

# 1CellERA

Evidence | Research | Action

## Happy New Year!

As we enter into 2026, I thought it would be apt to share a brief “Year in Review” capturing the scientific advances that shaped precision oncology in 2025. It was a year where translational research, molecular diagnostics, and intelligent analytics moved closer than ever to real impact.

**Here are the Top 5 Precision Oncology Trends of 2025 that stood out:**

### 1. Biology-First Oncology: Beyond Static Genomics

2025 marked a clear shift from single-timepoint genomic testing to dynamic tumor biology. Functional genomics, resistance profiling, and longitudinal monitoring began complementing NGS to explain why patients respond—or don’t—over time. Treatment decisions are becoming adaptive rather than fixed.

### 2. Liquid Biopsy Evolves into a Longitudinal Care Tool

Liquid biopsy moved well beyond mutation tracking. Fragmentomics, methylation signatures, and serial ctDNA kinetics enabled earlier relapse detection, therapy response assessment, and real-time course correction. Blood-based monitoring is becoming integral across the treatment continuum.

### 3. Single-Cell & Spatial Technologies Enter Clinical Translation

Single-cell RNA-seq, spatial transcriptomics, and immune spatial profiling transitioned from research labs into clinical trials and select tertiary centers, providing unprecedented insights into tumor heterogeneity and microenvironmental drivers. “One biopsy, one answer” is no longer sufficient.

### 4. AI Becomes Embedded in Clinical Decision-Making

AI in 2025 shifted from experimental tools to embedded decision-support systems, integrating genomics, pathology, radiology, and clinical data to assist with therapy selection, resistance prediction, and trial matching. Scale and complexity of data now exceed human-only interpretation.

### 5. Precision Immuno-Oncology Gets More Predictive

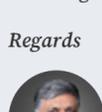
IO biomarkers matured beyond PD-L1 and TMB. Immune phenotyping, TCR repertoire analysis, spatial immune contexture, and composite scores helped refine patient selection and guide combination strategies. Immunotherapy is becoming more targeted, not less.

**In Summary: 2025 was the year precision oncology shifted from “what mutation is present” to “how the tumor behaves over time.”**

At 1Cell, we’ve been grateful to collaborate with many of you as these changes unfolded. Our efforts around integrated molecular profiling, resistance analytics and AI-enabled interpretation are all guided by one goal—supporting more informed, patient-specific decision making.

Thank you for your partnership and for your continued leadership in advancing cancer care. Wishing you a meaningful and impactful 2026 ahead.

Regards



**Mohan Uttarwar**  
Co Founder & CEO  
1Cell.AI

## Highlights from 1Cell.AI

### Announcing Opening of New Laboratory with Global Quality Standards

1Cell.ai opened its new Precision Diagnostics Laboratory in Pune, built to deliver advanced molecular and genomics-based testing under globally benchmarked quality standards. The facility is NABL accredited and CAP accredited, validating robust laboratory practices across sample processing, analysis, and clinical reporting.

#### Built for Precision, Quality, and Transparency

The laboratory is designed for high-complexity molecular diagnostics, with stringent contamination controls, optimized workflow zoning, and multi-layer quality checks to ensure reliable and reproducible results. Validated wet-lab workflows are seamlessly integrated with advanced bioinformatics and standardized clinical interpretation frameworks.

A key differentiator of the facility is its open lab design with a dedicated viewing gallery. Clinicians and partners can observe live laboratory operations without disrupting workflows or compromising the controlled lab environment. This transparent design reflects 1Cell.ai’s commitment to building trust, enabling education, and demystifying complex molecular diagnostics.

#### Lab Performance Snapshot (at a glance)

- **Accreditations:** NABL & CAP
- **Median TAT:** 10 - 12 working days (NGS-based molecular assays)
- **On-time reporting:** >95% of samples
- **Analytical performance:** ≥99% sensitivity; ≥99.9% specificity
- **Limit of detection:** As low as 1% VAF for tissue biopsy and 0.1% VAF for liquid biopsy
- **Sequencing quality:** 2000x mean depth for tissue biopsy and 10000x for liquid biopsy
- **Reliability:** <2–3% repeat rate; >98% QC pass rate
- **Standards:** Variant interpretation aligned with AMP/ASCO/CAP & ACMG

Metrics are assay- and indication-dependent and are continuously monitored as part of the laboratory quality management system.

#### Visit the 1Cell.ai Pune Laboratory

We welcome clinicians, collaborators, and partners to visit the Pune laboratory. The viewing gallery offers a firsthand look at high-complexity molecular workflows while maintaining strict biosafety and quality controls. Explore the video walkthrough and photo gallery, or contact us to schedule an in-person lab visit.

[View the Video of the New Lab](#)

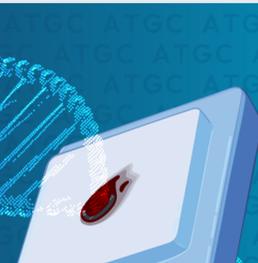


## New Product Launch: OncoIndx® TBx

1Cell.AI  
**OncoIndx® TBx**  
NexGen Sequencing

### Integrated NGS test

*Uniquely designed genomic & whole transcriptomic profiling helps identify actionable insights for personalizing cancer treatment*



#### Indication for use:

1. Cancers where personalised treatment could enhance survival
2. Cancers progressing on standard-of-care treatment
3. Cancers where combination of target drugs and/or immunotherapy could benefit
4. Cancers showing resistance to conventional treatment

[Download the whitepaper](#)

## Case in Focus

### Integrated Multi-Omics Profiling Uncovers Actionable Drivers in Advanced Lung Adenocarcinoma

A 49-year-old non-smoker diagnosed with advanced metastatic lung adenocarcinoma underwent comprehensive molecular profiling using a combination of tissue, liquid biopsy, and RNA-based multi-omics analysis. This approach was adopted to address the complexity of advanced disease and to better understand the tumor’s molecular landscape.

The integrated profiling identified a clinically actionable **MET exon 14 skipping alteration** that was not detected through tissue DNA analysis alone but was confirmed via RNA testing, highlighting underlying tumor heterogeneity. In addition, the patient demonstrated high tumor mutational burden (TMB) and strong PD-L1 expression, suggesting a potential benefit from immunotherapy alongside targeted treatment strategies.

**Key Takeaways:** This case underscores the critical value of **concurrent tissue, liquid, and RNA-based multi-omics testing in advanced lung cancer**. Integrated diagnostics can reveal actionable drivers missed by single-sample or DNA-only approaches, confirm true oncogenic alterations despite low ctDNA levels, and guide both targeted therapy and immunotherapy selection, enabling more informed and precise treatment decisions. [Case details here.](#)

[Visit case gallery for more such cases](#)

## Top News in Precision Oncology

### Rb1 Identified as a Predictive Biomarker for New Therapeutic Strategy in Breast Cancer

While Rb1-deficient tumors do not respond to CDK4/6 inhibitors, the loss of Rb1 creates a distinct vulnerability to ATR and PKMYT1 inhibition, opening the door to an alternative therapeutic approach. A MD Anderson study is evaluating ATR/PKMYT1 inhibition in select solid tumors, and these findings may guide Rb1-based biomarker strategies to identify patients most likely to benefit. [Read More](#)

### An Unlikely Ally: Breast Cancer Drug Helps Beat Leukemia Resistance

Venetoclax combined with azacitidine has rapidly become a go-to treatment for AML. But resistance remains a nearly universal problem. Adding pablociclib, a drug approved for breast cancer, blocked this adaptation by regulating protein-production inside the cell. Patient samples that responded strongly to the combination showed clear downregulation of genes involved in protein synthesis. The combination extended the survival up to 12 months in study participants. [Read More](#)

### Mapping KRAS Mutations & Targeted Therapies in Colorectal Cancer

A landmark genomic study outlines the landscape of KRAS mutations and corresponding targeted therapies, offering updated insights that could drive trial design and treatment decisions. [Read More](#)

1Cell.AI™  
AI-Powered Precision Oncology

Follow Us



We can help you implement precision oncology in your everyday practice

Write to us at [info@1cell.ai](mailto:info@1cell.ai)

701, Sigma Building, Hiranandani Gardens, Powai,  
Mumbai 400076, Maharashtra, India

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