SafeSEQ Breast Cancer Panel

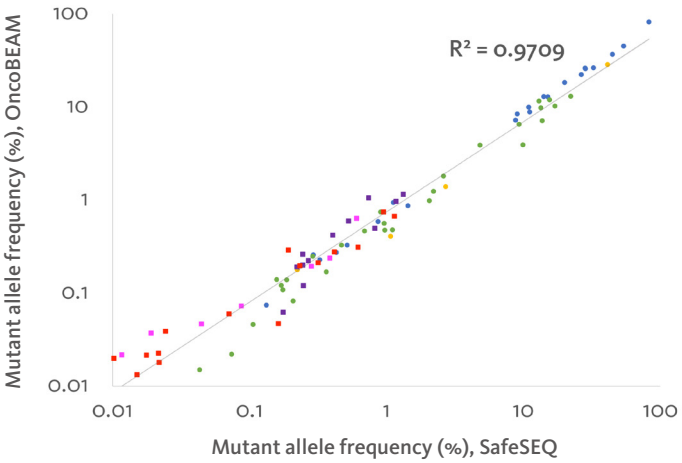
Ultra-sensitive mutation detection via a simple blood draw

Lighting the way with diagnostics

Sysmex Inostics SafeSEQ Breast Cancer Panel is an NGS-based, focused-content liquid biopsy assay suitable for therapy selection, determination of prevalent 'truncal' mutations, as well as for monitoring resistance from plasma samples.

SafeSEQ has similar sensitivity to OncoBEAM™

Sysmex Inostics' gold-standard liquid biopsy technology

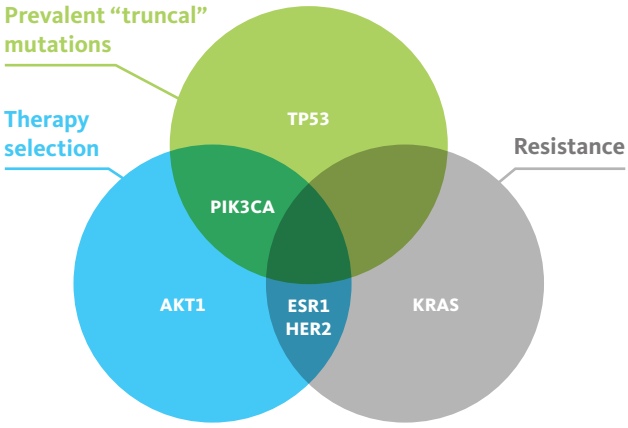


- ESR1, clinical BC samples
- PIK3CA, clinical BC samples
- AKT1, clinical BC samples
- ESR1, Sysmex contrived material
- PIK3CA, Seraseq™ ctDNA v2
- AKT1, Seraseq™ ctDNA v2

Clinical data are derived from 35 ER+/ HER2- BC specimens. For contrived samples, points represent averages for replicate testing at different DNA input levels and mutant allele frequency tiers.

Focused coverage

of highly clinically relevant mutations



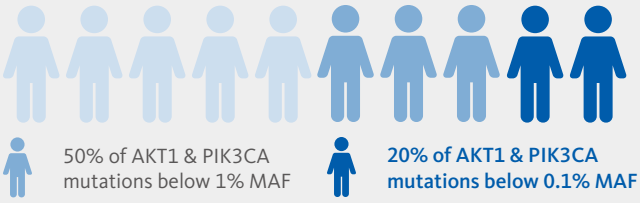
High sensitivity technology

The SafeSEQ Breast Cancer Panel has been developed and refined with very high sensitivity for ctDNA analysis as an overarching goal. From sample collection, DNA purification and quantitation, to enrichment, sequencing and analysis each step has been optimized with sensitivity down to 0.05% Mutant Allele Fraction (MAF).

The figure on the left shows demonstrated sensitivity between orthogonal technologies, our enhanced digital PCR OncoBEAM™ and the NGS-based SafeSEQ, to well below 0.1% MAF.

Sensitivity matters

Mutant allele frequency (MAF) distribution across 2,620 mutations identified in plasma using ultra-sensitive OncoBEAM technology[1] for AKT1 & PIK3CA versus ESR1



50% of AKT1 & PIK3CA mutations below 1% MAF

20% of AKT1 & PIK3CA mutations below 0.1% MAF

70% of ESR1 mutations below 1% MAF

30% of ESR1 mutations below 0.1% MAF

60% of all calls made for plasma testing across AKT1, PIK3CA, and ESR1 may not be reliably detected using a less sensitive test[2]

More positive patients detected means:

- ✓ Save time and cost for clinical investigations
- ✓ Explore novel clinical applications such as molecular minimal residual disease and recurrence monitoring using ctDNA

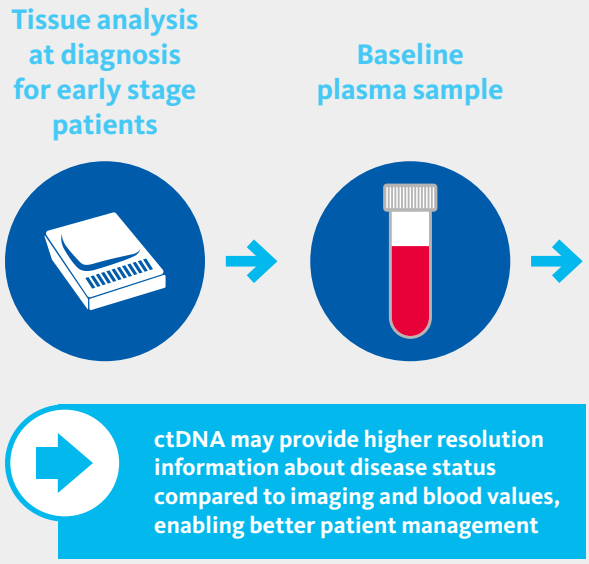
Unpublished data from routine testing in Sysmex Inostics CLIA-certified laboratory.

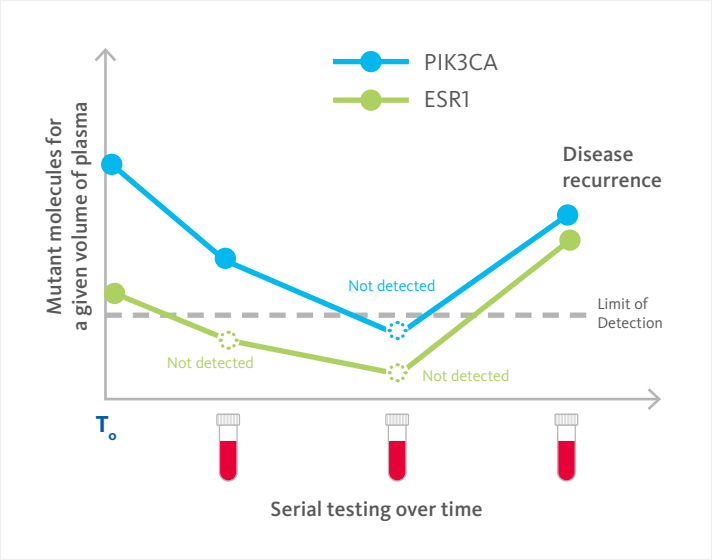
Potential utility to monitor measurable residual disease

The illustration shows a clinical development example of how this technology could be used to measure both PIK3CA and ESR1 for disease recurrence.

Clinical development example

SafeSEQ ER+/ HER2- Breast Cancer Panel used to investigate utility of ctDNA as a measure of minimal residual disease for breast cancer patients receiving adjuvant therapy





SafeSEQ ER+/ HER2- Breast Cancer Panel characteristics

Regions analyzed	27 regions across clinically relevant oncogenes and tumor suppressors for breast cancer; see Technical Specifications for detailed coverage information
Mutation types detected	SNV, MNV, indels
Sample requirements	≥2 mL plasma
Turn-around time	≤2 weeks
Sequencing platform	Illumina
Data format	Mutation calls with frequency data (MAF, mutant molecules per volume plasma)

To learn more about the SafeSEQ ER+/ HER2- Breast Cancer Panel or other purpose-designed clinical oncology tests from Sysmex Inostics, please contact us at **info@sysmex-inostics.com**

References

[1] Dressman D. et al. Transforming single DNA molecules into fluorescent magnetic particles for detection and enumeration of genetic variations. Proc Natl Acad Sci U S A. 100(15):8817-8822 (2003). https://doi.org/10.1073/pnas.1133470100.

[2] Stetson D. et al. Orthogonal comparison of four plasma NGS test with tumor suggests technical factors are a major source of assay discordance. JCO Precision Oncology. Published online 14 March 2019. doi: 10.1200/PO.18.00191.

For research use only. Not for use in diagnostic procedures.

Sysmex Inostics GmbH Falkenried 88, 20251 Hamburg, Germany • Phone +49 40 325907-0 • Fax +49 40 325907-6699 • info@sysmex-inostics.com • **www.sysmex-inostics.com**

Sysmex Inostics, Inc. 1812 Ashland Ave, Suite 500, Baltimore, MD 21205, USA • Phone Toll-Free: +1-855-BEAM-DNA (232-6362) • info@sysmex-inostics.com • **www.sysmex-inostics.com**

Sysmex Corporation 1-5-1 Wakinohama-Kaigandori, Chuo-ku, Kobe 651-0073, Japan • Phone +81 78 265 0500 • Fax +81 78 265-0524 • **www.sysmex.co.jp**

SAFESEQBC.EN.R01.09/2019