

Tests for Tumour Markers and their Effects on Human Health

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DESCRIPTION

A tumor marker test is a medical test that measures the levels of certain substances, known as tumor markers, in the blood, urine or other body fluids. Tumor markers are molecules that can be produced by cancer cells or by normal cells in response to the presence of cancer. Tumor marker tests are primarily used as a tool in cancer diagnosis, monitoring and management. They can provide information about the presence of cancer, the response to treatment and the recurrence of cancer. However, it's important to note that tumor markers are not definitive diagnostic tools for cancer. Elevated levels of tumor markers can be seen in various non-cancerous conditions and some cancers may not produce detectable levels of tumor markers. The particular tumour markers that are tested for depend on the type of cancer that is suspected or under observation.

Common tumor markers

Prostate-specific antigen for prostate cancer: Prostate-Specific Antigen (PSA) is a protein produced by the cells of the prostate gland. The PSA test quantifies the amount of PSA in the patient's blood. It is primarily used as a screening tool and a marker for prostate cancer, but it can also be used for monitoring the progression of the disease and evaluating the effectiveness of treatment. The PSA test is not a definitive diagnostic test for prostate cancer, but rather an indicator that further investigation may be needed. Elevated PSA levels can be caused by various factors, including prostate cancer, Benign Prostatic Hyperplasia (BPH), prostatitis (inflammation of the prostate) and even certain non-prostate-related conditions. Conversely, some individuals with prostate cancer may have normal PSA levels. False-positive results can occur when PSA levels are elevated due to non-cancerous conditions, leading to unnecessary anxiety and additional testing. False-negative results can occur when PSA levels are within the normal range, despite the presence of prostate cancer.

Carcinoembryonic antigen for colorectal and other cancers: Carcinoembryonic Antigen (CEA) is a protein that is normally produced during fetal development but is also found in small

amounts in healthy adults. However, elevated levels of CEA in the blood can be associated with certain types of cancer, particularly colorectal cancer. CEA testing is primarily used as a tumor marker for monitoring the progression of colorectal cancer and assessing treatment response. CEA testing is most commonly used in individuals who have already been diagnosed with colorectal cancer. It can help track the effectiveness of treatment, detect cancer recurrence and monitor disease progression. CEA levels are typically measured before treatment begins as a baseline and then at regular intervals during and after treatment.

Alpha-fetoprotein for liver cancer: Alpha-Fetoprotein (AFP) is a protein that is normally produced by the liver and yolk sac of a developing fetus. In adults, low levels of AFP can be found in the blood, but significantly elevated levels may indicate certain conditions, including liver cancer. AFP testing is primarily used as a tumor marker for Hepatocellular Carcinoma (HCC), which is the most common type of liver cancer. However, it is important to note that not all cases of liver cancer will have elevated AFP levels and elevated AFP levels can also be seen in other conditions, such as liver cirrhosis, hepatitis and certain non-cancerous liver diseases. AFP testing is commonly used in individuals at high risk for liver cancer, such as those with chronic hepatitis B or hepatitis C infections, individuals with liver cirrhosis and individuals with a family history of liver cancer. It can also be used to monitor the response to treatment and detect cancer recurrence in individuals already diagnosed with liver cancer.

CA-125 for ovarian cancer: Cancer Antigen-125 (CA-125) is a protein called cancer antigen 125 that is produced by certain cells, including ovarian cancer cells. CA-125 testing is primarily used as a tumor marker for ovarian cancer. CA-125 levels may be elevated in individuals with ovarian cancer, but it's important to note that not all cases of ovarian cancer will have elevated CA-125 levels. Additionally, CA-125 levels can be elevated in non-cancerous conditions, such as endometriosis, pelvic inflammatory disease and certain benign ovarian tumors. CA-125 levels are typically measured before treatment begins as a baseline and then at regular intervals during and after treatment.

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Received: 02-Jun-2023, Manuscript No. JTDR-23-24722; **Editor assigned:** 05-Jun-2023, Pre QC No. JTDR-23-24722 (PQ); **Reviewed:** 19-Jun-2023, QC No. JTDR-23-24722; **Revised:** 26-Jun-2023, Manuscript No. JTDR-23-24722 (R); **Published:** 03-Jul-2023, DOI: 10.35248/2684-1258.23.09.200

Citation: Chi S (2023) Tests for Tumour Markers and their Effects on Human Health. J Tumor Res. 9:200

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