

WHAT IS BRCA GENETIC TEST?







Currently, breast cancer is the most common cancer among women. In average, there are 1 in 14 women suffered from breast cancer1. In Hong Kong, the breast cancer yearly incidence rate is around 4,000, where most of them are female and the number is increasing yearly. A Registered Chemical Pathology specialist in Hong Kong pointed out that the causes of breast cancer include genetic and environmental factors. Among the various genes associated with breast cancer, BRCA is comparatively important. There is a close relationship between BRCA and ovarian cancer and breast cancer. Women with BRCA mutations have around 80% chance of developing breast cancer and 20 – 50% chance of developing ovarian cancer².

Should you have questions, please consult your doctors

Source : 1. Female Breast Cancer in 2018. Hong Kong Cancer Registry, Hospital Authority. (October 2020) 2. Doctor said: New trends in genetic testing for hereditary breast cancer, is the results credible? HK01 February 2022 (https://www.hk01.com/article/534744?utm_source=01articlecopy&utm_medium=referral)



BRCA1/2 is the most common gene mutation in hereditary breast cancer and has also been found to be associated with ovarian cancer, pancreatic cancer, prostate cancer, etc. In recent years, selection of cancer patients who would likely benefit from PARP inhibitor treatment also relies on the detection of BRCA1/2 mutations, thus emphasizing the importance of BRCA1/2 genetic testing.

BRCA1/2 Genetic Information

Individuals with deleterious or likely deleterious germline BRCA1/2 mutations are known to have an increased lifetime risk of breast, ovarian, pancreatic, and prostate cancers. Therefore, a genetic testing for germline BRCA1/2 mutations allows the lifetime risk of hereditary cancers to be determined, so that risk mitigation actions such as active surveillance and other preventive measures can be taken timely through appropriate genetic counseling.



Figure1 : BRCA1/2 Gene Mutations Increase the Lifetime Risk of Breast Cancer^{3,4}

According to the latest NCCN guideline, genetic counseling is recommended in breast cancer patients and their families if they fulfill the following characteristics :



With a known pathogenic/likely pathogenic variant in a cancer susceptibility gene



Early-onset breast cancer at ≤ 40 years of age



Family history of pancreas

Personal or family history of ovarian cancer



Triple negative breast cancer at ≤ 60 years of age

Family history of male breast cancer

Personal or family history of bilateral breast cancer



At least 1 close blood relative with breast cancer at ≤50 years of age

At least 3 total diagnoses of breast cancer in a family

Source : 3. Ford D, et al. Lancet. 1994;343:692-695. <u>4. Struewing JP, et al. N Engl J Med. 1994; 336:1401-1408.</u> Remarks : NCCN Guideline Version 2.2022 The above information is provided by ACT Genomics

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