Breast cancer prognostic biomarker to improve chemotherapy decisions

Technology #cu14286

There are many options for breast cancer treatment, with the optimal choice depending on stage, grade, type, and prognosis. Early and accurate detection and classification can greatly increase the chances of treatment success, but current prognostic tests for breast cancer are limited to certain types and stages of cancer and their accuracy is limited. This technology provides an algorithm (called BCAM) that uses a set of metagenes (linear combinations of individual genes that are biomarkers for underlying biological mechanisms) to provide prognostic information for any stage and type of cancer in a single test. This technology could be utilized as an integrated breast cancer test for individualized prognosis to determine optimal treatment for breast cancer patients.

Single prognostic test applicable to all types and stages of breast cancer

This technology uses an iterative algorithm that specifically identifies metagenes that correspond to a single disease phenotype and can screen for them individually or collectively. There are 11 separate features in the BCAM algorithm, which can then be combined to produce a more accurate prognostic evaluation with specific treatment guidelines. Because it is based on the underlying genetics, it is applicable independent of cancer stage or grade. The BCAM algorithm could be used as a single test, offered to every patient post-diagnosis, to provide prognostic information that could guide treatment decisions.

The BCAM algorithm was validated in the Sage Bionetworks Breast Cancer Prognostic Challenge using nearly 2,000 samples where its predictions outperformed those from current commercially available breast cancer genetic kits.

Lead Inventor:

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Applications:

- Establishing breast cancer prognosis from any stage or grade
- Assigning treatment regimens effectively based on prognosis
- Replaces multiple existing tests with one comprehensive kit
- Research and discovery related to genetic causes of breast cancer tumors
- Research related to correlation between biomarkers and treatment outcomes
- Can be applied to breast cancer screening when paired with genetic testing

Advantages:

- Single comprehensive test
- Independent of stage or grade
- No knowledge of gene or protein function necessary
- Demonstrated potential to outperform current prognostic tests

Patent Information:

Patent Pending (WO/2014/193522)

Tech Ventures Reference: IR CU14286, IR CU14254

Related Publications:


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