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Australian researchers confirm genetic risk factor for prostate cancer

This discovery, from research funded by National Breast Cancer Foundation, will help men determine whether they are at four times greater risk of prostate cancer

A gene that causes breast cancer can also cause prostate cancer, and the confirmation of this new risk factor based on laboratory experiments will allow men at risk to be monitored more closely for the disease.

The **world-first discovery** was made by researchers at kConFab, the Australian and New Zealand consortium for research into familial breast cancer.

kConFab National Manager, Ms Heather Thorne, said the results were published this week in the prestigious US journal *Clinical Cancer Research*.

For 10 years kConFab has been investigating families with multiple cases of breast and ovarian cancer.

"kConFab researchers noticed prostate cancer was also common in a subset of these families – those carrying a mutation in the BRCA2 gene. This led us to explore whether these prostate cancers were caused by the genetic fault running in the family," Ms Thorne said.

"We discovered that a man with a genetic fault in BRCA2 has *almost 4 times* the risk of developing prostate cancer than men in the general population. The BRCA2-prostate cancers that arise in these men also tend to be more aggressive".

"We hope our discovery will lead men to do what women already do about breast and ovarian cancer – assess their personal risk. If a man comes from a family with multiple cases of breast or ovarian cancer, or knows there is a BRCA2 gene mutation running in their family, they may be at increased risk of developing prostate cancer.

"These men can go to a Family Cancer Clinic and discuss genetic testing, and be given appropriate advice if they are found to be at increased risk."

A major funder of kConFab's research since it began a decade ago is the National Breast Cancer Foundation (which has provided $2.6 million).

NBCF CEO Ms Sue Murray said she was delighted that research into breast cancer provided this vital clue about prostate cancer. NBCF was mindful of the potential to positively impact on other cancers when choosing which breast cancer research to fund.

"NBCF's long term investment in kConFab has not only led to one of the best familial breast cancer resources in the world, but now is helping unlock the mysteries of other cancers, as well as breast and ovarian cancer," Ms Murray said.

Ms Thorne said there are currently Australian research trials trying to find early detection biomarkers for men who carry faulty genes but have not developed prostate cancer. She encouraged unaffected men to find out more about these trials.

She said the discovery would have a big impact on breast and/or ovarian cancer survivors in the kConFab cohort who have a mutation in the BRCA2 gene – if they have brothers or sons, they will now be aware that their male relatives may be at increased risk of prostate cancer.

kConFab is supported by National Breast Cancer Foundation and National Health and Medical Research Council; work on prostate cancer was funded by Peter MacCallum Foundation.

Background to the prostate BRAC2 discovery
Some families are cancer-prone because one of their genes carries a genetic fault (a mutation) that is passed from one generation to the next. Women who inherit a mutation in the BRCA2 gene are at high risk of developing breast and ovarian cancer, and this means they often have a family history of these cancers.

Using the large kConFab resource of biological samples and lifestyle data, laboratory, researchers based at The Peter MacCallum Cancer Centre and statisticians from The University of Melbourne were able to show that mutations in the BRCA2 gene are directly responsible for most of the prostate cancers in men who inherit these mutations. A man with a genetic fault in the BRCA2 gene has almost 4 times the risk of developing prostate cancer than does men in the general population.

This kConFab study demonstrates the importance of men's family cancer history, especially men who belong to a family with many cases of breast and/or ovarian cancer.

Future research may provide evidence to support intensified screening of men at increased genetic risk and may lead to new treatments for this type of prostate cancer.

Known prostate cancer risks
One in 11 Australian men will develop prostate cancer by age 70. The strongest risk factor is age and the chance of the disease rises rapidly after age 50. Family history of prostate cancer is also a known risk factor – and now, thanks to the kConFab research, family history of breast or ovarian cancer can now be added as a known risk factor.

For more information on kConFab and NBCF please go to:
www.nbcf.org.au www.kconfab.org

For more information on this media release please contact:

Tricia Sharbean
Public Relations Officer
National Breast Cancer Foundation
02 9299 4090 or 0416 257 771
Tricia.sharbean@nbcf.org.au