

Dublin City University Licensing Opportunity

LIFE SCIENCES

Novel Panel of Breast Cancer Biomarkers

INTRODUCTION

The National Institute for Cellular Biotechnology (NICB) at DCU is a multidisciplinary centre of research in fundamental and applied Cellular Biotechnology, Molecular Cell Biology, Ocular diseases and Biological Chemistry. It employs a highly skilled team of cell and molecular biologists, biotechnologists, chemists and computer scientists. The **Proteomics Research Group** at NICB is investigating serum biomarkers for lung, colorectal, pancreatic and breast carcinoma, and for ocular melanomas and multiple myeloma.

A key focus of the Proteomics Research Group is finding markers for monitoring response to treatment/measuring tumour burden in breast cancer and also for the monitoring of the recurrence of cancer. The team have discovered a **novel combination of biomarkers** which will **significantly improve** the method of **measuring the response** of an individual with breast cancer to various therapies and of **diagnosing the recurrence** of breast cancer.

BACKGROUND

Tumour markers (TMs) are widely used in the management of patients with breast cancer, during therapy for metastatic disease and in conjunction with diagnostic imaging, history and physical examination. **Cancer antigen 15-3 (CA 15-3)** is a biomarker that is highly associated with breast cancer and is derived from the MUC1 gene product. CA 15-3 has been reported to be elevated in serum from 70-75% of metastatic breast cancers, however it is useful only in 60–70% of breast cancer patients.

Unfortunately CA 15-3 levels can also be raised due to the presence of other conditions or cancers (for example, colorectal cancer, hepatitis, and benign breast disease). CA 15-3 levels can also be raised in normal, healthy individuals with no history of breast cancer. However, given the absence of any better blood test, the less than optimal CA 15-3 tests are still used by physicians to aid in the monitoring of treatment of women with breast malignancies and also to diagnose recurrence of the disease following first-line therapy. A decrease in marker levels during treatment can indicate tumour response, whereas stable or increasing levels can indicate that the tumour is not responding to treatment or that the tumour is recurring.

TECHNOLOGY DESCRIPTION

We have identified a panel of serum biomarkers which when assayed along with CA15-3 can **detect breast cancer in 90- 95%** of cases tested. This is a major improvement over the existing CA 15-3 tests that are commercially available. We have examined serum from patients with various stages of breast cancer, and have compared to a variety of controls including non-malignant diseases of breast, to ensure specificity of the combination. An algorithm has been developed to combine the measurements from the panel of biomarkers to ensure maximum sensitivity while also keeping a good level of specificity.

We are currently seeking an industrial partner to collaborate with DCU and to take this significant discovery into clinical application.

RESEARCH AND IP STATUS

Research is on-going at DCU. A patent application is currently being prepared for filing in December 2013.

TYPE OF BUSINESS SOUGHT

Available for licensing. We are also interested to talk to companies interested in collaborations and strategic partnerships.

CONTACTS

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