



Progress Report 2017-2019



HOPE
LIVES
HERE

Cancer Research Malaysia Logo explained:

Our logo is a reverse C, signifying our objective to change the Big C, or cancer, from a fearful disease to one that is curable.

Cover image:

AIDA Munirah Azmi was only 24 when she was diagnosed with a rare type of salivary gland cancer. After a grueling course of surgery, chemotherapy and radiotherapy, the 33-year-old accountant was given the all-clear and today, she lives life to the fullest, having been married and been blessed with four children. Her inspirational story

underlines the importance of research, so we can increase the number of survivors, especially those closer to home. Today, Aida participates actively in campaigns launched by us to make more people understand the work we do in reversing cancer. The card she holds represents the smile that returned to her life because she overcame a fearful disease. ●

Asians are under-represented in cancer studies around the world, and that is precisely where Cancer Research Malaysia's research is centred – cancers commonly found in the Asian population. Help ensure Asians truly benefit from advances in medical research, by donating to support the work that we do.

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Message from the Chairman of the Board of Trustees



“Funded entirely by donations and grants, we will continue to ensure Asians are not left out in the global fight against cancer.”

CANCER Research Malaysia was established by Tan Sri Tunku Ahmad Yahaya as an independent non-profit research organisation to ensure Asians are not left out in the global fight against cancer. He retired from the Board in 2016 after steering the organisation for 15 years, handing to me stewardship of a strong outfit. We thank him for his services to the organisation and the country.

I am happy to note that the past three years have been truly significant years for us, and I hope you will enjoy reading about it in this report. Having built research programmes from scratch, we now lead internationally significant programmes in Asians, and have won international research grants from highly competitive and prestigious funders, including the Wellcome Trust, the Medical Research Council of United Kingdom’s Global Challenge Research Fund and the Newton Ungku Omar Fund.

Of particular significance are our research on Asian genetics, genomics of Asian breast cancers, developing new therapies for oral cancer, our mobile phone app for early detection of oral cancer, our breast cancer prevention study, and our programmes to ensure under-privileged Malaysians have access to genetics and treatment.

The Board is committed to building a strong and sustainable organisation. In 2017, guided by our partners at PwC Malaysia, we reviewed our governance framework, and established a Nomination and Remuneration Committee,

Audit and Finance Committee, Scientific Advisory Committee and adopted a new Board Charter. We now have a strong Board with eight members, each dedicated to enabling the organisation to continue to be sustainable and impactful.

I thank Professor Herbie Newell, who has retired as Chairman of our international Scientific Advisory Committee, for his tireless contribution to our scientific leadership. His successor is Professor Adrian Harris from the University of Oxford, to whom I extend a warm welcome. Adrian brings to us an international perspective in cancer research, particularly in the area of drug discovery and development. I also thank Encik Hamid Ibrahim, who has retired as Deputy Chairman and inaugural Chairman of our Nomination and Remuneration Committee, and I welcome Professor Datuk Dr Looi Lai Meng, as Trustee and Deputy Chairman of our Scientific Advisory Committee.

To our donors and our many supporters, collaborators and patients, a heartfelt thanks for your wholehearted support. As an organisation funded entirely by charitable donations and research grants, your support makes it possible to continue to improve the survival rates of cancer patients. To my fellow Trustees, a warm appreciation. To the management team and staff, thank you. ☺

**Toh Puan Dato’ Seri Hajjah Dr Aishah Ong
December 2019**

Board of Trustees



THANK YOU, YM TUNKU

CANCER Research Malaysia is the brainchild of Y.M. Tunku Tan Sri Dato' Seri Ahmad Yahaya, who is our founding Trustee. Y.M. Tunku, then Deputy Chairman of Sime Darby, worked with Professor Datin Paduka Dr Teo Soo Hwang OBE, who was an award-winning Yayasan Sime Darby scholar and a Royal Society Dorothy Hodgkin fellow at the University of Cambridge, to establish Malaysia's first cancer research initiative in 2001. Beginning its journey as a humble foundation, Y.M. Tunku contributed immensely in his capacity as Chairman and has today left behind a legacy of an internationally-acclaimed research organisation that ensures Asians are put on the map in cancer studies worldwide.

In them we trust

CANCER Research Malaysia is registered as a company limited by guarantee, making us an autonomous, non-profit research organisation with tax-exemption status awarded by the Malaysian Inland Revenue Board. Our affairs are governed by a Board of Trustees.

The Board sets our strategic direction, determines our key policies and oversees our

governance by supervising the delegation of authority to the various committees and ensuring that we achieve our objectives. The Board meets quarterly, and comprises up to ten members who are nominated and appointed by the Board, and approved by the Minister of Domestic Trade and Industry.

The Board is chaired by Toh Puan Dato' Seri Hajjah Dr Aishah Ong and its members are:



YAM Tengku Datuk Seri Ahmad Shah al-Haj Ibn Almarhum Sultan Salahuddin Abdul Aziz Shah al-Haj
NOMINATED by Yayasan Sime Darby since 2008, YAM chairs our Nomination and Remuneration Committee



Mrs Lim Siew Lian
A MEMBER of the founding family of the Genting Group, she has been a trustee since our inception. She has also been a Trustee of Yayasan Lim Goh Tong since it was set up in 1978



Mr Alan Hamzah Sendut
MR HAMZAH chairs our Audit and Financial Committee and has been a Trustee since 2010



Tan Sri Dato' Dr Ir Gan Thian Leong
A FELLOW of the Academy of Sciences 2018 and a passionate supporter of cancer research, Tan Sri has been a donor since 2001 and a Trustee from June 2013



Dato' Anne Eu
A TRUSTEE since 2014, Dato' Eu was listed as 'Asia's 2016 Heroes of Philanthropy' by Forbes for her work in numerous impactful charities



Ms Leela Barrock
APPOINTED a Trustee in 2018, Leela leverages on her expertise in communications to help us grow



Professor Datuk Dr Looi Lai Meng
MALAYSIA'S inaugural National Distinguished Professor at the University of Malaya, Prof Looi is the Deputy Chairperson of the Scientific Advisory Committee and has been a Trustee since 2018

Message from the CEO

THIS year, 40,000 Malaysians will be diagnosed with cancer and the World Health Organisation projects that this figure will continue to increase.

Although the numbers are grim, the good news is that cancer research is improving survival rates. But such research is mainly conducted in the developed world, involving mostly people of European descent.

There remains gaps in our understanding of cancers which affect Asians disproportionately; in knowing how Asian genes affect our risk to disease and our response to treatment and why our survival rate is worse than that of our neighbours. This then is Cancer Research Malaysia's *raison d'être*: to ensure Asians truly benefit from the fight against cancer.

- We have created the largest genomics map of

“Our work is to ensure Asians are included in the forefront of cancer studies worldwide.”



Asian breast cancers, and this has suggested new treatment possibilities which will be tested in clinical trials in the future.

- We have established the largest study of breast cancer in South East Asian women, mapped the genes which cause an increased risk to breast cancer in Asian women, and scaled up the availability of cancer genetic services from four to 25 centres covering all parts of Malaysia.
- We have demonstrated that a nurse-led patient navigation centre can improve treatment adherence for under-privileged patients and are working with the Ministry of Health to scale this up to other centres as well as develop a national Patient Navigation Programme policy.
- We have developed vaccines to treat oral and nasopharyngeal cancer and are working with our current partners in the US and the UK to take this forward for human clinical trials.
- We have developed a mobile phone app for the early detection of oral cancer and are now working on an AI-powered version of this tool.

We are well on our journey of diminishing the Big “C” to a little “c”, to break the stranglehold of cancer in our lives. We have found and are continuing to discover new solutions in our research laboratories. We continue empowering Malaysians to face cancer without fear, so they can present themselves earlier for life-saving treatment, and working with public hospitals to improve access to care.

I am grateful to our amazing family of patients, supporters, volunteers, scientists, doctors and partners. What we do is possible because of charitable and grant funding, and made possible because of collaborations and partnerships. Together, we will ensure the advances in medical research do not miss Asians. ☺

**Professor Datin Paduka Dr Teo Soo Hwang, OBE
December 2019**

Scientific Advisory Committee



Professor Adrian Harris
Cancer Research UK Professor of Medical Oncology, University of Oxford

ADRIAN is one of the top 400 world-cited investigators in medical research. As a medical oncologist and breast cancer researcher, he has contributed significantly to the understanding of blood vessel development and the testing of new drugs in clinical trials



Professor Paul Pharoah
Professor of Cancer Epidemiology, University of Cambridge

A PUBLIC health specialist, Paul has made significant contributions to the discovery of genetic and environmental factors associated with breast and ovarian cancer and has led major international efforts in these areas



Professor Patrick Tan
Professor, Duke-NUS Medical School

PATRICK leads the international cancer genomics project on cancers found more commonly in the Asian population such as gastric and bile duct cancers and his team continues to translate discoveries into optimised and tailored treatments for cancer patients



Professor Jeff Dunn
Research Leader of Social and Behavioural Science within Cancer Council Queensland's Cancer Research Centre

AS A Board member of the International Union Against Cancer (UICC), Jeff has considerable expertise in the behavioural and social scientific aspects of cancer control and an impressive track record in research leadership across the continuum of prevention, early detection, supportive care and quality of life



Professor Datuk Dr Looi Lai Meng
National Distinguished Professor, Faculty of Medicine, University of Malaya

DR LOOI was conferred the Merdeka Award 2016 (Health, Science and Technology category) for "outstanding contribution in pioneering research in amyloidosis, renal pathology and cancer pathology and for significant contributions and role in promoting the field of pathology in Malaysia and the region"



Mr Wong Lup Hang

HAVING served in various industries over the years, Mr Wong acts as a patient advocate and puts a human face on the need for cancer research. He brings a different perspective to the committee, ensuring the research remains patient-focused

Global experts guide our work

As an organisation funded entirely by donations and grants, we are committed to ensuring our funds are used in areas where we can make maximum impact. To this end, we open up our work to be reviewed by an independent group of internationally-significant doctors and scientists. Annually, the Scientific Advisory Committee reviews our output and every three to five years, the experts convene in Malaysia to meet our team.

WHERE OUR RESEARCH IS

HEAD AND NECK CANCER

(started in 2002)

We started with a goal to provide more treatment options for head and neck cancers which are common in Asians. Today, we have developed a **cancer vaccine** from unique cancer proteins (potentially the first therapy ever to be developed in Malaysia). Our cancer cell lines are being used by **21 institutes around the world** to uncover even more therapies, and we are leading global studies to use gene editing technologies to find new cures for oral cancer.

PRECISION MEDICINE FOR ASIANS

(started in 2012)

Our research has enabled better **treatment strategies for Asians**. By establishing our own tissue bank and subsequently analysing 1,000 tumour samples from Malaysian breast cancer patients, we **discovered gene variant that is four times more common in Asians** compared to Europeans, and are now using it as a biomarker to **test immunotherapy** for Asian breast cancers. This is a landmark study as it is the first to test precision medicine for cancer based on Asian genomic profiles, and launches our goal of bringing more accurate therapies for Asian patients.

ACCESS TO GENETICS

(started in 2003)

We started with a desire to know more about why some women are more likely to develop breast cancer compared to others. Today, we host the largest study of breast cancer patients in South-East Asia and lead studies to determine the factors which cause breast cancer in Asian women. Building on our genetic testing and genetic counselling expertise, we established Malaysia as the **first country in Asia with nationwide access to genetic counselling** from four clinics to 23 hospitals after **discovering one in nine ovarian cancer patients has an inherited genetic alteration** that puts them at risk of other cancers. Through our mainstreaming study, we **have increased access to genetics from 2% to more than 50%**.

MAKING THE BIGGEST IMPACT

MEMOSA® (started in 2012)

We set out to **improve remote access** to early detection of oral cancer by **developing a smartphone app** and are working to implement AI for real-time response to suspected lesions. And we have officially established **APOCNET** (Asia Pacific Oral Cancer Network) to **identify and remove barriers to early detection of oral cancer in Asia.**

IMPROVING SURVIVORSHIP (started in 2014)

Together with the Ministry of Health, we **initiated the Patient Navigation Programme (PNP)** to help underprivileged Malaysian women access better breast cancer care. We established our **first Pink Ribbon Centre in Klang** and in 2019, **expanded to centres in Kota Kinabalu, Seremban and Kuching.** Through life-saving action driven by this programme, **98% of patients successfully completed treatment,** leading to improved outcomes for under-privileged patients.

SOME OF THE AWARDS WE HAVE WON

- **Wellcome Trust Award [2017-2020]**
The first Malaysians (and possibly the first in South-East Asia) to win the highly competitive Collaborative Science Award from the Wellcome Trust in London
- **MRC LMIC grant [2018-2020]**
The first Malaysians to win the Medical Research Council's Global Challenge Research Fund to find innovative solutions to serve low and middle income countries
- **Newton-Ungku Omar Fund [2017-2019]**
Winners of four of the prestigious 12 Newton Ungku Omar Fund Awards offered to the best Malaysian scientists to collaborate with top research groups in the United Kingdom
- **SmartFund (MESTECC, Malaysia) [2017-2020]**
Awarded a major grant to take forward development of Malaysia's first cancer vaccine
- **MRC Global Challenges Research Fund [2017-2019]**
The only Malaysian winners of the Medical Research Council UK Global Challenges Research Fund
- **Honorary Officer of the British Empire from Queen Elizabeth II**

Research Review:

Tailoring more treatment options for Asians

DESPITE not being featured among the top 10 cancers globally, there are several cancers which are of major concern in Asia. Oral cancer, for one, is frequently detected in South and South-East Asia, while nasopharyngeal cancer is common in China and South-East Asia. We continue to make good progress in tackling these cancers and our goal is to give patients more treatment options for cancers that are more common in Asians.

Our research tools, including **cancer cell lines** set up in Malaysia, are now used by researchers in more than 21 institutes, enabling more cures to be developed faster. Using these cell lines and genome editing-technology, we have developed a new approach to determine which treatment works best for oral and nasopharyngeal cancer patients. We are now using essential genes and bio-informatics tools to work out what treatments may be brought forward to improve survival for these cancers.

We have also invested in developing immunotherapy, specifically **vaccination**, to boost a patient's immune system to fight cancer. We created a new vaccine with 82% improved tumour control for oral cancer. We are going into clinical trials soon and our efforts were boosted with a new grant from MESTECC in 2017 to complete the safety studies. We had also received two international grants in 2017 from the Medical Research Council, UK, to collaborate with the University of Southampton to expand our cancer immunotherapy programme and include the development of different types of cancer vaccines that would not only improve the treatment of head and neck cancer patients, but prevent the disease from occurring in the first place. ☺

Info Box

What are cancer cell lines?

SIMPLY put, these are cancer cells that we isolate from patients' tumors and then grow in a dish. These cell lines will keep dividing and growing, essentially 'living' forever in the dish under strict laboratory conditions.

Scientists use these cell lines to study the biology of cancer and to test potential cancer treatments and drugs as these cell lines contain the same genetic make-up originating from the patient's cancer. If results warrant it, these drugs will be tested in animal models and clinical trials.



Info Box

How does the cancer vaccine work?

Cancer therapeutic vaccines boost the body's natural defences to fight cancer by destroying any cancer cells remaining after other treatments, stopping a tumour from growing or spreading, or preventing cancers from recurring. Cancer vaccines can be made for individual patients using the person's tumour sample, or they can be made to target specific cancer antigens and given to people whose tumours have those antigens. Our vaccine targets specific antigens in oral and nasopharyngeal cancer and work is ongoing to examine if it could also be used in other cancers.

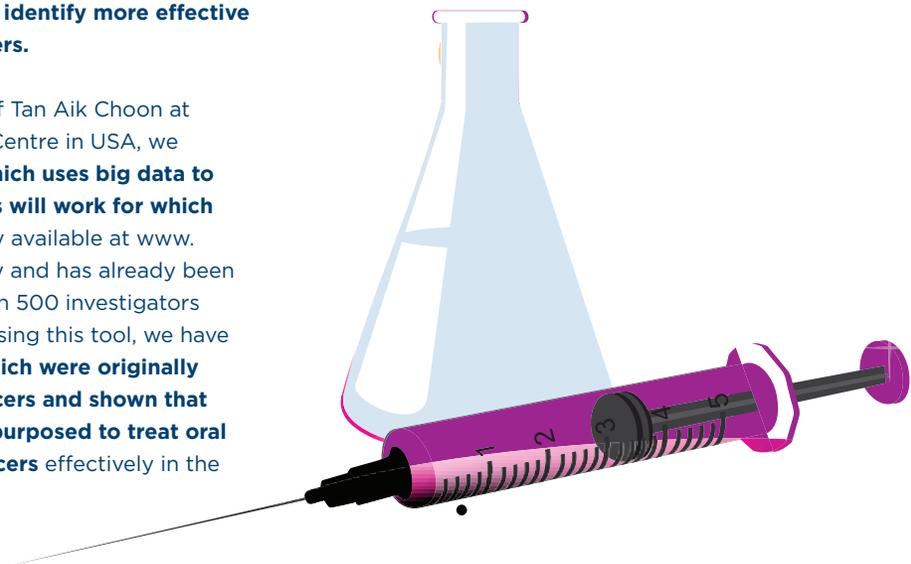
“We created a new vaccine with 82% improved tumour control for oral cancer. We are going into clinical trials soon.”



1 WORKING with the Wellcome Trust Sanger Institute in Cambridge, we have used **gene-editing technology to identify essential genes in oral and nasopharyngeal cancer**, laying the foundation to **allow us to identify more effective therapies for these cancers.**

3 WE showed that our vaccines can boost the immune system to shrink oral and nasopharyngeal cancer in mouse models.

2 WORKING with Prof Tan Aik Choon at the Moffitt Cancer Centre in USA, we now have **a tool which uses big data to predict which treatments will work for which cancers.** This tool is freely available at www.design.cancerresearch.my and has already been downloaded by more than 500 investigators from around the world. Using this tool, we have also **shortlisted drugs which were originally developed for other cancers and shown that some of these can be repurposed to treat oral and nasopharyngeal cancers** effectively in the lab.



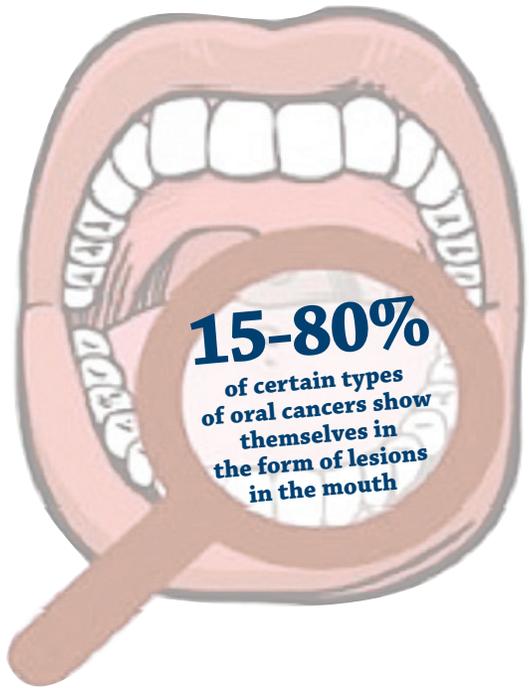
Research Review: Oral Cancer

Early detection the MeMoSa[®] way

In most cancers, early detection increases survival rate. Oral cancer is one of the few cancers that is visible, and can thus be detected early. It is often preceded by an oral lesion; but only a specialist can distinguish the high-risk one from the benign growths so that appropriate treatment can be administered. Therein lies the rub: there is a lack of such specialists, especially in low- and middle-income countries where the majority of oral cancers are diagnosed.

Given that high-risk oral lesions are easily spotted in a clinical oral examination and that early intervention such as removal of oral potentially-malignant disorder (OPMD) can reduce the risk of oral cancer, robust screening in high-risk communities has been shown to prevent oral cancer deaths. However, this approach requires large-scale screening programmes which are resource-intensive and only benefit targeted populations.

In 2017, we started the development of a smartphone application that can document the oral lesions using photography, called Mobile Mouth Screening Anywhere (MeMoSA[®]). The app can also facilitate two-way communication between primary healthcare practitioners and specialists located off-site. This is to improve diagnostic and referral accuracy as well as pace so that patient can be tracked for robust monitoring.



Significantly, in 2018, we won a Medical Research Council, Low and Middle Income Countries (MRC LMIC) Challenge Grant to develop a version of this tool that is powered by Artificial Intelligence (AI) which can be trained to identify patients living in remote areas that need to be referred to a specialist.

What's ahead

We are now working with the Kingston University and University of Malaya to train the system with thousands of images of normal mouths and examples of different categories of abnormality provided by our experts. We will then examine the accuracy of the system's identification of referable and non-referable cases to see how closely it matches an expert clinician's opinion.

Researchers are excited by the idea that you could take an image on a mobile phone, then use artificial intelligence to determine whether that patient needs referring or not. If successful, it could help save both time and money on triaging patients. ☺

Research Review: Breast Cancer

Preventing breast cancer in Asians using soy

The MiSo Study

BREAST cancer is the most common cancer and also the main cause of deaths due to cancer in women. In Asia, the number of breast cancer cases is expected to double in the next 30 years. This is due to changes in reproductive habits – having fewer children, having children at older ages and not breastfeeding – as well as an increasingly sedentary lifestyle, with low physical activity. It is hard to prevent breast cancer because most of the known risk factors are hard to change. Except soy. Studies comparing hundreds of thousands of women show that women who consume more soy have a lower risk of cancer. Unfortunately, no one knows for certain whether women who have undergone menopause can safely increase soy intake to reduce their risk of breast cancer. This is what our Malaysian Soy and Mammographic Density (MiSO) Study aims to investigate.

Typically, such a study would need hundreds of thousands of women followed for many decades to make a conclusion about breast cancer risk. But we have found features of a mammogram that predict a woman's risk of breast cancer and we have completed one of the largest studies showing differences in Asian and Caucasian breasts. Using this typical know-how, we can accurately gauge the impact of diet on cancer risk more quickly, enabling us to generate data on cancer prevention faster. ☺



WHAT'S NEXT?



WE launched the MiSO study in 2018 and aim to report on the protective effects of soy in post-menopausal women in 2021.

Research Review: Predisposition and Counselling



Leveraging genetics to fight cancer among Asians

TAKE 19 Malaysian women, and one will develop breast cancer in her lifetime. But which one? What can we do about this? The problem is that, today, we offer women screening for breast cancer on the assumption that all women have the same average risk of cancer. But, actually, some women have a seven-in-10 chance of developing cancer; others a two-in-100 chance. That being the case, how can we offer screening and prevention to the people who need it the most?

Cancer Research Malaysia is leading the largest

South-East Asian study to develop tests that enable women to know her risk of cancer. Funded by the Wellcome Trust Collaborative Science Award with the University of Cambridge, we are working out which genes and what type of genetic tests can help women understand their personalised risk of breast cancer. We hope that by being more precise about Asian women, we can one day offer prevention and screening to the women at highest risk, so we can save more lives.

And we are not stopping there. Some of the same genes are also associated with ovarian cancer



FOR every 500 healthy Malaysians, one has inherited the BRCA gene that puts women at risk of breast and ovarian cancer, and men at risk of prostate and pancreatic cancer. We are building a future where families, no matter where they live in Malaysia, can access information and genetics services, so they can also prevent cancer, or if we cannot prevent it, at least improve the chances of survival.

Investigators of Mainstreaming Genetic Counselling for Genetic Testing of BRCA1 and BRCA2 in Malaysian Ovarian Cancer Patients (Magic) study. They comprise 68 gynae-oncologists and oncologists from 23 hospitals across Malaysia.



Key people in the Magic Study: Head Investigator Ms Yoon Sook Yee (third from left) with Genetics Lead Professor Dr Thong Meow Keong (right) and fellow investigators (from left) Dr Matin Mellor Abdullah and Associate Professor Dr Mohd Pazudin Ismail.

and we have already completed one of the first Asian studies to show that one in nine ovarian cancer patients carry an alteration in the BRCA (pronounced “BRA-KAH) gene.”

But the challenge is that there are not enough

genetic counsellors or trained medical geneticists to provide information and genetic tests to ovarian cancer patients. These tests were only available in the Klang Valley.

So in 2017, we launched Malaysia’s first national ovarian cancer study, transforming how genetic services are offered to patients. Instead of waiting for more genetic counsellors and medical geneticists to be trained, we taught oncologists and gynaecologists the skills that they needed to provide these services. In 2018 and 2019, we expanded from four centres to 25 all over Malaysia – from Penang to Johor to Kota Baru, and across the sea to Sabah and Sarawak — and improved access to genetics from 2% to 54%. Our next step is to tackle access to genetic counselling and genetic testing for other cancers, such as breast, prostate and pancreatic cancers. ☺

Research Review: Genomics of Breast Cancer

Detecting differences between Asian and Western breast cancers

WHY is it that some breast cancer patients respond well to treatment and others don't? In the past, doctors used to peer into the microscope to identify features of a cancer that helped point to the type of treatment a patient needed and to provide a guide on whether they would respond to treatment.

But with the mapping of the human genome, it is now possible to examine tumours at the genetic level, and to be more precise in determining the type of cancer a patient has (there are potentially 10 different types of breast cancer) and what treatment might work for her.

Such advancement was achieved due to the analysis of thousands of breast cancer samples from countries such as the US, UK and Canada.

Unfortunately, of the thousands of cancer cell samples that have been analysed, less than 5% were from women of Asian descent who make up three out of the eight billion humans in the world.

Cancer Research Malaysia has partnered with the best researchers globally at the University of Cambridge and doctors at Subang Jaya Medical Centre (SJMC) to create the largest genomic map of breast cancer cases in Asians. Funded by the MRC Newton Ungku Omar Fund, and with charitable funding from Scientex Foundation and Estée Lauder Group of Companies, we have already completed the largest map of Asian breast cancers, with more than 600 samples analysed since 2017. In the coming year, we are extending this work to more than 1,000 samples so that we can detect specific genetic changes even in rare subtypes of breast cancer.

Because of our research we now know that Asian breast cancers have a different immune profile and this might mean they respond better to a new type of treatment that empowers the immune system to kill the breast cancer cells. ●

New treatments for Asian breast cancer patients?



HOW will the oncologist know what treatment will work best for me? They do this by looking at how patients with similar cancers have responded to treatment in the past, and matching these profiles to choose the treatment that is most likely

to work.

But the challenge is that most new treatments were designed based on research in Caucasian patients and whilst there are some clinical trials done in Asians, this is in the minority.

In other words, we test treatments based mainly on Caucasian profiles, and hope they will work equally well in Asians. Luckily in most cases they do. But can we do better? Will treatments which are developed based on Asian profiles work better in Asians? We simply don't know because so little research is done in Asians.

Data from our genomics map of Asian breast cancers shows that Asians have a different immune profile and this immune profile (at least based on their genomics profiles) predicts that Asian patients may need a new type of treatment. Working with doctors in Malaysian hospitals, we are now launching new clinical trials to test these new treatments. ●

Patient Navigation Programme

Navigating treatment for Asian breast cancer patients

ADVANCES in early detection and treatment have enabled most breast cancer patients in high-income countries to survive the disease. But in most low and middle-income countries, poor services and the stigma around cancer means that many women come forward too late, or seek alternative medicine that does not result in a cure.

We have started a pilot project in a public hospital in Malaysia to test whether we can re-engineer the diagnostic and treatment journey for under-privileged breast cancer patients. And we have demonstrated that our one-stop nurse and community-led centre ensured that patients received their results and could start treatment faster, and they were also less likely to default on treatment.

This was made possible because, for the first time, we brought together a public hospital system and a charity partner to solve problems for low-income, low-literacy women. With this initial success, the Health Ministry plans to develop a national policy on navigation and to expand the scope to other cancers.

However, we do not know whether this will work in hospitals where services are stretched, there is less charitable support and the community has different cultural and religious beliefs. In the coming years, we will work with different hospitals to establish patient navigation, so we can continue to ensure lives are not lost due to inaction. ☺



Community navigator Kavitha Muniandy delivering groceries bought with aid from the Cancer Crisis Fund for patients in need.



Patients who had completed active treatment and their caregivers practising yoga in an event themed *Sehari Bersamamu* (A Day With You). There were sessions on positive image, nutrition, lymphedema and a sharing session on their treatment experience.



CEO Prof Datin Paduka Dr Teo Soo Hwang (left) and Chairman Toh Puan Dato Seri Hajjah Dr Aishah Ong (sixth from left) with the team behind the Patient Navigation Programme at Hospital Tengku Ampuan Rahimah, Klang.



Participants of the International Forum on Quality and Safety in Healthcare, Kuala Lumpur 2017, visited the Pink Ribbon Centre (PRC) at Hospital Tengku Ampuan Rahimah, Klang and was given a talk on breast cancer patients' care continuum by our Patient Navigation Programme coordinator Maheswari Jaganathan.

People & Talent

AT Cancer Research Malaysia, nurturing talent and building capacity are as crucial as our passionate search for better ways to prevent and treat cancers. Our biggest capital is our research team, who bring their A-game to the laboratory and benchmark their work against leading research worldwide.

We have shown that despite resource challenges, internationally-significant work can be done right here in Malaysia. With the help of Yayasan Sime Darby, Yayasan Petronas, the Ong Hin Tiang Ong Sek Pek Foundation, the Joseph Eu Foundation and many other partners, we are proud to have been able to nurture young talents to be the best in their respective fields. ●



Prof Datin Paduka Dr Teo Soo Hwang

- Adjunct Professor at Universiti Malaya from 2008
- Eisenhower Fellow in 2010
- Won the Top Research Scientist of Malaysia award in 2014
- Appointed Fellow of the Academy of Sciences in 2014
- Awarded the Darjah Kebesaran Datuk-Sultan Sharafuddin Idris Shah (DSIS) 2018, which carries the title Datin Paduka
- Awarded the Honorary Officer of the British Empire 2018 by Queen Elizabeth II for outstanding work in medical research.
- Recipient of the Wellcome Trust Collaborative Award and the Newton-Ungku Omar Fund (2017-2019 and 2017-2018 respectively)



Yoon Sook-Yee

- Elected President of the Genetic Counselling Society of Malaysia (2019)
- Fellow of the Human Genetics Society of Australasia (2016)
- Visiting Genetic Counsellor of University Malaya Medical Centre since 2017
- Visiting Lecturer for the Masters in Genetic Counselling Course at University Kebangsaan Malaysia



Prof Dr Cheong Sok Ching

- Winner of the L'Oreal Malaysia For Women In Science Fellowship Award
- First scientist to win the Medical Research Challenge - Low Medium Income Countries (LMIC) Fund (2018)
- Fellow of the Academy of Sciences (2019)
- Fourth recipient of the Dr Siti Hasmah Mohd Ali Professorial Chair at Universiti Malaya (2019)



Dr Lim Kue Peng

- Winner of the L'Oreal Malaysia for Women in Science Fellowship in 2010
- First scientist in Malaysia to win the Medical Research Challenge Global Challenge Fund (2018)



Dr Annie Chai

- Recipient of the Young Investigator Award Malaysia 2018 - 43rd MSBMB Oral Session scientific conference



Shivaani Mariapun

- Winner of the L'Oreal Malaysia for Women in Science Fellowship in 2019



Nur Syafinaz Zainal

- Recipient of the 2018 JALAS International Award



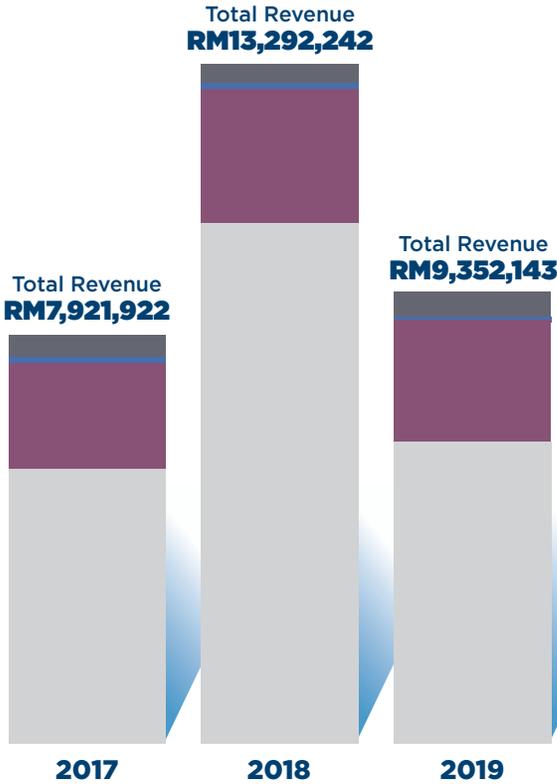
Tiara Hassan

- Yayasan Sime Darby scholar who obtained a Distinction pursuing her Masters in Genetic Counselling 2017 from University of Sydney

Income and Expenditure: 2017-2019

WHERE OUR MONEY COMES FROM

Our average income from 2017-2019 stood at about **RM10** million, mainly in the form of donations from individual and corporate donors. The breakdown is as follows:



Donations

- : **RM5,355,008** (2017)
- : **RM10,120,275** (2018)
- : **RM6,643,530** (2019)

Our core donors are Yayasan Sime Darby and PETRONAS which cover salaries and equipment expenditure respectively. The Scientex foundation has pledged to support our Asian breast cancer genomics work, enabling us to ensure Asian representation in the world of cancer research. Donations from key corporate bodies and individuals enable us to expand our work to become internationally significant

Research grants

- : **RM2,034,547** (2017)
- : **RM2,724,324** (2018)
- : **RM2,271,869** (2019)

Thanks to collaborations with some of the top scientists in the world, we received a number of international research grants, among them the Wellcome Trust, the Medical Research Council UK Global Research Challenge and four Newton Grant Awards.

Other incomes

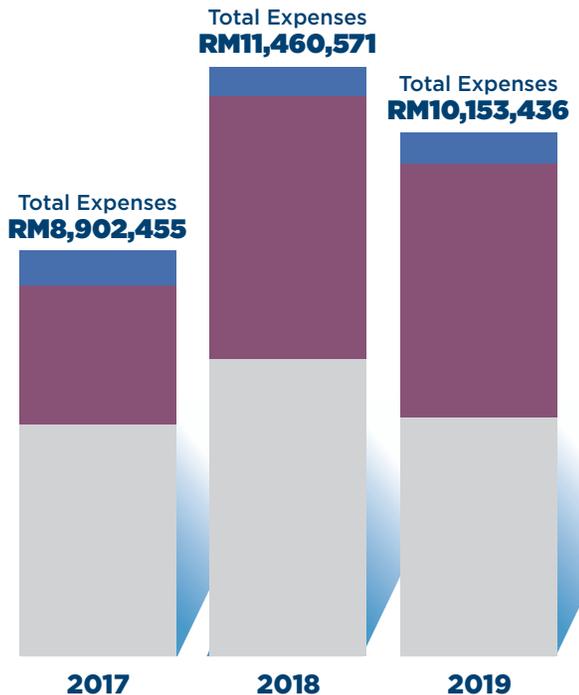
- : **RM110,996** (2017)
- : **RM108,815** (2018)
- : **RM22,656** (2019)

Interest income

- : **RM421,371** (2017)
- : **RM338,827** (2018)
- : **RM414,088** (2019)

HOW THE MONEY IS SPENT

Our expenses mainly came from staff costs and research expenditure which rose as we unearth research leads. The breakdown is as follows:



Lab and research expenditure

- : **RM4,354,681** (2017)
- : **RM5,835,302** (2018)
- : **RM4,568,482** (2019)

There was a 29% increase between 2017 and 2018 as many new leads were discovered, requiring more funding to ensure studies could be taken to the next level. Much of the spending was for the purchase of essential equipment and chemicals, training and other research activities.

Personnel cost

- : **RM3,781,216** (2017)
- : **RM5,101,712** (2018)
- : **RM5,002,852** (2019)

An increase in staff strength to over 50, mostly scientists and research associates, accounted for the higher cost over the period.

Administrative costs

- : **RM766,558** (2017)
- : **RM523,557** (2018)
- : **RM582,102** (2019)

Our administrative costs are made up mainly of rent, utility and maintenance, as well as marketing and fund-raising expenditure.

HOW you can help

As a non-profit, support from the public is key to our sustainability. We have been fortunate over the years to have had many wonderful people from all walks of life supporting us through various means.

From corporates to concerned individuals, they have been the reason we are able to achieve

research breakthroughs that benefit cancer patients in our community. However, each success comes with a challenge for us to continue to deliver more advances in cancer research. We are up to these challenges, but there is little we can do without your help.

Here is what you can do to help us ensure a future free from the fear of cancer:



Be our Corporate Partner

As part of your Corporate Social Responsibility Initiative, consider a cancer research grant or fund a clinical trial, sponsor an event or donate products and services to support Malaysians with cancer, improve cancer awareness, prevention and early detection. Whether yours is a small business or a large corporation, your contribution would enable us to come up with new interventions that can improve prevention and treatment for cancer patients in our region.

Be our Community Champion

Support us by hosting your own fundraiser. It may be a one-off event, an annual affair or an on-going initiative that runs for a specified period of time. If you have a great fund-raising idea and would like to lend a hand, write to us at comms@cancerresearch.my and we will be in touch with you to turn your ideas into reality.



Spread the Word!

Help us increase awareness on the work we are doing so that more Malaysians are kept abreast of the latest research developments and other advances in cancer. Follow us on our social media accounts and share your story with us so as to inspire newly-diagnosed patients to keep fighting because cancer can be defeated. 🌟

Partners

TOGETHER, we are the solution

CANCER Research Malaysia can only thrive in an ecosystem of talents, mentorship and enduring support, both financially and in the spirit of true partnership. These are our supporters; those who have been with us from Day One, and those who have recently come on board to offer help. Because of them, we are ensuring that Asians are not left out in the fight against cancer.



Yayasan Sime Darby

THIS foundation is a long-term supporter of our work, funding staff-associated costs. Aspiring to be at the forefront of championing the cause to fight cancer through solid medical research, their commitment is in line with our goal to improve community health. Yayasan Sime Darby's sponsorship covered the majority of staff costs from 2017 to 2020.



PETRONAS is an inaugural and core donor supporting the establishment of a cutting-edge laboratory where Malaysian scientists can ensure that Asians are included in the fight against cancer. The foundation bears our equipment and overhead costs, ensuring smooth operations in the organisation.



Scientex Foundation

IN 2018, Scientex executed a sponsorship agreement with us to sponsor RM1.3 million over a period of two years to fund the operational costs and expenses for cancer research advancement and works to discover new cures for Asian breast cancers. The funds were used to increase our current sample size to 1,000, creating one of the largest datasets of breast cancer genetics, genomics and transcriptomics from Asian women.



VISTAGE

Private advisory boards for CEOs, executives and business owners.

Vistage and Affiliated Group of Companies

A new donor from 2018 onwards, the Vistage group and its affiliated group of companies have come forward to support the development of the mobile phone app for oral cancer and the scaling up of genetic counselling services for other cancers.



Estee Lauder Group of Companies

Since 2007, this corporation has included cancer research in its beneficiaries of funds raised through the annual Breast Cancer Campaign. The funds raised ensure that we can work towards a future free of breast cancer, through cancer prevention trials (like MiSo), provision of genetic counselling and genetic testing for high-risk women and screening for these women, and creation of a genomic map for Asian breast cancers.

Ong Hin Tiang and Ong Sek Pek Foundation

THIS foundation has supported five of our researchers for post-graduate training, mainly in the fields of data mining and applications to oral cancer research, molecular medicine and mammographic density and breast cancer risk in Asians for the years 2017 to 2018. It has pledged to continue to be a sponsor of our research talents.

Event Highlights

Going beyond our labs

THROUGHOUT 2017, 2018 and 2019, we created and shared many wonderful moments with our partners and friends, as we worked to build a better understanding of what we do and why we do it. Here are some of the key events, and we look forward to creating more.



Bald and Beautiful 3.0

HOSTED by the Khind Starfish Foundation, Bald and Beautiful is an event where people come together to shave their heads in the spirit of solidarity with cancer patients who lose their hair after undergoing treatment and sometimes experience a lowering of self-esteem. We were one of the beneficiaries of this fund-raiser held at Eco Ardence in Setia Alam. By going bald, participants were able to not only be a pillar of strength to these patients, but also contributed significantly to our cause which is to enable more Asian-focused cancer research right here in Malaysia.



Terry Fox Run

EACH year, Terry Fox Runs are organised across the globe with the goal of raising funds for cancer research. In 2018, We were the sole beneficiary of the event that was held in Kuala Lumpur. Through our cooperation with the organising committee, we continued to fund cancer research programmes in Malaysia.



Estée Lauder Group of Companies Breast Cancer Campaign

We were was privileged to be among the beneficiaries of a fund-raiser concert by jazz queen Datuk Sheila Majid at Ruyi and Lynn, Bangsar Shopping Centre. The funds we received from this event enabled us to make preparations for the first clinical trial in Malaysia to test whether menopausal women can reduce their risk of cancer by consuming soy products.



Reverse Cancer Day 2018

WORLD Cancer Day falls on February 4 (04/02) every year. We created our first awareness campaign by establishing World Reverse Cancer Day and holding it on April 2 (02/04), which is a reversed date of World Cancer Day. We believe this is a great way to educate people on the importance of cancer research and to raise funds to sustain research. In this campaign, we organised workshops which received amazing response. It showed that Malaysians were eager to learn about the work we do and the impact we have made in fighting cancer.

Thank you for your role in helping us reverse cancer!

A PART from the continuous support shown by our key partners in funding the various research programmes undertaken by Cancer Research Malaysia, we are also sustained by organisations like Ramsay Sime Darby Health and PriceWaterHouseCoopers, and also our lawyers who offer essential services in kind, together with the many generous donors who have contributed towards work that we do in finding better ways to prevent, detect and treat cancer. Their generosity drives us to do more, especially for Asians. These were the donors for the period 2017 to 2019.

RM500,000 AND ABOVE

Yayasan Sime Darby
 Yayasan PETRONAS
 Khind Starfish Foundation
 Scientex Foundation
 Petroliam Nasional Berhad
 Trust of Geraldine Justina Vincent
 A/P Krishnan
 Ong Hin Tiang & Ong Sek Pek
 Foundation
 Estee Lauder Group of Companies
 Astra Zaneca

RM100,000 AND ABOVE

Sime Darby LPGA Tournament
 Vistage Malaysia Sdn Bhd and
 affiliated companies
 Tatler Auction
 Yayasan UEM

RM 10,000 AND ABOVE

Lim Peng Jin
 MSOP Auction
 Poplook Sdn Bhd
 Siti Saleha binti Mohd Baharum
 Tay Hoe Lian
 Medispec (M) Sdn Bhd
 The Edge Education Foundation
 Terry Fox Run
 Daniel Adams Exhibition
 AVF Solutions
 David Loo
 Pembinaan Tetap Teguh Sdn Bhd
 Cancer Research Malaysia
 Crowdfunders
 PriceWaterHouseCoopers
 and employees
 Cindy Lin
 Dialog Plant Services Sdn Bhd
 Kong Long Huat Chemicals Sdn Bhd
 ICAEW Malaysia
 Rajendran A/L Ramasamy
 Tokai Engineering Sdn Bhd

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