

## **R017: Beta-adrenergic receptor expression and beta-blocker drug use: association with breast cancer survival - QUB**

Beta-blockers ( $\beta$ -blockers) bind to beta-adrenergic receptors ( $\beta$ -ARs) on tumour cells, physically obstructing cell signalling pathways that have been shown to encourage breast cancer growth and spread. The aim of the current study is to examine the prognostic significance of both tumour  $\beta$ -AR expression and post-diagnostic  $\beta$ -blocker use with breast cancer mortality.

This project is funded through a Cancer Research UK population research postdoctoral fellowship and will identify all breast cancer patients diagnosed in Northern Ireland between 1st January 2009 and the 31st December 2013. Using a nested case-control study design, patients who have died from their breast cancer over this period (cases) will be matched to breast cancer patients who are alive at the cases' point of death (controls). Electronic data sources in the Northern Ireland Cancer Registry (NICR) will be used to extract relevant clinical and cancer treatment data. Detail on  $\beta$ -blocker drug use will be derived via secure linkage to the Northern Ireland Enhanced Prescribing Database (NIEPD).

Formalin fixed paraffin embedded (FFPE) tissue is being retrieved from the archives of the pathology laboratories within each Health & Social Care Trust (HSCT) for the characterisation of  $\beta$ -AR expression via immunohistochemistry techniques. Statistical analyses will be undertaken to compare the risk of breast cancer death by 1)  $\beta$ -AR expression and 2)  $\beta$ -blocker use adjusting for various relevant factors.

This unique population-based study will provide insight into the use of  $\beta$ -blockers as a potential therapy in breast cancer patients and also outline the relevance of  $\beta$ -AR expression on prognosis and survival.