

BIOMARKERS FOR BREAST CANCER BASED ON GENETIC INSTABILITY

SUMMARY

It is difficult to establish a prognosis for breast cancer because the clinical course and survival times of patients with the disease vary greatly. The National Cancer Institute's Genetics Branch is seeking statements of capability or interest from parties interested in in-licensing or collaborative research to co-develop, evaluate, or commercialize prognostic tests for breast cancer based on a 12-gene expression signature.

REFERENCE NUMBER

E-215-2008

PRODUCT TYPE

- Diagnostics

KEYWORDS

- breast cancer, gene, signature,

COLLABORATION OPPORTUNITY

This invention is available for licensing and co-development.

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DESCRIPTION OF TECHNOLOGY

It is difficult to establish a prognosis for breast cancer because the clinical course and survival times of patients with the disease vary greatly. When cells are unable to repair minor damage to their DNA, genetic instability occurs, which can produce gross abnormalities in chromosomes and the onset of cancer. Because the magnitude of the abnormalities is strongly correlated with a negative prognosis for cancer, genetic instability can serve as a useful biomarker for establishing a prognosis for breast cancer patients. Presently, genetic instability is not directly accounted for in established prognostic tests.

Investigators at the National Cancer Institute (NCI) have developed a compact gene signature that identifies genome instability in breast cancer cells. By comparing changes in expression levels of only 12 genes in malignant tissue to levels in normal breast tissue, it is possible to detect the genetic abnormalities that are indicative of a poor prognosis. This method has the potential to improve markedly the forecasting of clinical outcomes for breast cancer and help improve treatment of this disease.

Further R&D is needed to validate the impact of the 12-genes signature in prospective clinical trials.

COMPETITIVE ADVANTAGES

- Reduced number of genes to monitor compared to available technologies
- Precise staging of women with breast cancer prior to commencing treatment
- Ability to develop therapeutics that alter genomic instability and improve breast cancer prognosis
- Prognosis independent of other cancer indicators, such as lymph node status
- Improved prediction in low risk patients

INVENTOR(S)

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DEVELOPMENT STAGE

- Pre-clinical (in vivo)

PATENT STATUS

- **U.S. Issued:** US 8,741,574 (6 March 2014)
- **Foreign Filed:** Pending in Canada and Europe

THERAPEUTIC AREA

- Cancer/Neoplasm