



MagSense™ Technology

A New Clinical Diagnostic
Technology for Targeted Early
Detection of Cancer

Company Overview

October 2017

ASX:IBX

www.imagionbiosystems.com

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Investment Highlights

\$100 Billion

Annual global spending on cancer diagnosis in imaging and pathology.

8 Patents

Core technology covered in major markets through to 2029.

“Printer & Ink” model

Product includes both the instrument and a diagnostic consumable.

\$2 Billion

Addressable markets for first cancer targets: breast, prostate, ovarian.

Additional targets being explored.

Platform Technology

Not limited to initial targets or cancer diagnostics.

Other potential opportunities include theranostics and reagents.

Key Collaborations

Pre-clinical partnerships already under way with pre-eminent medical research institutes.

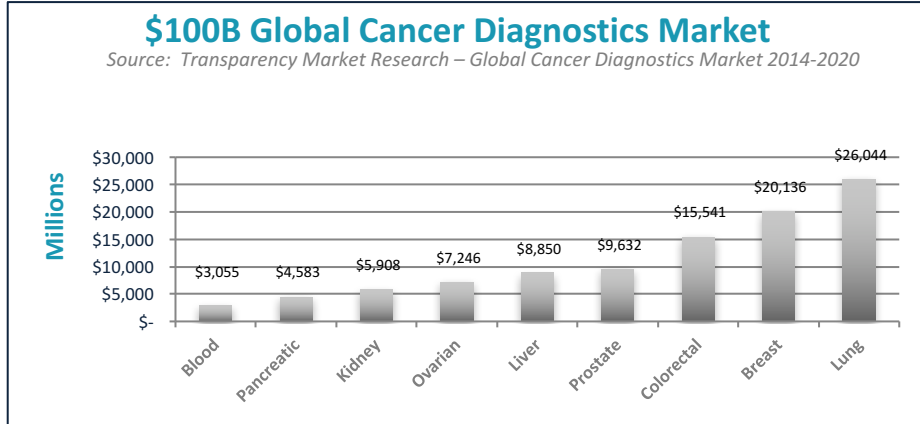


The Opportunity in Cancer Diagnostics

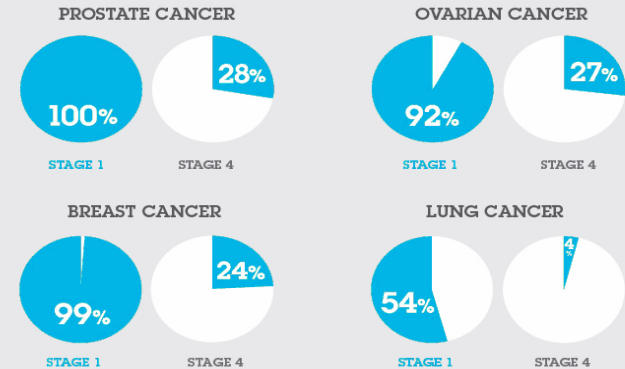
MARKET DRIVERS

Cancer continues to be one of the leading causes of mortality. Statistics show that *more lives could be saved if cancer could be detected earlier*.

Cancer diagnostics is a **\$100 billion market growing at a CAGR of >7%*** with imaging techniques accounting for the largest portion.



5-year survival rate, depending on **early** or **late** diagnosis:

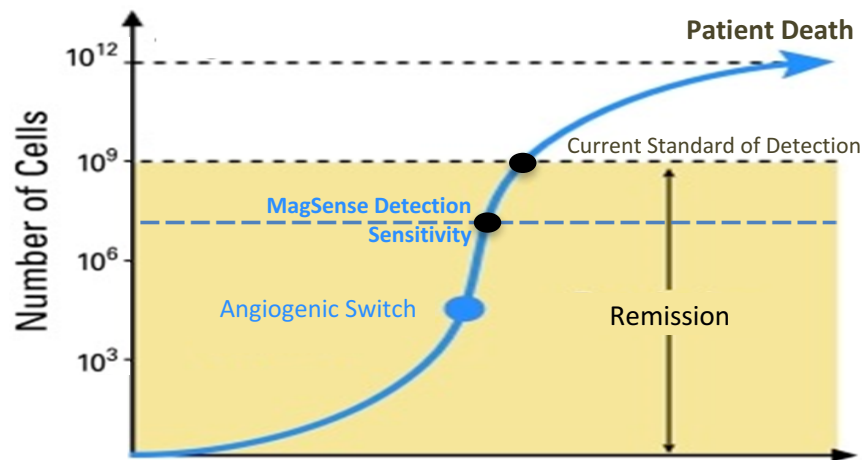


Source: SEER Cancer Statistics, National Cancer Institute, 2013
<https://www.ohsu.edu/xd/health/services/cancer/about-us/early-detection-vision/why-focus-on-early-detection.cfm>

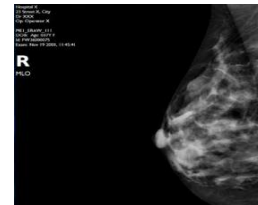


The Unmet Medical Need

- Imaging methods can not differentiate benign from malignant tumors.
- Not sensitive enough to detect small tumors.
- Pathological assessment requires an invasive procedure.

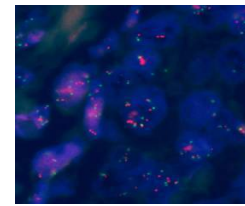


Imaging Methods



Non-specific, Lack Sensitivity

Pathology



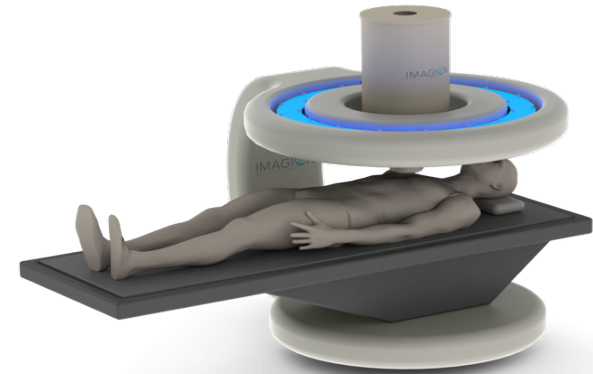
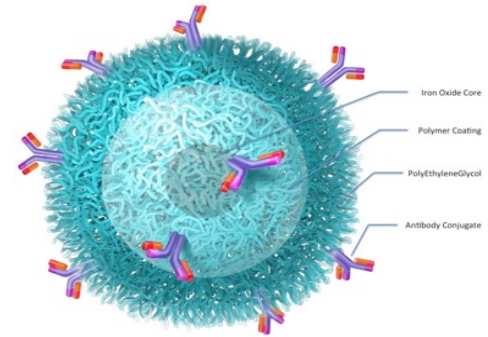
Require Invasive Procedures

- Minimize need for surgical or biopsy procedures.
- Identify tumors at an earlier stage and reduce risk of metastases.



How MagSense™ Technology Works

- Magnetic nanoparticles with antibodies are able to bind to cancer cells.
- A small dose of particles is given as an injection and circulate to find the cancer, if present.
- A very brief weak pulse magnetizes the particles.
- A nanoparticle attached to a cell will relax from the magnetization more slowly than an unattached particle.
- The ultra-sensitive detectors are able to locate and quantify the attached nanoparticles.



Rendering of MagSense SQD Clinical Instrument

Human studies have not yet been conducted



Advantages of MagSense™ Technology

More Sensitive

- Can **detect small tumors** not readily detectable by most current imaging technologies.

Specific

- Tumor-specific antibodies target and locate cancer cells.
- Non-cancerous tumors do not give a measurable signal.

Reduces Patient Risks

- Reduces need for surgical procedures.
- Does not use radiation and uses weak magnetic field.
- Nanoparticles are made from known **bio-safe materials**

Method	MagSense Magnetic Relaxometry	MRI Magnetic Resonance Imaging	PET Positron Emission Tomography	Ultrasound	X-Ray/CT
Detection Threshold	< 10 million cells	10's Millions of cells	NA	Billions of cells	NA
Quantitative	Yes	Yes	No	No	No
Specificity	Yes	No	No	No	No

Technology Costs Less to Make and Install

- MagSense instrument will **cost less** than conventional MRI or CT technologies (~ \$500K)
- Does not require expensive shielded environment (eliminates ~ \$1M in installation costs)

Nanoparticle Test Provides Route to Reimbursement

- Each cancer specific nanoparticle formulation creates a new consumable test
- Nanoparticles provide **high gross margin recurring revenue** on installed base of instruments



Cancer Targets In Development

Breast Cancer

- Invasion of the regional lymph nodes is an early hallmark of metastatic breast cancer.
- Imaging methods are neither sensitive enough nor bio-specific to detect localized nodal spread.
- ~ 1.6M new breast cancer cases annually - 20% Her2+
- Lymph node biopsy costs > \$2500.



Prostate Cancer

- Grey-scale ultrasound has an accuracy of only 5% - 60% and a positive predictive value of less than 10%.
- Prostate biopsies are highly invasive with frequent false positive results.
- 1.1M new prostate cancer cases annually
- 1M biopsies in US alone
- Biopsy cost is \$1500 - \$6000.

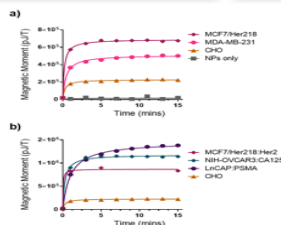


Ovarian Cancer

- Trans-vaginal ultrasound has poor sensitivity and high false positives.
- 70% mortality for treatment methods initiated post ultrasound detection due to late stage.
- ~ 250,000 new ovarian cancer cases annually .
- Transvaginal ultrasound costs an average of \$525.

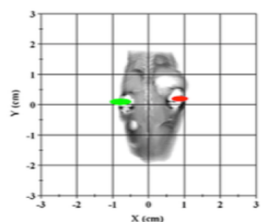


Development Roadmap



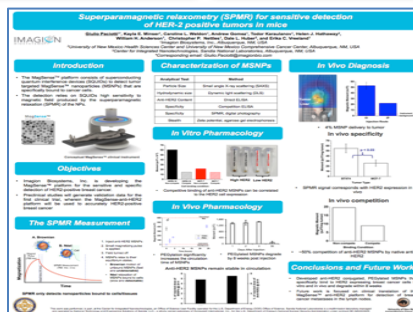
Early In vitro experiments showed that antibody targeting nanoparticles could be cancer specific

Adapted from: Hathaway et al. 2011 Breast Cancer Research
– Results obtained w/ Ocean Nanotech SPP nano-particles



In vivo experiments showed co-registry of tumor loci by MRX with MRI images

From: Adolphi et al. 2012 Contrast Media Mol. Imaging 7:308 "Imaging of Her2-targeted magnetic nanoparticles for breast cancer detection: comparison of SQUID-detected magnetic relaxometry and MRI"



Published results report specific detection of HER2 expressing human breast cancer cells

- Configure instrument for use with human patients



- Outsource nanoparticle manufacturing



- Test nanoparticle formulation for safety *expected Q2 2018*
- Undertake First-in-Human Feasibility Study *expected 2H 2018*



Shareholder Value Opportunities in IBX

Staging Breast Cancer

- Eliminates expense and risk of surgical biopsy procedure
- 240,000 HER2+ cases per year
- Establishes clinical utility of targeted nanoparticle detection platform

**\$250M
Market**

Primary Diagnosis & Recurrence

- Prostate Cancer
- Ovarian Cancer
- Other Breast Cancers
- Lung Cancer

**> \$4 Billion
Market**

Therapeutics

- Nanoparticle drug carrier
- Magnetic Hyperthermia

**> \$100 Billion
Market**



Board and Management



Robert Proulx
Chairman & CEO

- Operationally oriented executive
- 25 years experience in life science and medical device product development and commercialization



David Ludvigson
Non Exec Director

- Financial and operating executive
- 35 years experience in pharma, medical device and computer products
- Significant experience in corporate strategy, M&A, and financing



Michael Harsh
Non Exec Director

- Former VP & CTO of GE Healthcare's Medical Imaging Business
- 35 years experience in Engineering and product development of medical imaging technologies including MRI, X-ray, and ultra sound



John Hazle PhD
Non Exec Director

- Board certified for both therapeutic and diagnostic medical physics
- 30 years experience in pre-clinical and clinical medical imaging research
- Chairs Cancer Research programs at UT Graduate School of Biomedical Sciences



Jovanka Naumoska
Corp Secretary

- Australian attorney with expertise in regulatory compliance, corporate, governance and risk, general and commercial liability, & intellectual property



Mark Van Asten
Non Exec Director

- Australian business executive with strong background in diagnostics and healthcare
- 25 years experience in market development and commercializing diagnostic products



Brian Conn
CFO

- Financial executive with strong background in early and growth stage biotech
- 25 years experience in raising both public and private capital and M&A activities



Giulio Paciotti PhD
VP R&D

- Former CSO at CytImmune Sciences developer of gold nanoparticle therapeutic
- 25 years experience in tumor biology research and cancer related product development



Peter DiChiara
Non Exec Director

- 30 years experience on securities issuance, regulatory compliance and corporate governance.
- Licensed as both as an attorney and certified public accountant in the State of New York



Business Fundamentals Summary

Valuation Factors	IBX's Business
Uniqueness of the device and extent of disruption of current medical practice	MagSense is more sensitive than current medical imaging and able to differentiate benign from malignant tumors
Strength of intellectual property	IBX owns and controls the IP for medical applications
Extent of clinical evidence reducing technology risk	Milestones drive to reduce technical risk and achieve clinical utility
Opportunity for revenue and profitability	The markets are BIG and even small market share achieves sizeable revenue and growth potential

* STRONG BOARD AND MANAGEMENT TEAM

* FOCUS ON MINIMIZING TECHNICAL RISK

* CLEAR PATH TO COMMERCIAL MARKETS



* SOUND FINANCIALS

- Total funding to-date - \$27.4M
- Current cash – \$7.3M
- Quarterly cash burn projection - \$1.0M plus project outsourcing costs
- Clean balance sheet - No debt; No convertible notes or warrants



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