Applied Diagnostics

For metastatic breast cancer (MCRC)...

DIAGNOSIS DEFINED

Circulating Tumor Cell Test Q&A

Q. What is metastatic breast cancer?

A. Metastatic breast cancer occurs when cancer spreads from its primary site in the breast to other places in the body through the circulatory system or the lymphatic system.[i]

Q. What are circulating tumor cells (CTCs)?

A. Circulating tumor cells are cancer cells that spread through the blood after detaching from a solid tumor and entering the bloodstream. CTCs are present in significant levels in people with metastatic breast cancer and not in people without the disease, according to recent studies. The number of CTCs present in a blood sample has been shown to be an independent predictor of progression-free and overall survival.

Q. How is the progression of cancer traditionally determined?

A. Traditionally, the progression of metastatic breast cancer is determined through laboratory studies using tumor markers and/or imaging studies, such as a CT scan.

Q. How is counting CTCs useful?

A. Measuring the number of CTCs in a sample of blood over the course of treatment can be helpful in monitoring metastatic breast cancer because results of CTC testing can help oncologists evaluate the progression of a patient's cancer early in the course of treatment and make critical decisions about patient care.

CTCs are a strong, independent predictor of progression-free and overall survival, based on more than four years of clinical follow-up[ii]—fewer than five CTCs in 7.5 mL of blood predicts significantly longer overall survival compared with five or more CTCs.

Q. What is the CellSearch™ CTC Test?

A. A simple blood test, the CellSearch™ Circulating Tumor Cell (CTC) Test is the first test to identify and count CTCs in a sample of blood, predicting progression-free and overall survival for people with metastatic breast cancer earlier than the current standard of care with similar precision. Using a 7.5 mL

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sample of whole blood, the test's advanced technology makes it possible to detect as low as one CTC. The results of serial CTC testing with the CellSearch™ CTC Test, in conjunction with other clinical methods for monitoring metastatic breast cancer, can help oncologists individualize patient care because results may provide important information about the clinical status of the patient. The CellSearch™ CTC Test is used at many of the world's leading cancer centers.

Compared with an approximately 15 percent variation in interpretation of imaging results, CTC test inter-reader variability is approximately one percent.[ii] Additionally, in clinical trials, the specificity of the CellSearch™ CTC Test was 99.99 percent, indicating that it virtually eliminates false positives.[iii]

Q. How does the CellSearch™ CTC Test work?

A. The CellSearch™ CTC Test makes it possible to detect as low as one CTC in 7.5 mL of whole blood. The system uses iron nano-particles (ferrofluid) conjugated to EpCAM to capture CTCs, and immunofluorescent staining is used to positively identify intact CTCs.

Q. Why should patients request the CellSearch™ CTC Test?

A. With more than four years of clinical data, the CellSearch™ CTC Test is the first simple blood test that helps oncologists predict progression-free survival and overall survival of patients with metastatic breast cancer at any time during therapy. The specificity and reproducibility of the CellSearch™ CTC Test allows for more rapid observation of changes of rare CTCs as early as the first cycle of treatment. Serial testing with the CellSearch™ CTC Test helps physicians monitor disease prognosis, providing results that can help oncologists make more informed patient care decisions sooner than with the current standard of care. The combination of CTC measurement and imaging may provide the most accurate assessment of disease status.

Q. Is the CellSearch™ CTC Test being studied for any additional indications?

A. The success of the CellSearch™ CTC clinical trials has resulted in FDA Clearance for the test in three specific areas: metastatic breast cancer, metastatic colorectal cancer, and metastatic prostate cancer.

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[i] American Cancer Society. Do We Know What Causes Metastatic Cancer? Available at: http://www.cancer.org/docroot/CRI/content/CRI_2_4_2X_Do_we_know_what_causes_metastatic_cancer_67.asp. Accessed December 8, 2006.

[ii] Budd, GT, Cristofanilli, Ellis MJ, et al. Circulating tumor cells versus imaging—predicting overall survival in metastatic breast cancer. *Clin Cancer Res*. 2006;12:6403-6409.

[iii] Data on file. Veridex, LLC.