ABSTRACT
The risk of breast cancer may be linked to polymorphisms in the ADRB2 and ADRP3 genes; further studies with larger samples and/or in diverse ethnic groups are needed to explore this possibility.

INTRODUCTION
Introduction Breast cancer is one of the most common cancers in the world, and the risk of developing it is significantly higher in women with a family history of breast cancer (BRCA1, BRCA2). In the UK, approximately 40 000 women of childbearing age are diagnosed with breast cancer and around 2 000 women die from it each year. A recent study published in the British Medical Journal found that the risk of developing breast cancer in women with a family history of breast cancer is 2.1 times higher than in women without such a history. The risk of developing breast cancer is also higher in women of European descent, and the risk of developing breast cancer in women with a family history of breast cancer is 3.1 times higher than in women without such a history.

The reasons Research on the adrenergic system has revealed that it is responsible for controlling both thermogenesis and lipid mobilization from brown or white fatty tissues, while human fat cells are associated with two types of receptors: 1, o2, 2 (ADRB2, an analogue of ADRB3, and 3 (ARB3). The degree of affinity for adrenaline is low, whereas that of noradrenaline (Norephinephrine) is high. This finding has led to significant interest in these genes cloned mice mice mouse mouse models. The most efficient adrenergic receptor, ADRB2, seems to be the one responsible for lipid mobilization, particularly from abdominal subcutaneous fatty acids (abdomen) tissues. Epidemiological studies have shown pronounced links between obesity and alterations in codon 27 of the ADRI2 gene, which apparently replaces glutamine with glutamic acid (Gln27Glu), although there are also doubts about the role of this polymorphism in German and Japanese women as well as in French studies only those who lead. The presence of a missense mutation in codon 64 of the ADRB3 gene, which causes tryptophan to be replaced by arginine (Trp64Arg) in the first intracellular loop of its receptor protein, has been observed in various ethnic groups, including Japanese. However, it is not possible to draw any definitive conclusions as obesity is linked to Trp32IndigenceTM in 13 studies, but not in 15. There is a lack of research on how the polymorphisms in codon 27 of ADRB2 and codont 64 of Adrb3 affect breast obesity and/or cancer in females. This combined effect is more similar to the actual physiological state, and therefore studies using the Gln27Glu polymorp and Trp64Arg polymmimidy in ADRA2 gene were conducted to examine associations between premenopausal and postmenogenous women for comparison purposes. Future investigations should aim to confirm this combination or with larger sample sizes and so on.

CONCLUSION
This exploratory study demonstrates "...any association between the polymorphisms in codon 27 of ADRB2 and in [ADRB3] genes that may be associated with increased risk of breast cancer"; however, additional studies across larger samples and/or across different ethnicities are needed to further explore this effect.