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(54) **Title:** A BLOOD TEST TO MONITOR THE GENETIC CHANGES OF PROGRESSIVE CANCER USING IMMUNOMAGNETIC ENRICHMENT AND FLUORESCENCE IN SITU HYBRIDIZATION (FISH)

(57) **Abstract:** Amplification and overexpression of theHER-2 oncogene in breast cancer is felt to be stable over the course of disease and concordant between the primary tumor and metastases. Therefore, patients with HER-2 negative primary tumors will rarely receive anti-HER-2 antibody therapy. A very sensitive food test is used to capture circulating tumor cells (CTC's) and evaluate their HER-2 gene status by FISH evaluation. The HER-2 status of the primary tumor and corresponding CTC's is used to assess the ratio of CTC's as a reliable surrogate marker. HER-2 expression of 10 CTC's is sufficient to make a definitive diagnosis of the HER-2 gene status for the whole population of CTC's in patients with recurrent breast cancer.



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INTERNATIONAL SEARCH REPORT

International application No.

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A. CLASSIFICATION OF SUBJECT MATTER

IPC: C12Q 1/00(2006.01);G01N 33/48(2006.01),33/53(2006.01),33/574(2006.01)

USPC: 435/4,435/71,435/7.23;436/64

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 435/4,435/71,435/7.23; 436/64

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

Medline Biosis Lifesci Biotechds Scisearch Hcaplus

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	TEDESCO et al. Docetaxel Combined With Trstuzumab Is an Active Regimen in Her-2 3+ Overexpressing and Fluorescent In Situ Hybridization-Positive Metastatic Breast Cancer: A Multi-Institutional Phase II Trial. Journal of Clinical Oncology, 15 March 2004, Vol. 22, pages 1071-1077, see Table 3.	1-6
Y	SIMON et al. Patterns of HER-2/neu Amplification and Over-expression in Primary and Metastatic Breast Cancer. Journal of the National Cancer Institute, 01 august 2001, Vol. 93, pages 1141-1146, see page 1143, third column, lines 48-50.	1-6
Y	WO 99/41613 (TERSTAPPEN et al) 19 August 1999, see pages 14-15, 21-22, 44-45.	1-6

Further documents are listed in the continuation of Box C.

See patent family annex.

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"&" document member of the same patent family

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