

# Biomarker Blood Test to Predict Response to Neo-Adjuvant Therapy in HER2+ Breast Cancer

A blood test capable of identifying patients who will have a poor response to treatment in early stages of breast cancer

Reference: 2018/05/DCU



WS Films, stock.adobe.com

## IP Status

Patent application submitted

## Seeking

Licensing, Commercial partner,  
Development partner

## About **Dublin City University**

Dublin City University (DCU) aims to transform lives and societies through education, research and innovation. Research and Innovation at DCU stems from the academic excellence of its four faculties coupled with a passion for translating knowledge into innovations for economic or societal benefit.

# Background

The National Institute for Cellular Biotechnology (NICB) is a national centre of excellence in within Dublin City University's (DCU's) Faculty of Science and Health. It is a leading multidisciplinary centre of translational research in Fundamental and Applied Cellular Biotechnology, Molecular Cell Biology, Ocular Diseases and Biological Chemistry. The NICB prioritises translational research involving collaborations with industry and with clinicians. Within the Molecular Therapeutics for Cancer (MTC) group at the NICB is the Cancer Biotherapeutics programme, a translational cancer research programme focusing on the mechanisms of resistance to small molecule, monoclonal antibody (mAb)-targeted therapies, drug re-purposing studies, the immune response to mAbs and potential biomarkers of response to treatment.

## Tech Overview

The team at DCU have developed a blood test capable of identifying patients, with a particular type of breast cancer called HER2+, who will have a poor response to treatment in early stages of the disease. The test could be used to identify patients who should be enrolled in to trials of newer or more aggressive therapies instead of receiving the standard therapies which will result in sub-optimal responses. The test works by identifying white blood cells that are inhibited and unable to kill cancer cells through a process called antibody-dependent cell-mediated cytotoxicity (ADCC). The addition of a drug called an immune checkpoint inhibitor causes an increase in ADCC when inhibited white blood cells are present. Patients whose blood contains these inhibited white blood cells have been shown to have a partial response or non-response to standard neo-adjuvant chemotherapy and HER2-targeted agents. Results to date suggest that the test is a biomarker of response capable of detecting 50% of these partial and non-responders. Interestingly, the ability of the test to identify white blood cells that respond to immune checkpoint inhibition suggests the test may also identify patients who will respond well to immune checkpoint inhibitors in the clinic. Immune checkpoint inhibitors are used to treat a wide range of cancers including melanoma, non-small cell lung cancer and kidney cancer.

## Opportunity

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

## Patents

- A patent application was filed in July 2018 – Publication Number WO2020011770A1.
- Patent application PCT/EP2019/068365

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