



Help support research to find ways to predict patient response to chemotherapy.

Dr Buckley will look for biological 'markers' that predict whether or not triple negative breast cancer patients will respond to the chemotherapy drugs used as standard.

The challenge

At present, there are no targeted treatments available for triple negative breast cancer and not all patients will respond to the chemotherapy drugs available. Dr Buckley is looking for a way to predict which triple negative patients are likely to have a poor response to chemotherapy, so that alternative treatments can be used.

Aim:	To identify biological markers that predict which patients will respond to chemotherapy	
Researcher:	Dr Niamh Buckley, Queen's University Belfast	
Funding:	Breast Cancer Now funded grant (May2012SF122)	
Tissue:	115 paraffin-embedded Triple Negative breast cancer samples	

The science behind the project

Triple negative breast cancer is so called because of the absence of three key receptors (oestrogen, progesterone and HER2) on the surface of the cancer cells. These three receptors act as targets for drugs such as Herceptin and tamoxifen, which means these highly-specific treatments cannot be used to treat triple negative breast cancer.

Not all triple negative patients will respond to the DNA-damaging chemotherapy drugs used to treat their disease, and so Dr Buckley and her team are looking for biological markers, or 'biomarkers', that will identify patients who are unlikely to respond to chemotherapy.

Using samples from 115 patients who have had triple negative breast cancer from the Breast Cancer Now Tissue Bank, Dr Buckley will look for these biomarkers in a specific molecular pathway which controls aspects of the immune system. Previous studies have indicated that a dysfunctional immune system may be a cause of triple negative breast cancer, as well as cancers with a mutation in the BRCA1 gene. Dr Buckley will find out whether the pathway has an impact on the way cancer cells respond to chemotherapy and if this can be used to identify patients for whom treatment may not be effective.

What difference will this project make?

Identifying which patients are not likely to respond to the standard chemotherapy regime means that they can be given an alternative course of treatment, such as additional drugs. This may lead to a better response and improve the patient's chances of being treated successfully.