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New Study in Asians provide critical information to enable risk management in Asian Carriers of Breast Cancer Genes

Kuala Lumpur, 8 February 2024 – Did you know that approximately 1 in 500 individuals inherit a mutated BRCA (BReast CAncer) gene? This inheritance significantly escalates the risk of cancer, with probabilities ranging from 45% to 87% in European women. Previously, medical professionals in Asia could not provide accurate risk estimates for Asian women because the majority of data has been in European women and there has been no reliable estimates from Asian women. Now, Malaysian researchers at Cancer Research Malaysia (CRMY) and University of Nottingham (Malaysia campus) have changed that by publishing the largest study to shed light on cancer risk in Asian BRCA carriers, providing critical information that can help with decisions on screening and prevention of cancers.

CRMY Chief Scientific Officer, Professor Datin Paduka Dr Teo Soo Hwang and the lead of the study said, "This study builds on our work in the past 2 decades to develop better ways of detecting breast cancer early and saving lives. Until recently, only 5% of the genomic and genetic studies globally were conducted in Asians and we are delighted that by continuing to focus on Asians, we can ensure that advances in precision medicine can also benefit the Asian population."

Women with inherited changes in the breast cancer predisposition genes face challenging decisions, contemplating whether to opt for prophylactic surgery to remove healthy breasts or ovaries, thereby reducing the risk of breast or ovarian cancer. Alternatively, they may consider on more frequent or different types of screening to ensure early detection and increase the chances of successful treatment in case cancer does develop.

In making these decisions, it is critical that they have accurate information about their risk of cancer - for example, if a woman has an 87% chance of developing breast cancer, her choices may be different from that if she has a 45% chance of developing the disease.

As actual risk varies based on other genes, lifestyle, and reproductive choices, such as the number of children a woman has, making these decisions is only possible if we have accurate data on cancer risk in Asians. This then is the area of clinical need: to conduct Asian specific studies to provide accurate information to thousands of Asian BRCA carriers so that they can make informed decisions to save their lives.

In our study, researchers from Malaysia and Singapore collaborated to provide a comprehensive analysis of breast and ovarian cancer risk in Asian women. We found a significant shift: for women born from 1920-1940s, Asian BRCA carriers had about half the risk compared to European carriers.

However, in the GenX generation born from 1960-1970s, the risk aligned with European BRCA carriers. The key takeaway is that lifestyle changes have not only increased cancer risk for the general population but also for BRCA carriers. Doctors should consider the patients' birth era and lifestyle factors when advising on cancer risk.

"Accurate quantification of disease risk in BRCA carriers demands substantial sample sizes. Our study is a testament to the power of research unity, bringing together brilliant minds from Singapore, University of Cambridge and our home base in Malaysia. Through these expansive collaborative efforts, we've achieved a groundbreaking milestone, advancing our understanding of breast and ovarian cancer risks in Asian BRCA carriers and paving the way for more informed decisions in healthcare," said Associate Professor at University of Nottingham and first author of the study, Dr Ho Weang Kee.

Moving forward, the CRMY-Nottingham team have won the global Basser Grant to identify the lifestyle and genetic factors that are associated with cancer risk in Asian BRCA carriers. This grant aims to create advanced tools tailored for Asian BRCA carriers, offering precise guidance on their risk of breast and other cancers. The upcoming tools developed by Malaysian researchers will integrate additional gene variants and lifestyle factors, enhancing precision in prevention and treatment strategies for Asian women.

"This is a milestone in our efforts in saving Asian lives through precision guidance. Having more accurate risk information for Asian women is crucial when providing genetic counselling to patients and their family members. This development will help us to work with the patients and empower them to make informed, life-saving medical decisions," said CRMY Consultant Genetic Counsellor, Yoon Sook-Yee.

This study was made possible by the Wellcome Trust Collaborative Science Award to Professors Teo and Doug Easton, led principally by A/Prof Ho. The study also received funding from Yayasan Sime Darby, Yayasan PETRONAS, Estee Lauder Group of Companies, and Vistage Group of Companies. Furthermore, the execution of this study became possible thanks to the cooperation from participants and their families, dedicated researchers, clinicians, technicians, and administrative staff whose contributions have made this work possible.

The research team extend heartfelt thanks to participating hospitals: Subang Jaya Medical Centre, University Malaya Medical Centre, Beacon Hospital, Gleneagles Penang, Hospital Universiti Sains Malaysia, KPJ Ampang Puteri Specialist Hospital, KPJ Johor Specialist Hospital, KPJ Sabah Specialist Hospital, Loh Guan Lye Specialist Centre, Mount Miriam Cancer Hospital, Pantai Hospital Kuala Lumpur, Penang Adventist Hospital, Universiti Kebangsaan Malaysia Medical Centre, Sunway Medical Centre, National Cancer Centre Singapore, Singapore General Hospital, Changi General Hospital, Tan Tock Seng Hospital, KK Women's and Children's Hospital and National University Hospital Singapore.

Their commendable assistance in recruitment and interviews reflects their unwavering commitment to the success of this study.

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About Cancer Research Malaysia

Established in 2000, Cancer Research Malaysia (CRMY) is the country's first and only independent and non-profit cancer research organisation. Funded entirely by donations and research grants, it conducts cancer research to find better ways to improve survival, focusing on Asians. In the breast cancer research programme, CRMY has led the first and most comprehensive study building a risk-stratified approach for screening in Asian women, which allows more efficient and equitable screening and prevention to Asian women at higher risk of breast cancer. In addition, CRMY has led the largest study of genomic profiles of Asian breast cancers, which provides critical insights into treatment and survival in Asian women. This has led directly to the development of the first investigator-led clinical trial to test new therapies in Asian breast cancer patients. Since 2014, CRMY has established a nurse and community-led programme which has transformed the survival of underserved Malaysian breast cancer patients.

For more information, please visit website at www.cancerresearch.my

Cancer Research Malaysia's work is entirely supported by grants and donations. For those interested to support the work of Cancer Research Malaysia, donations can be made to CRMY at www.cancerresearch.my/donate

About University of Nottingham Malaysia

The University of Nottingham Malaysia (UNM) offers a distinctly British education in an Asian setting with a legacy as the first overseas campus of a UK university to be established globally. UNM is recognised for its excellence in teaching and learning, as well as the outstanding student experience offered on its 48-hectare campus just an hour south of the KL city-centre. UNM's extensive and diverse research community develops solutions that tackle key global challenges in the areas of food, health, the environment, sustainability, and socio-economic issues within the ASEAN region. The University of Nottingham is ranked Top 100 in the QS World University Rankings 2024 and is rated 'Competitive' in the new SETARA 2022 rating system by the Government of Malaysia. Established in 2000, UNM has over 4,000 students from 74 countries with 15,000 alumni working with the world's top 100 global brands.