

ctDNA Testing

What Is It and How Can It Affect
Your Immunotherapy Outcomes?



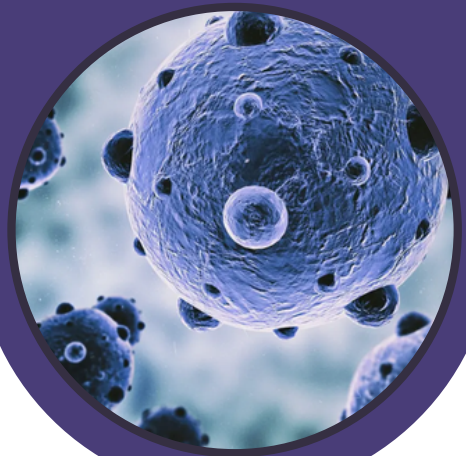
ctDNA Testing

Helps Patients Throughout the Immunotherapy Treatment Journey

Understanding Immunotherapies

Immunotherapies work by increasing the ability of the body's immune system to target and destroy cancer cells. Cancer is tricky, and it is often able to shut down our immune system's ability to recognize it as a threat. These drugs reengage and reinvigorate our immune system so that it can recognize and kill cancer cells. Immune checkpoint inhibitors are a specific type of immunotherapy. Our immune system has built-in mechanisms called checkpoints that turn immune responses off or on. Normally, these checkpoints help prevent our immune systems from overreacting and attacking healthy cells. But cancer cells can use these checkpoints to prevent them from being identified as abnormal cells and destroyed. Immune checkpoint inhibitors stop the activation of these checkpoints and allow immune cells to fight cancer.¹

Our immune system has built-in mechanisms called checkpoints that turn immune responses off or on.



ctDNA testing is changing how doctors monitor treatment response.

Monitoring the Effectiveness of Immunotherapy

When receiving immunotherapy, it's important to know as soon as possible if your treatment is working. Imaging is often used to see if a treatment is working and shrinking your cancer, but imaging is limited in detecting molecular residual disease (MRD), otherwise known as very small traces of cancer in the body.¹

Instead of imaging or in addition to it, doctors may use a newer way to check if your treatment is working—a blood test. The type of blood test that is used is called a liquid biopsy, a circulating tumor DNA (ctDNA) blood test, or a molecular residual disease (MRD) blood test. This newer method allows clinicians to identify non-responders earlier and use a less-invasive technique than most imaging tests.¹

ctDNA Basics

DNA is the genetic information in your cells that acts like a set of instructions for creating proteins that are needed to make things in your body work, like development, functioning, and growth.²

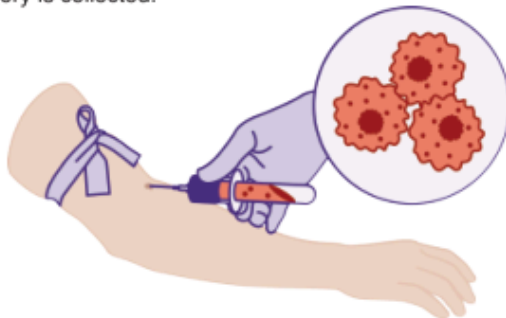
ctDNA is DNA that is shed by cancer cells and tumors. It is different from the DNA of a normal cell because it contains the specific genetic information associated with the tumor. Specific mutations (changes in DNA) can be seen in ctDNA such as in the BRAF gene that is commonly mutated in melanoma. When there are mutations such as these, melanoma cells can multiply uncontrollably.¹

ctDNA tests look for these small pieces of tumor DNA, called ctDNA, in your blood.¹ If ctDNA is found, it suggests that cancer is present in your body.

If cancer spreads to the brain, ctDNA is unlikely to be found in the bloodstream. This is due to the blood-brain barrier, which prevents most substances from crossing in and out of the brain.¹

This graphic illustrates the process for ctDNA testing.

- 1 Blood is drawn and a small piece of the tumor that was already removed during your biopsy or surgery is collected.



- 2 The blood and tumor are assessed to find the unique changes, or mutations, in the cancer. This information is used to create your personalized test. This process takes about three to four weeks.



- 3 Once the specific characteristics of the tumor are known and your test is designed, your doctor can perform a blood test at different times to gain information needed to help make treatment decisions. Each time, the results should take seven to 10 days.



Understanding the Results

A Positive Test Result

A positive test result means the tumor's DNA was detected in your blood. This means there is a higher risk that your treatment is not working and the cancer may return.¹

A Negative Test Result

A negative test result means the tumor's DNA was not detected in your blood. This means there is a lower risk that your treatment is not working and that the cancer is less likely to return.¹

A PATIENT'S PERSPECTIVE

“The test was a very useful tool. It gave us the information we needed to make a decision about future treatment. Knowledge is power. I am really glad this test was available to me.”

-Rebecca, Stage IV melanoma patient



Using Your ctDNA Results to Guide Treatment Decisions

a reference chart for patients & care teams

Decision Being Considered	If the Test Shows	Potential Next Step
Should we switch to a different therapy?	The level of ctDNA doesn't drop or disappear over time during your treatment	You and your doctor may need to try a different treatment approach
Should more than one immunotherapy treatment be used instead of using only one?	The level of ctDNA rises with only one immunotherapy treatment	You and your doctor might decide to add a second immunotherapy treatment to see if the combination works better
Should I continue using my current treatment?	The level of ctDNA levels is dropping	You and your doctor can have more confidence that the treatment is working. As a result, you and your doctor may continue your current treatment
Imaging scans show no evidence of cancer. Does this mean I should stop treatment?	The level of ctDNA is zero	You and your healthcare team may decide to stop your treatment and monitor your ctDNA to see if there are any changes
	The level of ctDNA level is not zero	ctDNA can sometimes be detected before a recurrence is visible on imaging. Your doctor may recommend repeat testing, earlier imaging, or additional evaluations

Study Results

support the use of ctDNA testing



Real-world data for patients with unresectable – meaning it could not be removed with surgery – Stage III/IV melanoma who received a personalized ctDNA test during treatment with anti-PD-1-based therapy³

- Patients who had a decrease in ctDNA as early as three to four weeks after treatment had better treatment outcomes:
 - A 30-times higher chance of having disease control (cancer shrinking or stopping growing after treatment)
 - A 23-times higher chance of having an objective response (experiencing a complete or partial response)
 - An 82% reduction in the risk of progression (cancer growing, spreading, or returning over time)
 - A 72% reduction in the risk of death
 - One-year overall survival rate (the percentage of people who are still alive) of more than 90%
- Patients whose ctDNA levels increased during the first few weeks of therapy had poor prognoses, with median progression free survival (the length of time from the start of a treatment until the disease gets worse or the patient dies) of only 2.3 months

Real-world data for patients with resected Stage I–IIIB melanoma (including high-risk patients) who received a personalized ctDNA test⁴

- Patients with resected Stage I to IIIB melanoma are at risk for recurrence
- ctDNA positive test results were associated with poor recurrence-free survival (the length of time a patient remains entirely free of cancer)
- Among patients with positive ctDNA tests, nearly three-quarters experienced a change in care including intensified imaging, treatment initiation, treatment switching, or treatment escalation
- Systemic therapy was started in some patients based on detection of ctDNA alone, before evidence of disease was seen with imaging. In these cases, ctDNA clearance was observed following therapy with durable disease-free status observed in some patients
- These results show that the ctDNA results impacted treatment decision making in a positive way

FAQs

Will my insurance company pay for this blood test and what will my out-of-pocket expense be?

You and/or your doctor's office should check with the manufacturer of the test you intend to use to see which insurance plan(s) it accepts (i.e., Medicare, Medicare Advantage, Medicaid and private insurances). It's possible that you will have zero out of pocket (OOP) costs. For any remaining patient responsibility, some companies have a financial assistance program that can be offered to all patients to ensure the test is as affordable as possible.

How do I get the test if I decide that I want it

After you have a discussion with your healthcare team, your doctor can complete a form requesting the test. Once your blood samples are received by the lab, they will contact the hospital where you underwent your biopsy or surgery to get the tissue sample needed to complete the testing.

How is my tumor tissue collected?

Once your doctor orders the test, the lab will work with the hospital where your biopsy or surgery was done and let them know what they need to complete the testing.

What if there is not enough tissue available?

Unfortunately, if there is not enough tissue available (the lab and hospital will determine this), the test cannot be performed. Your doctor may be able to explore other options if no tissue is available.

Do I need to go to my doctor for blood draws?

You can have your blood drawn at various locations, either at your doctor's office or a lab. It may also be possible to request that a lab professional come to draw your blood for the test at your home or a location of your choice at no additional cost. Contact your doctor's office to discuss the different options.

How reliable is a ctDNA test?

These tests can detect extremely small amounts of tumor DNA before cancer recurrence can be seen in CT or MRI scans. These tests are highly sensitive, which means that if your result is positive there is a high likelihood that your cancer may recur without further treatment.

How accurate is a ctDNA test?

Studies show that the test results strongly predict recurrence risk and they have been used to detect relapse months earlier than if the results were not available. Your doctor will interpret the results alongside scans, pathology results, and other information to determine the impact on your treatment.

Do I still need other tests and imaging if I have a ctDNA test?

ctDNA testing does not replace standard surveillance that includes imaging and other testing. The results provide more information to add to these other modalities.



You Don't Have to Navigate Melanoma Alone

A melanoma diagnosis can bring uncertainty, questions, and decisions that may feel overwhelming.

We believe everyone affected by melanoma deserves clear information, compassionate support, and access to resources they can trust. Our programs are available to help you feel more informed, more connected, and less alone throughout the melanoma journey.

On the facing page, you'll find several ways to connect with AIM—from exploring clinical trials and asking a melanoma medical expert to speaking with a peer who understands.

Our support and educational resources are available at no cost.

We're here when you need us.

Contact Information

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References and Resources

1. AIM at Melanoma. Worried Your Immunotherapy Isn't Working: The Role of Imaging and ctDNA. Available at: <https://www.aimatmelanoma.org/worried-your-melanoma-treatment-isnt-working/>
2. DNA. Cleveland Clinic. Available at: <https://my.clevelandclinic.org/health/body/dna>
3. Ma VT, Zhou AY, Forati A, et al. Multi-Institutional Study Evaluating the Role of Early Circulating Tumor DNA Dynamics During Treatment With Immune Checkpoint Inhibitors in Patients With Advanced-Stage Melanoma. *JCO Precis Oncol*. 2026;10:e2500254.
4. Ansstas G, Khaddour K, Sudhaman S, et al. Longitudinal ctDNA Monitoring for Postsurgical Disease Surveillance in Patients with Stage I to IIIB Melanoma. *Clin Cancer Res*. 2026;32(8):1513-1521.

AIM's Patient Support Resources

We offer trustworthy, relevant, and up-to-date information on all aspects of melanoma for patients, families, healthcare professionals, and caregivers.



Get Clinical Trial Information

Learn more about melanoma clinical trials and find studies that may be relevant to you through AIM's Clinical Trial Finder. You can also search ClinicalTrials.gov.



Ask a Melanoma Medical Expert

AIM's dedicated melanoma physician assistant can answer questions about melanoma, clinical trials, side effect management, and survivorship. *(This free and confidential service does not replace guidance from your healthcare team.)*



Connect with a Peer

AIM's Peer Support Program, *Peer Connect*, can connect you with someone who understands living with melanoma and can offer support based on their own journey.



Explore All of AIM's Educational & Support Resources
AIMatMelanoma.org

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