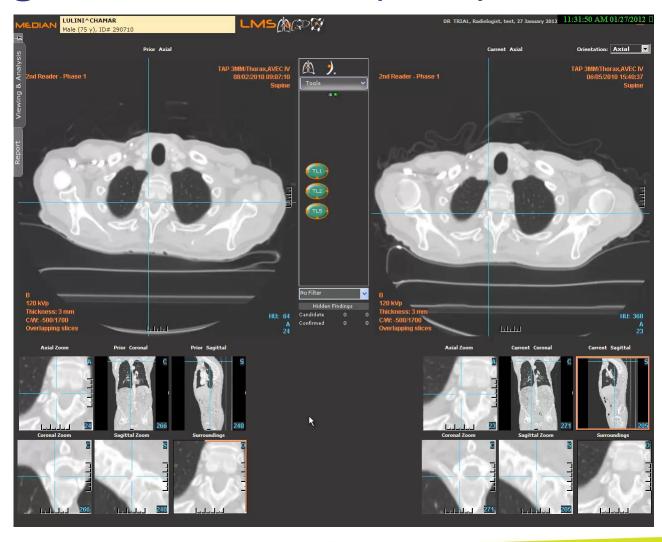
# Part 1: A Disruptive Technology



The Imaging Phenomics<sup>™</sup> Company

## Lesion Management Solution (LMS)

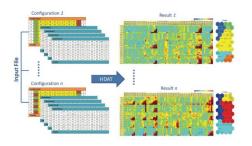




## Median iBiopsy™ platform



Proprietary & patented cloud-based AI technology & processes



iBiopsy<sup>™</sup> is a high-throughput, comprehensive, accurate, end-to-end **image retrieval and analysis platform** for large scale extraction of imaging biomarkers and phenotypic signatures.



iBiopsy<sup>™</sup> is based on state-of-the-art "big-data" architecture highly optimized for automated phenotype indexing and real-time analysis. The Platform uses Deep-Learning technology to detect and classify signatures from validated databases.

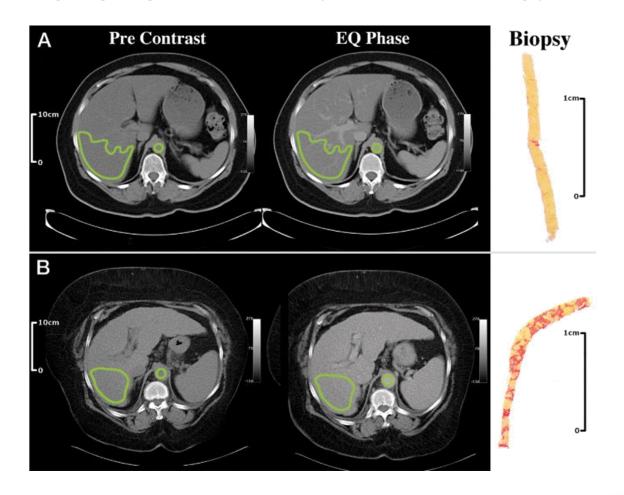


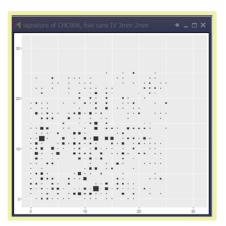
Collaboration with Microsoft Cloud Computing to ensure speed and scalability across multiple device types.

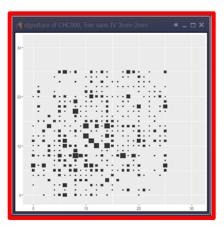
## Median iBiopsy™ platform

**M** median

Mapping imaging signatures to patho-histology







## Median iBiopsy™ platform

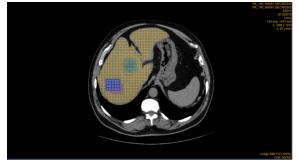
### Initial target applications for liver, lung, prostate

Example of an iBiopsy<sup>™</sup> application is for the assessment of Non Alcoholic Fatty Liver Diseases (NAFLD), a major cause of liver disease worldwide, with a growing global prevalence of 25.4 % [1]

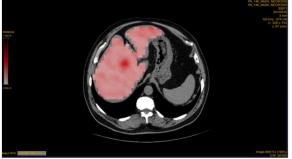
- Non-invasive diagnosis of NASH
- Non invasive assessment of fibrosis
- Accurate patient phenotyping
- NASH resolution
- Effective reduction of fibrosis
- Improvement in portal HTN in cirrhosis patients
- Reversal of cirrhosis
- Measures for determination of treatment response

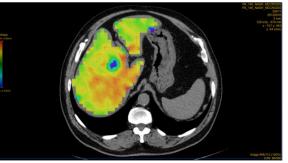


The Liver image is automatically segmented in 'tiles' with a unique signature computed to each tile.

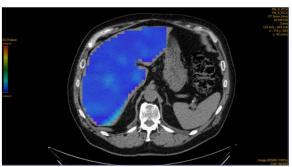


A tissue classification map is computed for the image, based on similarity between the signatures.





Various parameters such as the entropy are extracted for each tile in the image to characterize individual tissue phenotypes.

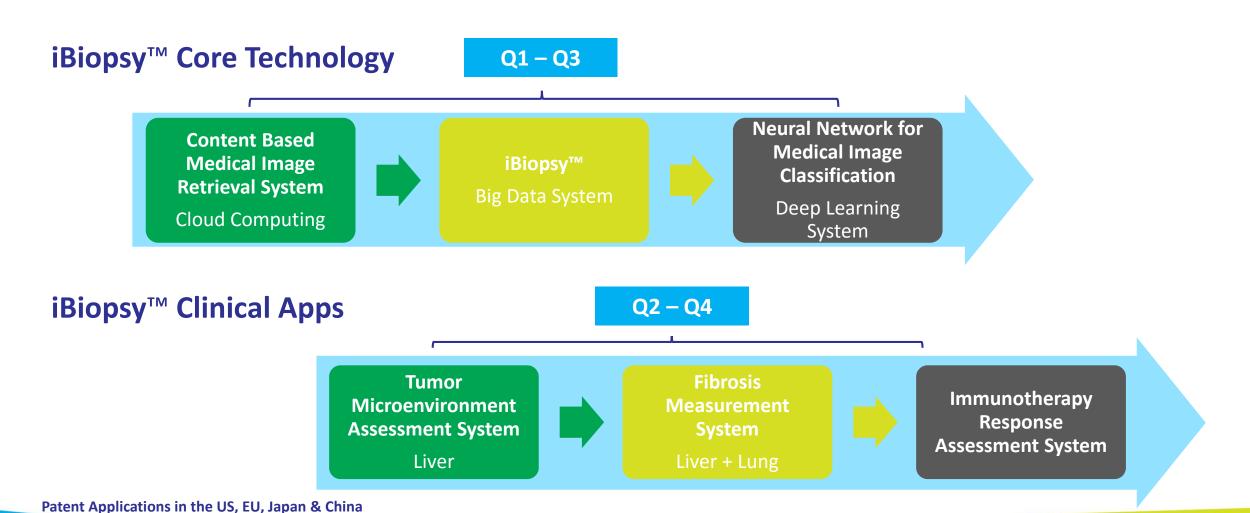


Various pathological characteristics of tissues such as fibrosis can be computed and mapped based on correlation between the signatures and histopathology databases

#### Sources:

## Patenting Timeline 2017





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# Part 2: Business Development



The Imaging Phenomics<sup>™</sup> Company

## Market opportunities



## TARGET MARKETS MARKET PLAYERS



#### **CLINICAL TRIALS**

Improve and optimize the assessment of new cancer drugs in clinical trials

- +\$1bn annual market
- Biopharma companies
- Medical device companies
- iCRO's/CRO's



#### **FOCUSED MARKET**

- **SALES STRATEGY**
- Approach to BioPharma
  - Small dedicated sales force
  - CRO Partnerships
  - KOL Partnerships, START



#### **PATIENT CARE**

Improve screening, diagnosis and monitoring standards of cancer patients

- Multi \$Bn market
- Government Healthcare Authorities
   & Agencies,
- Hospitals, clinics, radiology facilities, screening centers, oncology centers



#### **SELECTED NATIONAL MARKETS**

Direct approach and with local partners

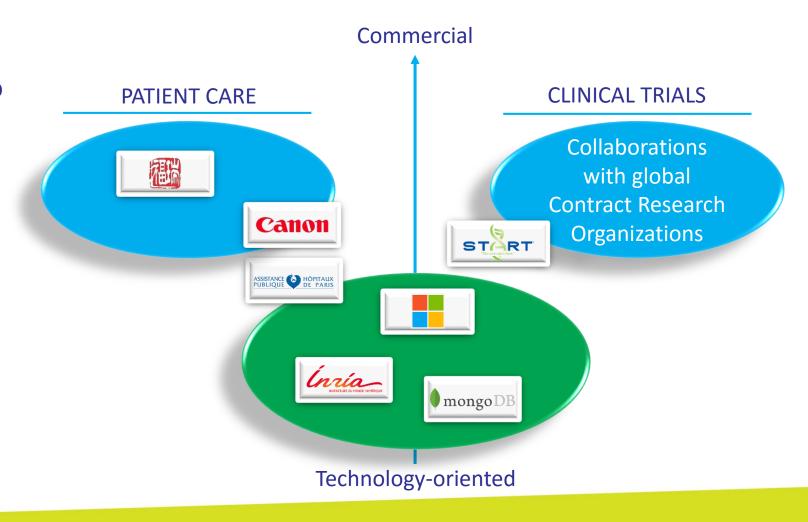
## Partnerships and Collaborations



"Partnering for the Patients"

We work with thought leaders and top innovators in healthcare to deliver a seamless service in all fields of our work.

- Collaboration with KOL's and major CRO's around the world.
- Strategic partnerships with technology-oriented industry leaders to develop new imaging technologies and business opportunities worldwide.



## iBiopsy™ market potential

## Target applications and companion diagnostics

- There are more than 600m imaging procedures in the US alone.
- The Precision Medicine Market is expected to be over \$80bn by 2020.
- iBiopsy<sup>™</sup> value proposition:
  - Patient selection for targeted therapies
  - Early detection of cancers and other chronic diseases
  - Predicting treatment response
  - Predicting patient prognosis or outcome
  - Selecting patients for clinical trials
  - Identifying biological processes at individual level
  - High throughput screening for development of targeted compounds
- For iBiopsy™, we will seek reimbursement as diagnostics/ companion diagnostics procedure.





## Part 3: Corporate Milestones



## Executive team: recent appointments



#### All based in the United States



Jeanne Hecht as Chief Operating Officer



Nicholas Campbell as Chief Commercial Officer



James Golando as Chief of Operations

## Scanning the horizon



Harnessing the power of Imaging Phenomics™

### Median can revolutionize cancer care by:

- Diagnosing cancer at an early stage: Example, identify phenotype for early stage lung cancer screening
- Changing the way we diagnose & treat cancer: Collaborate on phenotype indexing and 'Deep-Learning' processes to identify treatment paradigm
- Enhancing disease monitoring: Use iBiopsy™ to quickly identify progression and adjust treatment as needed
- Growing disease knowledge-base: Build a globally comprehensive database of disease presentation
- **Speeding up implementation:** Providing "state of the art" solutions for treatment centers and pharma sponsors around the globe in the cloud in a secure environment

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