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PDF generated on July 26, 2016 from

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Tumor Marker Tests [1]

This section has been reviewed and approved by the [Cancer.Net Editorial Board](#) [2], 05/2016

Tumor markers are substances found at higher than normal levels in the blood, urine, or body tissue of some people with cancer. Although cancer cells often produce tumor markers, other healthy cells in the body may produce them as well.

Tumor markers and cancer

High tumor marker levels can be a sign of cancer. Along with other tests, tumor marker tests can help doctors diagnose cancer and plan treatment. Tumor markers are most commonly used to do the following:

- **Guide treatment decisions.** Some tumor markers help doctors decide whether to add [chemotherapy](#) [3] or [immunotherapy](#) [4] after surgery and/or radiation therapy. Other tumor markers help doctors choose which drug(s) or combinations of drugs will work best.
- **Monitor treatment.** Doctors may use changes in tumor markers to assess how well treatment is working.
- **Predict the chance of recovery.** Tumor markers can help the doctor predict the cancer's behavior and response to treatment. They can also predict a person's chance of recovery.

- **Predict or watch for recurrence.** Tumor markers may be used to predict how likely it is that the cancer will come back after treatment. Looking for changes in the amount of a tumor marker may be part of some patients' follow-up care plan. It may also help detect a recurrence sooner than other tests.

Tumor markers may also be used to screen for cancer in people with a high risk of the disease. In addition, some may be done to learn more about the cancer when it is first diagnosed. However, the presence or amount of a tumor marker alone is not enough to diagnose cancer.

Limitations of tumor markers

Tumor markers are not foolproof. Other tests are usually needed to learn more about a possible cancer or recurrence. Some of the limitations of tumor markers are listed below.

- A condition or disease other than cancer can elevate tumor marker levels.
- Some tumor marker levels may be high in people without cancer.
- Tumor marker levels may vary over time, making it hard to get consistent results.
- The level of a tumor marker may not rise until a person's cancer worsens. This is not helpful for early detection, screening, or watching for recurrence.
- Some cancers do not make tumor markers that are found in the blood. This includes cancers with no known tumor markers. Also, some patients do not have higher tumor marker levels even if the type of cancer they have usually makes tumor markers.

Testing for tumor markers

The doctor will take a sample of blood or urine to test for tumor markers. The sample is sent to a laboratory for analysis. Some tests must be repeated because the levels of tumor markers can change from month to month. This is serial testing.

As with other laboratory tests, a reliable tumor marker test must be both specific and sensitive.

- **Specificity.** There is a chance that the testing could result in a false positive. This is when the tumor marker itself or the test used to detect or measure it is not specific enough. If the testing is not specific enough, the results could suggest a tumor is present, or growing

despite treatment. In this case, a healthy person may go through unnecessary tests and anxiety.

- **Sensitivity.** If the tumor marker or the test is not sensitive enough, the results may suggest a false negative. This is when testing shows that a person does not have a tumor when they actually do. Or, tumor marker levels can suggest cancer treatment is working when it is not. This means that a person who may benefit from additional testing and treatment may not receive it if only tumor marker testing is used.

Tumor markers and specific cancers

Different tumor markers may be used for different cancers. Also, many cancers do not have blood tumor markers that are useful for guiding care. In addition, how and when they are used varies quite a lot. For specific details about whether tumor markers may be a part of your diagnosis and treatment planning, talk with your doctor. You can also find detailed information about tumor markers in each [cancer-specific section on Cancer.Net](#) [5].

Questions to ask the doctor

Consider asking your doctor or another member of your health care team the following questions:

- Do you recommend that I have any tumor marker tests? If so, which ones?
- Which ones have you already performed, if any?
- How are these tests performed? How often should I have them?
- Can you explain the test results?
- If I have abnormal levels of a tumor marker, what does that mean? How does it affect my treatment?
- How will tumor marker tests be used in my follow-up care?
- Where can I get more information about tumor markers?

More Information

[Tests and Procedures](#) [6]

[Understanding Targeted Treatments](#) [7]

[Dealing With Cancer Recurrence](#) [8]

Additional Resource

National Cancer Institute: [Tumor Markers Fact Sheet](#) [9]

Links

[1] <http://www.cancer.net/navigating-cancer-care/diagnosing-cancer/tests-and-procedures/tumor-marker-tests>

[2] <http://www.cancer.net/about-us>

[3] <http://www.cancer.net/node/24723>

[4] <http://www.cancer.net/node/24726>

[5] <http://www.cancer.net/cancer-types>

[6] <http://www.cancer.net/node/24959>

[7] <http://www.cancer.net/node/24729>

[8] <http://www.cancer.net/node/25042>

[9] <http://www.cancer.gov/about-cancer/diagnosis-staging/diagnosis/tumor-markers-fact-sheet>