

## **Biomarker to Predict High-risk Clinical Outcomes for Breast Cancers**

*Ref. No. E-251-2011*

**Keywords:** Diagnostic, biomarker, breast cancer, TGF- $\beta$  (transforming growth factor  $\beta$ ), TS3SS, tumor suppressor protein, tamoxifen.

### **Summary:**

The National Cancer Institute [Laboratory of Cancer Biology and Genetics](#), is seeking statements of capability or interest from parties interested in collaborative research to further co-develop a TGF- $\beta$  based gene signature for predicting breast cancer prognosis and response to TGF- $\beta$  antagonists.

### **Technology:**

Scientists at the National Cancer Institute have uncovered a specific gene signature that leads to differences in long-term prognoses for breast cancer. The 20-gene signature, termed TS3SS, is comprised of genes related to tumor suppressor protein Transforming Growth Factor- $\beta$  (TGF- $\beta$ ). Patients with low levels of TS3SS have poorer prognoses, and patients with high levels of TS3SS have better prognoses and respond better to certain treatments, like Tamoxifen. Using this 20-gene signature as a biomarker could be a diagnostic tool for identifying high-risk patients that would benefit from more aggressive forms of treatment.

### **Potential Commercial Applications:**

- Diagnostic tool for identifying patients at high-risk for recurring breast cancer.

### **Competitive Advantages:**

- Allows a more accurate prognoses by separating high-risk from low-risk cancer patient populations.
- Allows doctors to choose more individualized therapies for patients based on whether the cancer is at high or low risk for recurrence.

**Development Stage:** Pre-Clinical, *in vitro* and *in vivo* animal data available

**Patent Status:** U.S. Provisional Application No. 61/525,539 filed 19 Aug 2011.

**Contact:** Please submit an information request form at <http://techtransfer.cancer.gov> or contact John Hewes, Ph.D., (301) 435-3121, [hewesj@mail.nih.gov](mailto:hewesj@mail.nih.gov).

**Last updated:** 08/01/2012

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