



Understanding CTC and ctDNA Liquid Biopsy Testing and Why Both Are Important

CTCs and ctDNA: Complementary, Not Competing

Circulating Tumor Cells (CTCs)

Circulating tumor cells are living cancer cells that break away from a tumor and travel through the bloodstream. These cells contain complete, intact copies of RNA and DNA for testing and can also be analyzed to determine the presence of biomarkers. CTCs may act as the “seeds” for metastases.

Studies have shown counting and monitoring the number of circulating tumor cells in the blood over time can provide insights on whether your prognosis is more or less favorable. Your prognosis is a doctor’s best estimate of how your cancer will develop, affect you, and respond to treatment. Higher levels of CTCs are associated with poor progression-free and overall survival.

Monitoring the number of CTCs in your bloodstream can be used to:

- Determine prognosis at any point in time during the course of your disease and detect changes in your prognosis sooner
- Make more informed treatment decisions
- Assess response to treatment
- Monitor for recurrence during remission
- Determine the status of specific biomarkers



Circulating tumor cells are tested using a simple blood test. This is called a liquid biopsy. Your doctor will determine how often to repeat testing to monitor whether your CTCs are increasing or decreasing over time. The results of CTC testing are provided as the number of CTC cells present in your blood sample.

Circulating Tumor DNA (ctDNA)

Testing for circulating tumor DNA is another way to learn more about your cancer. ctDNA are small pieces of DNA that are released by dying cancer cells and enter the bloodstream.

Testing ctDNA can be used to:

- Detect genetic mutations and biomarkers to help guide therapy selection
- Detect the presence of minimal residual disease (MRD), tiny amounts of cancer too small to show up on imaging tests, to evaluate if cancer is still present after surgery, post-surgical treatment, or other types of treatment such as radiation or drug therapy
- Predict the likelihood of cancer recurrence¹

Like CTC testing, ctDNA is a liquid biopsy. Unlike CTC testing, some ctDNA tests also require a tissue biopsy sample to create a personalized ctDNA blood test or to compare ctDNA to DNA taken directly from your tumor

tissue. ctDNA is often analyzed using a technology called next-generation sequencing (NGS). Test results are normally reported as positive or negative for the presence of specific tumor DNA mutations detected in the blood sample.

Get the Big Picture

ctDNA and circulating tumor cell testing each provide unique information about cancer biology and can be used together to provide a more complete picture of your cancer and its progression. Both CTCs and ctDNA have the potential to improve cancer management by allowing for earlier and more precise monitoring, and more personalized therapy.

Not all tumors will shed CTCs into the bloodstream and they can be challenging to isolate and analyze. Currently, there is only one FDA-cleared circulating tumor cell test for patients with metastatic breast, prostate, or colorectal cancer, the CELLSEARCH® Circulating Tumor Cell Test.

While ctDNA can be easier to isolate than CTCs, there may not always be enough ctDNA present in the bloodstream to detect rare variants, or a patient may not have the type of ctDNA a test is designed to measure.

Utilizing both CTC and ctDNA testing can help your doctor get a comprehensive picture of your cancer and fill in any gaps in information obtained from just one test or the other.

CTC and ctDNA Testing Comparison

	CTC	ctDNA
Testing method	Blood sample	Blood sample
Possible Analysis	Whole cell (count, DNA, RNA, protein)	DNA fragments
Turnaround time for results	~ 3 days	Weeks
Biomarker status available	Yes	Yes
Challenges	Can be hard to isolate. Not all tumors shed detectable CTCs.	May require a baseline tissue sample. There may be insufficient quantities to measure.

¹. Garcia-Murillas I, Chopra N, Comino-Méndez I, et al. Assessment of Molecular Relapse Detection in Early-Stage Breast Cancer. JAMA Oncol. 2019;5(10):1473–1478. doi:10.1001/jamaoncol.2019.1838

Your Cancer Counts.

Let the **CELLSEARCH®** Circulating Tumor Cell Test help you take more control over your cancer journey.

The CellSearch CTC Test is the first and only FDA-cleared test for detecting circulating tumor cells in the blood.

Used in combination with standard monitoring methods, the CellSearch Circulating Tumor Cell Test can help:

- Determine your prognosis at any stage of your journey
- Detect changes in your cancer progression sooner
- Guide therapy selection
- Assess response to treatment
- Watch for relapse when in remission

Learn more at YourCancerCounts.com



The CELLSEARCH CTC Test is FDA-cleared for patients with metastatic breast, colorectal, and prostate cancers.



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Contact Information

Corporate Headquarters
Menarini Silicon Biosystems S.p.A.
Via Giuseppe di Vittorio, 21 b/3
I-40013 Castel Maggiore (BO), Italy
t: +39 051 9944100
e: info@siliconbiosystems.com

North America Operations

Menarini Silicon Biosystems Inc
3401 Masons Mill Rd Suite 100
Huntingdon Valley, PA 19006
e: us-info@siliconbiosystems.com
<https://www.siliconbiosystems.com>