1Cell*Era*

Note from CEO

Merry Christmas!

Earlier this month 1Cell team attended the SABCS 2025 meeting, and one message was unmistakable: **precision oncology is rapidly evolving beyond static**, tissue-only testing toward dynamic, multi-modal, AI-driven biomarker systems. This shift is fundamentally changing how breast cancer treatments are selected, monitored, and adapted over time.

Researchers highlighted the **growing importance of predictive biomarkers that extend beyond traditional** ER/PR/HER2 status or single-gene mutations. Emerging markers such as HER2-low and HER2-ultralow expression, ESR1-driven resistance, surface targets like TROP2 for antibody–drug conjugates, and dynamic cell-state changes are increasingly shaping clinical decisions. These nuanced biomarkers require cell-level resolution, which is best captured through live circulating tumor cell (CTC) analysis.

As biomarker complexity increases, **AI-driven interpretation has become essential.** Artificial intelligence is now enabling clinicians to predict response to ADCs and SERDs, detect early molecular shifts that signal resistance, estimate recurrence risk months ahead of imaging, and guide treatment sequencing as tumors evolve. AI serves as the critical link connecting genomics, protein expression, cell behavior, and treatment history—unlocking the full value of integrated, single-cell, multi-omics data.

Equally important, **real-time monitoring via serial liquid biopsies is emerging as a new standard of care.** By tracking receptor changes, identifying resistant subclones early, and monitoring responses in near real-time, clinicians can intervene before disease progression becomes clinically evident. CTCs offer a unique advantage by reflecting live, functional tumor biology, complementing ctDNA-based minimal residual disease approaches.

In summary, at SABCS conversations are **moving toward a model of cancer care that is more precise, more predictive, more dynamic and more data-driven.** The underlying technologies that enable this shift single-cell biology, multi-omics, and AI-powered interpretation are exactly the areas where 1Cell's platforms already deliver the most value.

Regards

Mohan Uttarwar
Co Founder & CEO
1Cell.Ai

Highlights from 1Cell.AI

SABCS 2025

At SABCS 2025, 1Cell.Ai was selected for a spotlight poster on **TRINITY AI**, a multimodal deep-learning platform for recurrence risk stratification in early-stage breast cancer which also acts as a rule-out test to help low-risk HR+/HER2– patients avoid unnecessary chemotherapy.

TRINITY AI overcomes key limitations of current genomic assays high cost, long turnaround times, and infrastructure dependency by integrating:
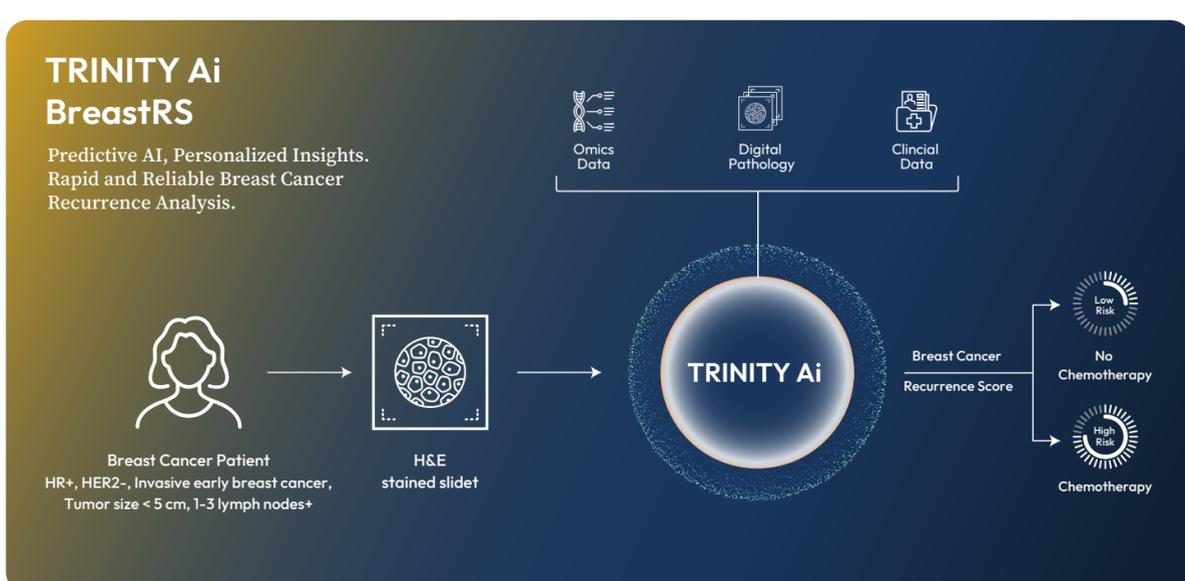
- H&E tissue morphology
- Clinical variables (tumor size, grade, patient features)
- AI-inferred transcriptomic signatures

TRINITY AI generates a BreastRS score (0–100) that enables:

- Virtual genomics-grade recurrence stratification
- Rapid, affordable, and scalable deployment
- Broader access to de-escalation and escalation decisions

Download Poster of Trinity Ai

TRINITY Ai BreastRS

Predictive AI, Personalized Insights.
Rapid and Reliable Breast Cancer
Recurrence Analysis.

Omics Data · Digital Pathology · Clinical Data

Breast Cancer Patient
HR+, HER2-, Invasive early breast cancer,
Tumor size < 5 cm, 1-3 lymph nodes+

H&E stained slidet

TRINITY Ai

Breast Cancer Recurrence Score

Low Risk → No Chemotherapy
High Risk → Chemotherapy

Case in Focus

Tracking Tumor Evolution Through Longitudinal Liquid Biopsy

A 52-year-old woman with hormone receptor–positive breast cancer was diagnosed in 2015 and treated with surgery, chemotherapy, radiotherapy, and adjuvant hormonal therapy. Over nearly a decade, she experienced multiple recurrences and disease progressions, receiving several lines of endocrine therapy, chemotherapy, and targeted agents including CDK4/6 inhibition.

By July 2025, disease progression with liver metastases was confirmed despite exhaustion of standard treatment options. Serial liquid biopsy–based NGS revealed evolving tumor biology, including emerging **ESR1** and **PIK3CA pathway alterations**, highlighting mechanisms of acquired resistance and opening avenues for rational therapy sequencing using pathway-targeted combinations.

Key takeaway: This case underscores the value of **longitudinal molecular surveillance** rather than one-time testing. Repeated ctDNA-based NGS enables real-time insight into tumor evolution, supports biomarker-driven treatment adaptation, and aligns with current guidelines recommending repeat molecular testing in metastatic and recurrent breast cancer.

Top News in Precision Oncology

Roche breast cancer pill cuts risk of disease recurrent by 30% in trial

Roche's selective estrogen receptor degrader giredestrant significantly reduced recurrence risk in hormone-positive breast cancer patients in a phase III trial, offering a new oral targeted therapy option for a subtype that accounts for ~70 % of cases. Results were presented at the San Antonio Breast Cancer Symposium.

Read More

Pfizer's HER2-Targeted Drug delays progression of advanced breast cancer in trial

In a large phase III study, tucatinib (Tukysa) added to standard HER2 therapy significantly delayed disease progression in HER2-positive metastatic breast cancer, showing a substantial benefit especially in HR-negative subgroups.

Read More

Radiation therapy overcomes immunotherapy resistance in some cancers

Researchers at Johns Hopkins found radiation can trigger systemic immunity that reverses resistance to immunotherapy in some lung cancers, pointing to a precision synergy approach to treatment.

Read More

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AI–Powered Precision Oncology

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oncology in your everyday practice

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