

Prevent Breast Cancer's Lobular Breast Cancer Gene Project

About Prevent Breast Cancer

Predict. Prevent. Protect. You could call it our mantra. As the only UK charity entirely dedicated to the prediction and prevention of breast cancer, we're committed to freeing the world from the disease altogether. Unlike many cancer charities, we're focused on preventing, rather than curing. Promoting early diagnosis, screening and lifestyle changes, we believe we can stop the problem before it starts.

We **predict**, we **prevent**, we **protect**.

We predict – by identifying who is at risk of breast cancer

We prevent – by offering preventative interventions, to **stop** breast cancer before it starts

We protect – our goal is to **shield future generations** from breast cancer

Breast cancer is the most common cancer in the UK. Every day 150 people are diagnosed with the disease and tragically 31 of these will lose their lives to it.

Prevent Breast Cancer seeks to create a breast cancer free future for the next generation. We conduct ground-breaking research into the prediction and prevention of breast cancer and with **only 3.6% of all cancer research being spent on prevention¹, the work we do is vital.**

The Lobular Breast Cancer Gene Project

What is Lobular Breast Cancer?

Breast cancer develops when cells in the breast divide and grow in an irregular way. Invasive lobular breast cancer occurs when these irregular cancer cells grow within the milk-producing glands or 'lobules' and then spread into the surrounding breast tissue.

Lobular breast cancer accounts for about 1 in 10 breast cancers in the UK. Very little is known about the causes of this particular type of breast cancer, but our research indicates that inherited genes are significant, as is the case with other variations of the disease.

Project Aims

This project will involve 'whole genome sequencing', a ground-breaking technique which screens all 25,000 genes at once and will help us identify genetic variants that may increase the risk of lobular breast cancer. Prevent Breast Cancer's scientific researchers have used whole genome sequencing previously to pinpoint the causes of other conditions including inherited types of cancer.

Our findings will significantly increase the knowledge scientists across the world have of lobular breast cancer. Identification of the genes that cause this type of cancer will enable personalised screening and provide a starting point to develop specialist treatments.

¹ National Cancer Research Institute - <http://www.ncri.org.uk/wp-content/uploads/2013/06/2016-NCRI-CaRD-210-x-297.pdf> 08.03.17

Our Methods

We will be testing over 200 familial lobular breast cancer samples where the high risk breast cancer genes *BRCA1*, *BRCA2* or *CDH1* are not present and cannot therefore be the causal factors of the disease.

Screening will be restricted to samples from those under 60 years, to eliminate age as a determinant.

Of the samples, 15 have a 'Manchester Score' of 29 or more, without ovarian cancer in the family. The Manchester Score is an algorithm developed by Prevent Breast Cancer scientists to calculate breast cancer risk and is based on a range of factors including exercise levels and hormones. A higher score is associated with increased likelihood of an underlying genetic mutation and usually means the presence of at least 4 young onset breast cancers in the family. Screening these samples will therefore provide further information on the genes that substantially increase risk.

Costs Breakdown

The total cost of this project is £15,000 in total. The majority of the requested funds would be used for whole genome sequencing of 15 DNA samples. This would be completed by the Scottish Genomes Partnership at their state of the art facility in Edinburgh. The cost is £850 per case, a total of £12,750.

A further £2000 would enable our scientific researchers to undertake further tests on the samples and to screen at risk candidates.

We would allocate a further £250 to the costs of attending a national meeting to present the findings of the project.

Contact at Prevent Breast Cancer

If you have any questions about this project, please contact **Vicki Wilkinson, Charity Manager** at Prevent Breast Cancer by phone on 0161 291 4402 or email: vicki@preventbreastcancer.org.uk

