

MECO SCORE

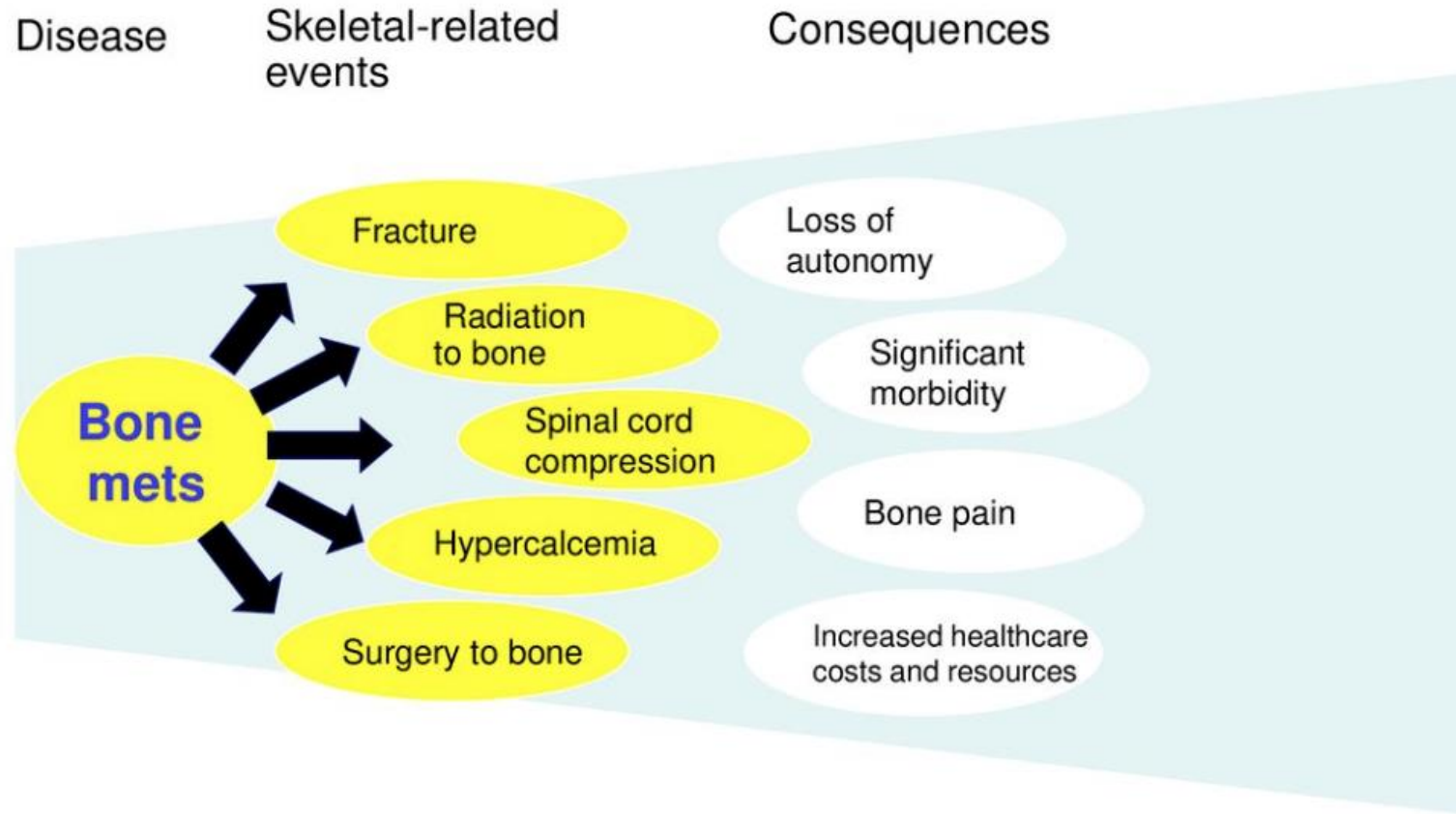
A complementary diagnostic for
breast cancer bone metastasis risk and prevention



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Tucson, AZ

The Problem

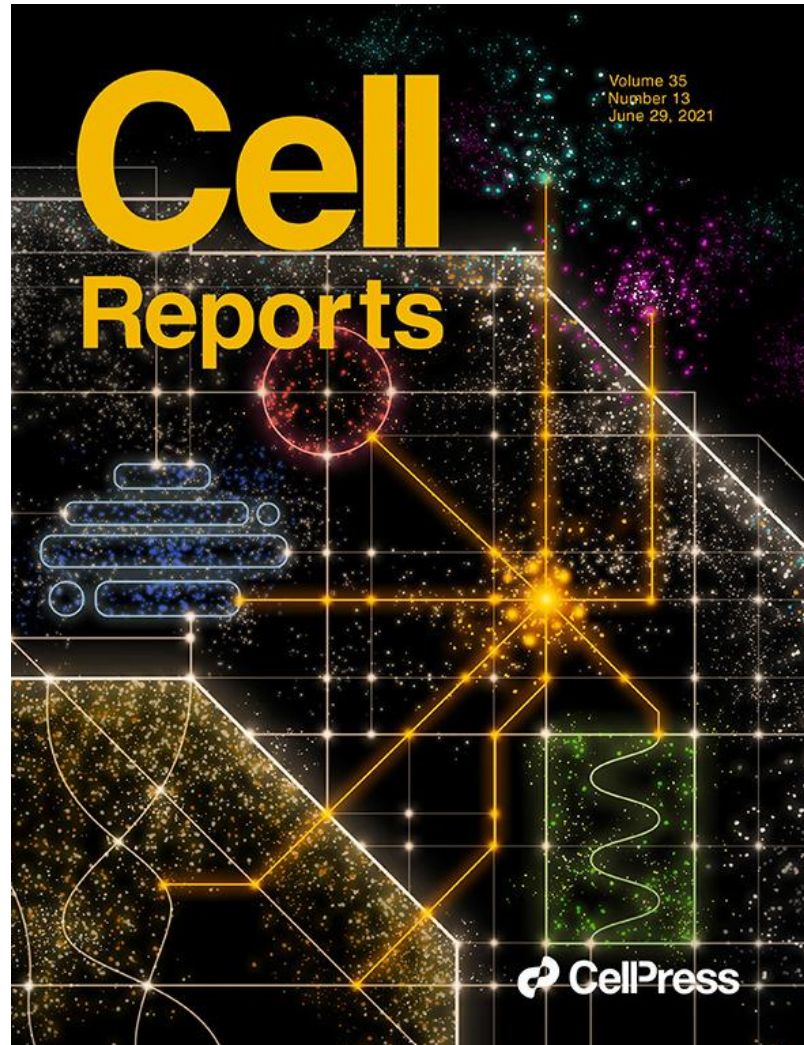
Bone metastasis is the leading cause of breast cancer morbidity



Kinnane N. *Eur J Oncol Nurs.* 2007;11(suppl):S28-S31.

Bone metastasis is generally incurable and affects ~75% of patients with metastatic disease

Our proof-of-principle publication

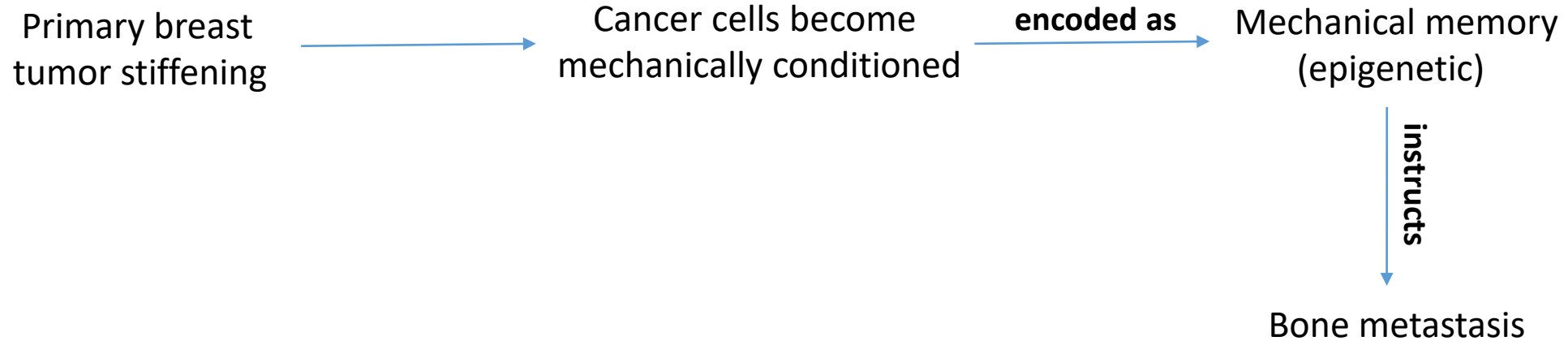


Our main findings:

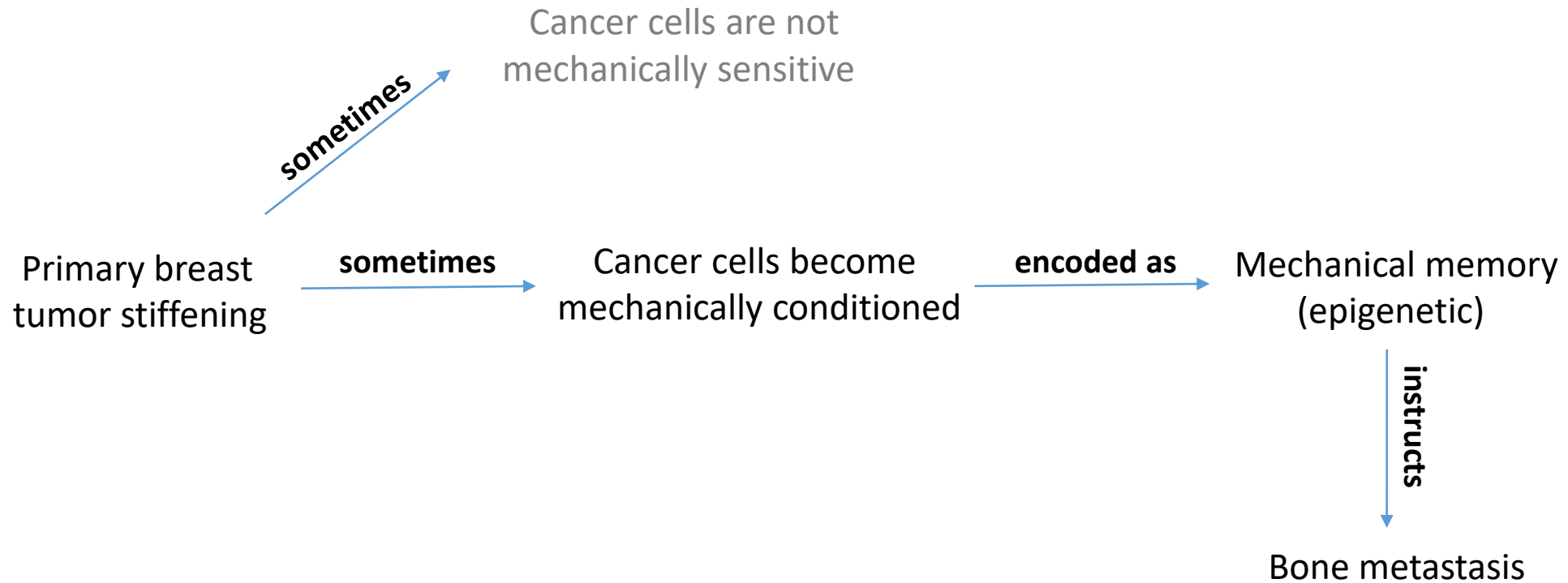
- Breast cancer cells can become responsive to tumor stiffness, leading to a phenomenon called “mechanical conditioning.”
- We can quantify mechanical conditioning using a sophisticated algorithm we invented called the MeCo score.
- Mechanical conditioning instructs breast cancer bone metastasis in animal models.
- Breast cancer patients with high MeCo scores are more likely to develop bone metastasis.

<https://doi.org/10.1016/j.celrep.2021.109293>

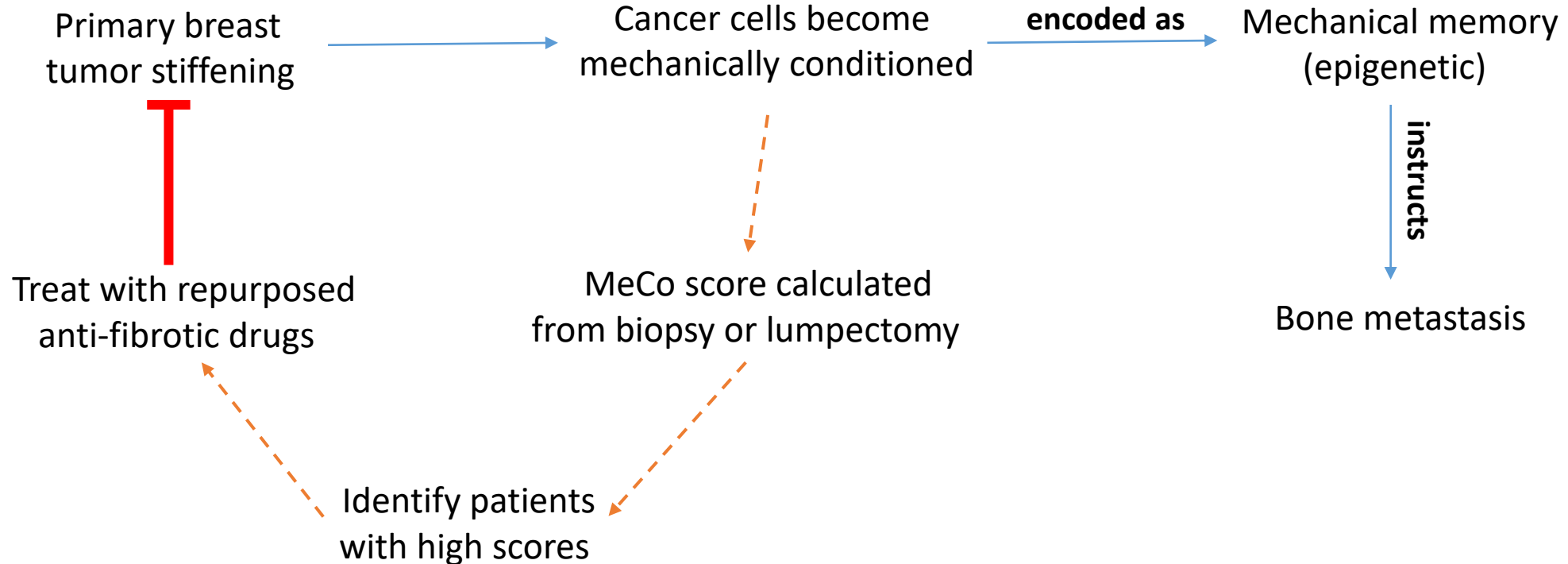
Why do we measure mechanical conditioning using the MeCo score?



Why do we NOT measure tumor stiffness?



We aim to treat the underlying cause in high-risk patients



Advantages of drug repurposing

Benefits for patients

- Lower drug costs (ie. generics are emergent)
- Excellent drug tolerability and long-term safety

Benefits for MeCo Diagnostics' investors:

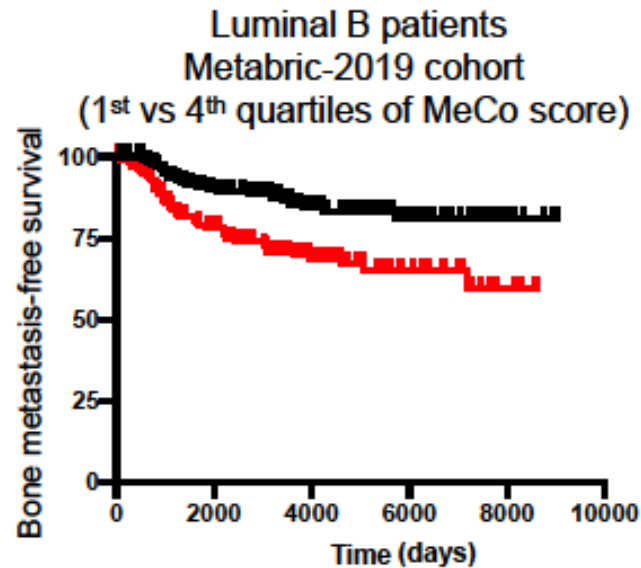
- Higher likelihood of regulatory approval (70% less risk)
- 85% lower R&D costs
- We can skip IND application and Phase I clinical trials

2 FDA-approved
anti-fibrotics:



Source Naylor S, JM. S. (2014) Therapeutic Drug Repurposing: repositioning and rescue. Drug Discovery World

MeCo score performance



*Luminal B subtype patients have the highest rate of bone metastasis (i.e. most clinically-relevant cohort)

Hazard Ratio (log-rank) = 2.330
95% CI, 1.462 to 3.713

Log-rank (Mantel-Cox): ***p=0.0006

Number of Luminal B patients with bone metastasis
Low MeCo-refined: 23 out of 169 patients (bottom quartile)
High MeCo-refined: 48 out of 169 patients (top quartile)

In this large validation cohort, Luminal B subtype patients with high MeCo scores were more than twice as likely to develop bone metastasis

MeCo score vs. other bone metastasis signatures

Validated in vivo? Optimized using clinical data?			Training cohort		Validation cohorts		Validated against 1000 random signatures?	Candidate complementary therapeutics?
			BMFS*	TTBM**	#1 BMFS	#2 BMFS		
Yes	No	Src-responsive signature SRS (Zhang)	Yes	N/A	N/A	N/A	No	Poor outcomes
Yes	No	CAF+ (Zhang)	N/A	N/A	Yes (TNBC only)	N/A	No	Yes
Yes	No	102-gene signature (Kang)	Yes (ER- only)	N/A	Yes (ER- only)	N/A	No	Too many targets
No	Yes	15-gene signature (Savci-Heijink)	Yes	N/A	Yes	N/A	No	No drugs available
Yes	Yes	MeCo	Yes (subtype optimized)	Yes	Yes	Yes	Yes	Yes

*BMFS: Bone metastasis-free survival

** TTBM: Time to bone metastasis

TNBC: Triple negative breast cancer

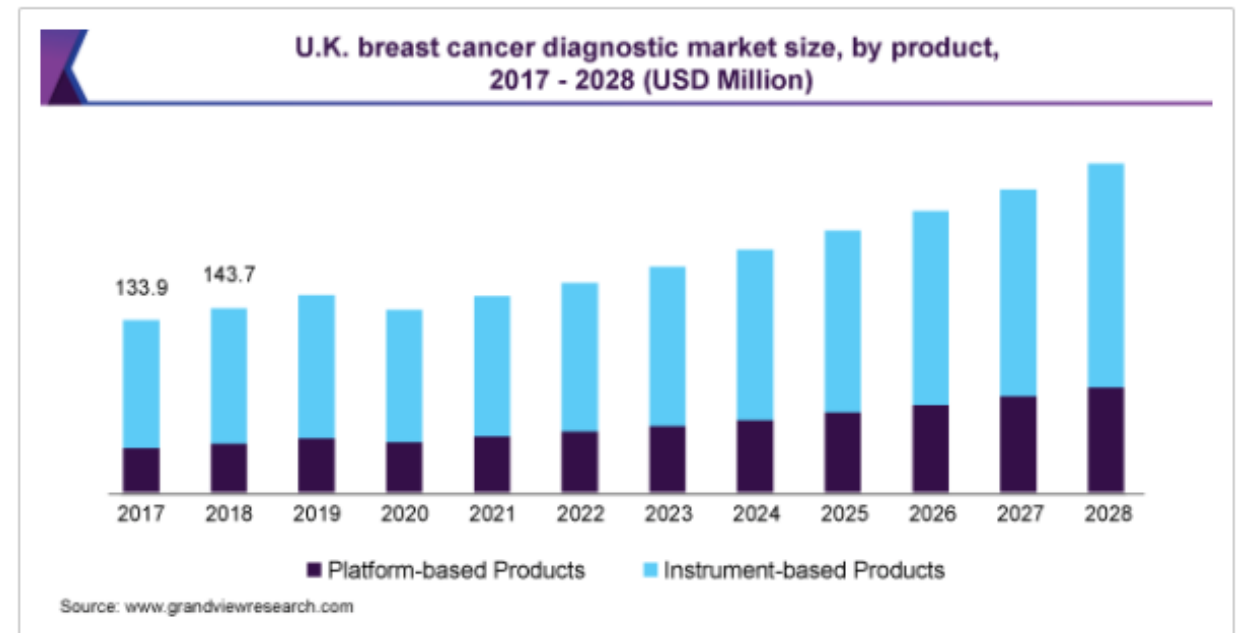
Impact Opportunity for MeCo score: Breast Cancer Incidence Rates US/UK

- Breast cancer is the **most common** type of cancer at a global level, with new cases surpassing **2.3 million**
- Within the United States (2019)
 - **New Cases:** 268,600
 - Existing Cases: 3,800,000
- Within the United Kingdom (2020)
 - **New Cases:** 55,000
 - Existing Cases: 600,000
- Of new diagnoses 96% will be stages 1-3 (64% local 27% regional 4% metastatic)
 - United States:
 - **Early Stage: 257,856**
 - United Kingdom:
 - **Early Stage: 52,800**
- MeCo score can benefit in **early-stage** cancer populations (preventative)
 - Early Stage: **300,000 annually in US/UK**

Diagnosics Market Size and Potential:

Annual Tests and Sales of Similar Diagnostics

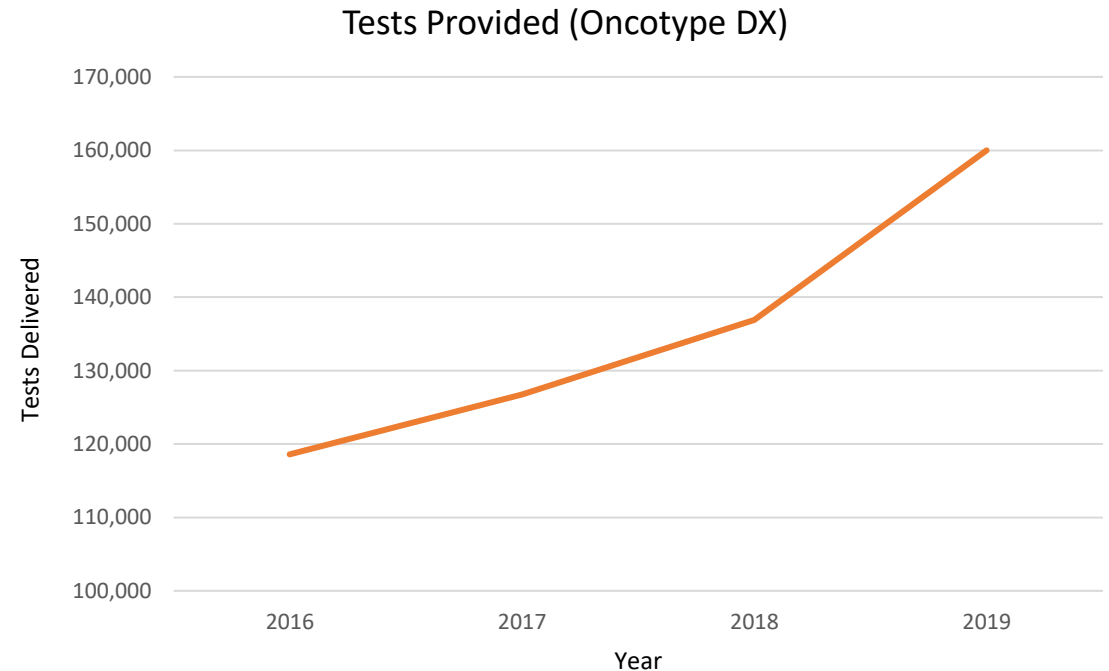
- The global breast cancer diagnostics market size was valued at **\$3.9 billion USD** in 2020 and is expected to expand to **\$6.3 billion USD** by 2028
- Within the UK, the market is following a similar trend: **\$145 M** which will almost double by 2028
- Growth can be attributed to the **increasing prevalence** of breast cancer and rising government initiatives to **increase the screening and diagnosis rate**.



Acquisitions and Performance of Similar Companies



- **Oncotype DX** scores suggests the effectiveness of chemotherapy (ie. toxic drugs) as an early-stage treatment to prevent breast cancer recurrence
- Owned by **Genomic Health** which was acquired by **Exact Sciences** in November of 2019 for **\$2.5 Billion**
- In 2019 Oncotype DX earned over **\$330,000,000** in revenue
- **The MeCo score** will not compete with **Oncotype DX** or any other approved breast cancer diagnostic because they offer different value propositions, and the MeCo score leverages non-toxic drugs.



The Team



CEO
Diagnostics veteran?
Fundraising expert?



Adam Watson, PhD
Chief Scientific Officer



Ghassan Mouneimne, PhD
Associate Professor, UArizona

The Team



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Associate Professor, UArizona

Questions?

Advisors/Mentors: TJ Johnson (former CEO of HTG Molecular Diagnostics); Michael Harman (Ximedita)
Entrepreneurial Fellow: Trevor Lohr (Tech Launch Arizona)