

For metastatic breast cancer...

DIAGNOSIS DEFINED

About Circulating Tumor Cells and the CellSearch™ Circulating Tumor Cell Test

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 In the circulatory system, metastasis may begin via circulating tumor cells (CTCs)—cancer cells that spread through the blood after detaching from a solid tumor and entering the bloodstream. Traditionally, the progression of metastatic breast cancer is determined through laboratory studies using tumor markers or imaging studies, such as a CT scan.

The CellSearch™ Circulating Tumor Cell (CTC) Test, a simple blood test, is the first test to identify and count the number of CTCs in a sample of blood, predicting progression-free survival (PFS) and overall survival (OS) earlier than the current standard of care with similar precision. 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 strategies because results may provide important information about the clinical status of the patient.

Circulating Tumor Cells (CTCs)

CTCs are critical in understanding the progression of metastatic breast cancer. In a landmark study published in *The New England Journal of Medicine*, patients with metastatic breast cancer who had elevated CTCs prior to treatment fared worse than patients with lower CTC levels.ⁱⁱ Fewer than five CTCs in 7.5 mL of blood predicts significantly longer OS compared with five or more CTCs.

CTCs:

- Are present in significant levels only in patients with metastatic breast cancer and not in patients without the disease, according to recent studies
- When counted, can be helpful in monitoring the prognosis of metastatic breast cancer patients
- Are a strong, independent predictor of PFS and OS based on more than four years of clinical follow-up²



The CellSearch™ CTC Test

Features

- The CellSearch™ CTC Test's advanced technology makes it possible to detect as low as one CTC in 7.5 mL of whole blood
- The specificity and reproducibility of the CellSearch™ CTC Test allow for more rapid observation of changes in the number of CTCsⁱⁱⁱ
- By utilizing a predetermined cutoff number of CTCs, the test provides real-time information concerning PFS and OS as early as the first cycle of treatmentⁱⁱⁱ
- Imaging results can vary; approximately 15 percent depending on an individual's assessment, compared with one percent variability with CTCs

The CellSearch™ CTC Test is used at many of the world's leading cancer centers

Clinical Outcomes

- The CellSearch™ CTC Test is the first and only CTC test for in vitro diagnostic use supported by more than four years of clinical follow-upⁱⁱⁱ
- The specificity of 99.99 percent virtually eliminates false positives
 - False positives indicate positive results when there are no CTCs present. The CellSearch™ CTC Test is accurate, specific and reproducible

Indication for Use

The CellSearch™ CTC Test is intended for the enumeration of CTCs in whole blood.

The presence of CTCs in the peripheral blood, as detected by the CellSearch™ CTC Test, is associated with decreased PFS and decreased OS in patients treated for metastatic breast cancer. The test is to be used as an aid in the monitoring of patients with metastatic breast cancer. Serial testing for CTCs should be used in conjunction with other clinical methods for monitoring breast cancer. A CTC count of 5 or more per 7.5 mL of blood at any time during the course of the disease is predictive of shorter PFS and OS.

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 Cristofanilli M, Budd GT, Ellis MJ, et al. Circulating tumor cells, disease progression, and survival in metastatic breast cancer. *N Engl J Med*. 2004;351:781-791.

ⁱⁱⁱ Data on file. Veridex, LLC.