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## CHAIRMAN'S MESSAGE

2015 marked a major milestone for Singapore as a nation. The jubilee celebration of Singapore's 50 years as a city state also brought a time of reflecting. Working together in the face of huge challenges is the clarion call that has resonated well with the team at NCCS during the year under review. Against the backdrop of a tough economic environment, the team had to compete with many other worthy causes within the limited pool to raise funds for cancer research. With the gallant support of all the staff – from administration, nursing, to doctors and scientists, I am pleased to report that we were able to achieve our goal and can look forward to another year ahead. In particular, I'd like to highlight the generosity of our donors and the willingness of well-wishers to introduce new donors. These acts of generosity and love have made our challenge much lighter.

NCCS has the foresight to adopt a research-based approach towards battling cancer. This encouraged a culture of inquiry and research which led its clinicians and scientists to making many strong discoveries that won them international recognition. As a result, the path was opened for inter-institutional collaborations and staff exchanges which further enhanced the knowledge and expertise of the clinical team. Certainly, the seamless integration of the work between the clinicians and the scientists in NCCS has borne the intended effects of promoting translational research that benefited the cancer patients. The robust research activities at NCCS would not be possible if not for the generous funding, through grants and outright donations, from external organisations.

Cancer accounts for more than one in three deaths in Singapore. As a national cancer centre, the need to equip our doctors with better insights and understanding of the disease is even more pressing. Thanks to your unwavering support and generosity, your contributions are helping to equip and enable our doctors and scientists in the fight against cancer for the good of the wider community.

In FY2016, we look forward to bigger breakthroughs and significant steps forward in cancer research. We will continue to ensure all grants, donations and gifts are effectively managed and used for critical projects for the advancement of cancer research.

On behalf of everyone at NCCS, we would like to extend our heartfelt thanks to all donors, partners and supporters for enabling us to conclude another successful year. I would also like to acknowledge the hard work and enthusiasm from the staff as they carried out their responsibilities diligently and tirelessly. Together, we will continue to provide hope for our patients.

Best wishes and good health to all,

**Dr Charles Toh Chai Soon**

Chairman  
NCC Research Fund

# BOARD OF TRUSTEES

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# ABOUT THE NCC RESEARCH FUND

Established in 2005, the NCC Research Fund serves as the flagship fundraising and grant-making channel of the National Cancer Centre Singapore (NCCS). The Fund provides Seed and Bridge Funding for an array of translational and clinical research programmes.

The NCC Research Fund fulfils three objectives:

- Providing **Seed Funding** to help our scientists kick-start worthy and emerging research projects. By doing so, they build a track record and will be able to apply for sustainable competitive grants from government agencies.
- Providing **Bridge Funding** between government grant cycles when the need arises, in order to enable our scientists to work with productive momentum.
- Providing **Advancement Funding** to enhance research-related infrastructural capabilities, hardware, tools and processes.

With cancer accounting for more than one in four deaths in Singapore, NCCS plays a pivotal role in providing holistic care and multidisciplinary-based treatment of cancer patients. Innovative medicine requires quality research to drive leading patient care. Our clinician-scientists require philanthropic support to drive medical breakthroughs for the benefit of our community.

**We firmly believe that today's research will pave the way for tomorrow's cure.**

Through your kind and generous support of cancer research, we can provide hope to Singaporeans living with cancer.

NCC Research Fund is registered under the Charities Act as an Institution of Public Character (IPC) with an independent Board of Trustees.

## Charity Status

- Charity Registration Number: 01897
- Charity Registration Date: 19 August 2005
- Date of Establishment: 6 May 2005
- Registered Address: 11 Hospital Drive, Singapore 169610


## Disclosures of Conflict of Interest

The NCC Research Fund maintains a Conflict of Interest policy to assist the Board of Trustees, employees, consultants, vendors, volunteers and major donors of the NCC Research Fund to identify and manage situations that may present potential conflict of interest. The policy includes requirements for the declaration of potential conflicts, procedures for managing such conflicts, and documentation required if such conflicts occur.

## Funding Sources

NCC Research Fund raises a substantial amount of funds through the generosity of individuals, foundations and corporations. NCC Research Fund provides funds for long-term support of research projects, etc, to meet the objectives of the Fund. The funding of projects is approved by the Trustees or designated Trustees.

# TODAY'S RESEARCH, TOMORROW'S CURE



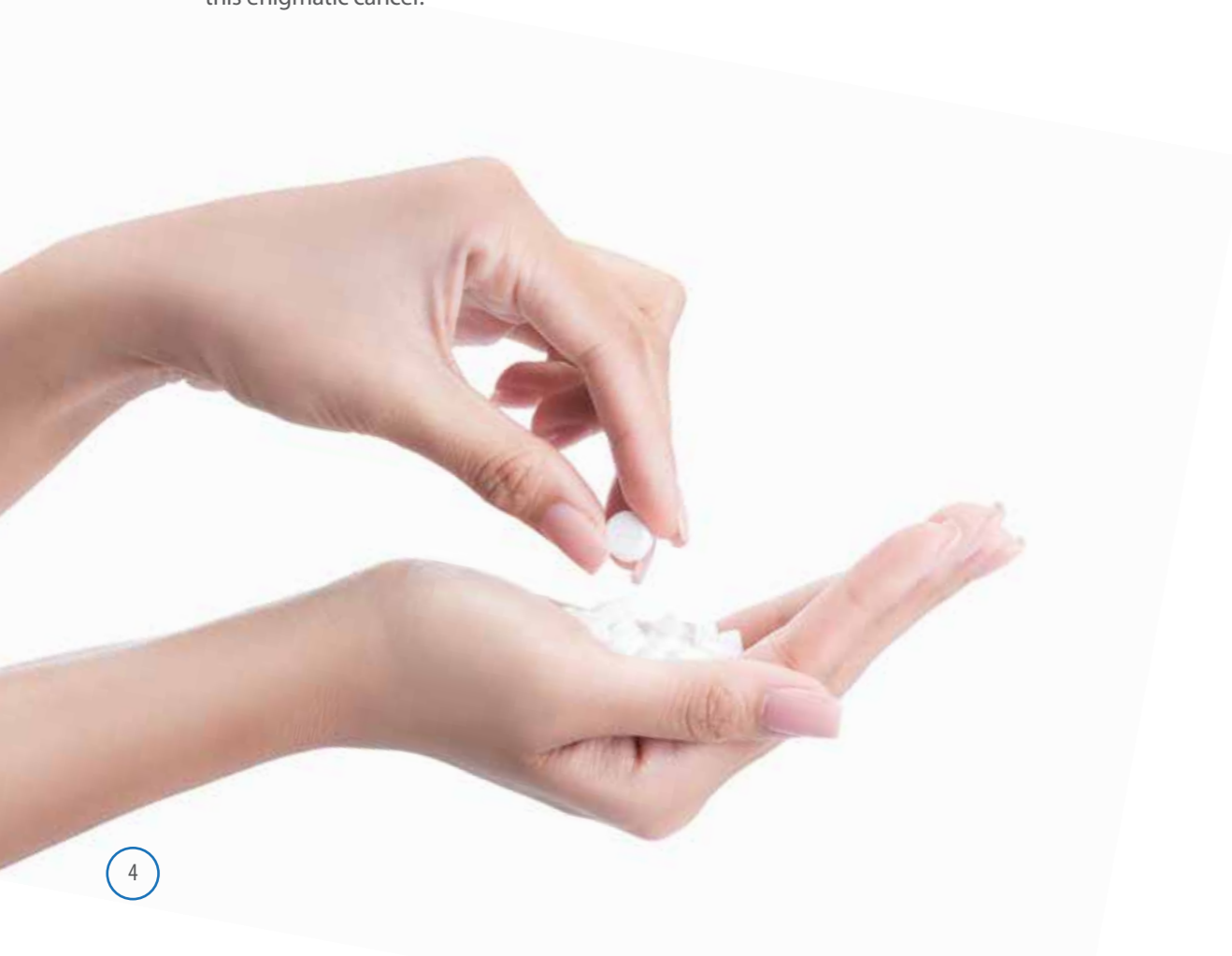
The following NCCS projects have shown significant progress in their research studies and potential in securing national grants from the National Medical Research Council (NMRC), which supports high quality scientific and clinical research.

## The ASCOLT Trial – Evaluating the Effectiveness of Aspirin in Colorectal Cancer Patients

Aspirin is being evaluated as a potential treatment for colorectal cancer in the on-going ASCOLT trial. The first to evaluate aspirin in the adjuvant treatment of cancer, this trial has acted as the catalyst for many similar studies internationally. There are currently five Phase 3 trials being developed in the UK, Netherlands, Italy, Switzerland and Japan. If the effectiveness of aspirin can be proven, this will be great news in Singapore, where escalating healthcare and living costs and an ageing population are key challenges close to our heart.

Colorectal cancer, more commonly known as colon cancer, is the most common cancer in Singapore. It affects more than 1,000 Singaporeans each year. It is the third commonest cancer in the world, affecting 1.2 million people. According to the Singapore Cancer Registry, colon cancer is the number one cancer affecting men and number two cancer affecting women.

There are only a few drugs that can prevent high-risk Stage 2 and Stage 3 colon cancer from recurring after surgery. Although there have been clinical trials to test expensive therapies for Stage 3 colon cancer, results were negative. With pressing need and a race against time, Associate Professor Toh Han Chong and Dr John Chia, Co-Principal Investigators for the ASCOLT trial, are assembling a massive effort in a bid to understand and treat this enigmatic cancer.



## The Principal Investigators



Assoc Prof Toh Han Chong is a Senior Consultant Medical Oncologist and Deputy Director at the NCCS. He is also an Associate Professor and College Master at the Duke-NUS Graduate Medical School, and an Adjunct Principal Investigator at the Institute of Molecular and Cell Biology, A\*STAR. Assoc Prof Toh has published over 75 peer review journal papers and is a recipient of the National Clinician Scientist Award for his pioneering work in cell therapy for cancer.

**“Drug repurposing can potentially see a cheap, good and powerful drug like aspirin, prevent and even treat cancer effectively.”**

- Assoc Prof Toh Han Chong



Dr John Chia, a Senior Consultant Medical Oncologist at the NCCS, is active in cancer research and has developed several Phase 1, 2 and 3 investigator-initiated clinical trials in the fields of immunotherapy, gynaecological and colorectal cancer.

**“We are conducting the first clinical trial that attempts to validate the effectiveness of aspirin in preventing cancer recurrence. It is exciting to be part of a remarkable story for a pill that costs a cent.”**

- Dr John Chia

## The Research Study

The ASCOLT is the first global clinical trial to study the role of aspirin in stopping the recurrence of cancer in high-risk Stage 2 and Stage 3 colorectal cancer patients, who have completed their standard cancer treatment.

Preliminary observations suggest that aspirin can nearly halve the risk of colon cancer deaths. Aspirin, which is commonly used to treat pain and fever, may potentially be repurposed to treat and stop the recurrence of colon cancer. Aspirin is also very cost-effective for patients.

The trial has recruited 800 of its target of 1,200 patients and is due to complete recruitment in two years.

## Looking Towards the Future

Apart from its direct health impact, the ASCOLT trial offers an opportunity for Singapore to catalyse the formation of a multi-centre, cross-border clinical trial networks or collaborations in the Asia-Pacific region. Assoc Prof Toh and Dr Chia have been asked to assist in the designs of similar ASCOLT trials held internationally, evidence of the high esteem and recognition that they have received in the oncology community. With more cross-border collaborations around the world, the future for colorectal cancer patients looks optimistic as this could mean the pooling together of more resources, and faster breakthroughs.

**This project was funded by donors including Lee Foundation Limited through the NCC Research Fund; and The Silent Foundation Limited and an anonymous donor through the SingHealth Duke-NUS Oncology ACP Fund Award and the NCC Research Fund.**

**Assoc Prof Toh and Dr Chia have received a \$1 million grant from the Board of Trustees of NCC Research Fund in March 2015 for the ASCOLT research project.**

## Early Detection of Intra-Abdominal Recurrence Abdominal Cancer in Gastroesophageal Cancers Using Cell-Free Tumour DNA

Abdominal cancers are major health concerns in Singapore, with gastric and oesophageal cancers being significant causes of morbidity and mortality. Stomach cancer was the fourth most common cause of cancer death in 2014. The most frequent site of recurrence following curative surgery is in the abdominal cavity.

### The Challenge – Detecting Early Recurrence

Despite optimal curative surgery, a significant proportion of patients suffer a relapse within two years. In the presence of large volume or symptomatic recurrence, the outcome with palliative chemotherapy (treatment designed for cancer patients to prolong survival and ease symptoms) is often poor.

Hence, if these recurrences could be detected early with limited spread, more effective control and management of the cancer can be achieved.

Currently, the major challenge is that there is no reliable method of detecting early recurrence. Tools such as CT imaging and tumour markers are inadequate in early detection of recurrent intra-abdominal cancer. To address this issue, Dr Matthew Ng and his team are studying how cell-free tumour DNA (cfDNA) in the blood and Intra-Abdominal Fluid Washings (IAFW) at surgery may be a key to detecting or predicting the recurrence in gastric and oesophageal cancers post-surgery.

### The Principal Investigator



This research is headed by Dr Matthew Ng, a Consultant Medical Oncologist at NCCS. He is the deputy director of the SingHealth Investigational Medicine Unit. Dr Ng sub-specialises in gastro-intestinal cancers and new cancer drug development. His research interest includes developing new anti-cancer drugs for gastro-intestinal cancers.

### The Research Study

This research study looks into the use of cfDNA in the blood and fluid from IAFW obtained during surgery, which acts like a biomarker to detect or predict for recurrence in gastric and oesophageal cancers.

The study will involve following up with 50 cancer patients. Patients who develop local or peritoneal recurrence within the duration of study will have the cfDNA levels in their blood and IAFW compared to patients who do not have a recurrence. This will allow the team to determine if the presence of and changes in the cfDNA can:

- predict recurrence, and
- precede detection of recurrence by conventional imaging.

### Looking Towards the Future

The results of the study could potentially allow for early detection of gastro-oesophageal cancer in the abdomen when the disease remains limited, allowing more effective control of the recurrence.

**This project was funded by Terry Fox Foundation and an anonymous donor through the NCC Research Fund.**

**The research study was awarded with an exploratory project grant of \$30,000 in February 2015.**

## Individualised Molecular Profiling for Assigning Clinical Trials (IMPACT) Programme

The IMPACT Programme is an active research study for molecular screening of cancer patients' tumour specimens. It aims to deliver a personalised molecular readout for each tumour, in order to "match" the genetic profile with an appropriate targeted agent. The programme was conceived to address the increasing need for patient selection with the current generation of new drugs and immunotherapies being developed as well as the contemporary requirements of current early phase trials.

### The Principal Investigator



Dr Daniel Tan is a Consultant Medical Oncologist at the NCCS and a Clinician-Scientist Fellow at Genome Institute of Singapore. His main area of interest is in thoracic, head and neck malignancies. He currently leads the Phase 1 unit, where he is the Principal Investigator for multiple biomarker-driven early phase clinical trials including first-in-human studies.

Dr Tan's research has won multiple international awards, including European Society of Medical Oncology Congress Travel Award, American Society of Clinical Oncology (ASCO) Merit Awards and an ASCO Young Investigator Award. His current research interests include rational application of "omics" technologies to unravel drug resistance in cancer therapeutics and accelerating the development of novel agents and biomarkers in the clinic.

### The Research Study

This study, which has screened more than 600 tumour samples to date, currently uses next generation sequencing platforms as well as diverse molecular biology techniques to determine molecular profile.

### Looking Towards the Future

The IMPACT Programme will allow our patients to gain access to potential clinical trials of novel drugs, placing Singapore on the forefront of drug development.

**This project was funded by Dr Darren Lim, Ms Low Lee Hoon, Mr Siok King Huay, Mr Garth Adrian Whitehead and an anonymous donor through the NCC Research Fund; and Mr Tan Yong Keng and New Century Foundation Limited through the SingHealth Duke-NUS Oncology ACP Fund Award and the NCC Research Fund.**

## Extracellular Vesicles Present in Plasma Samples of Patients with Head and Neck Cancers as Potential Biomarkers for Radiotherapy Resistance

Although cancers of the head and neck, especially those involving the voice box and throat, can be treated with radiotherapy alone, 20-30% of patients do not respond to radiotherapy (non-responders) and subsequently require extensive surgery. However, surgery after radiotherapy usually results in poorer outcomes.

Cancers are known to secrete small structures called vesicles. Specific biomarkers in these vesicles can be used to accurately predict radiotherapy resistance.

With this understanding, Assoc Prof Gopal Iyer and his research team are studying these vesicles as markers to identify non-responders, who should be preferentially treated with surgery and without radiotherapy.

### The Principal Investigator



Assoc Prof Narayanan Gopalakrishna Iyer is a Senior Consultant Surgical Oncologist at NCCS, and Head and Senior Consultant at SingHealth Duke- NUS Head and Neck Centre.

Besides having extensive experience in the surgical management of head and neck cancers, Dr Iyer is actively involved in research and leads a number of research programmes that aim to determine prognostic factors in oral cancers, identifying the cause of head and neck cancers in young people and development of novel therapeutic strategies in treating these cancers.

### The Research Study

The team aims to extract vesicle content from plasma samples of two groups of head and neck cancer patients – those who responded to radiotherapy, and the non-responders. Their vesicles will be analysed to identify markers that distinguish the two groups from each other.

### Looking Towards the Future

With the ability to identify markers that predict radiation response and recognise patients who are at high risk for relapse, more appropriate treatment plans can be provided for these patients.

**This project was funded through philanthropy and the NCC Research Fund.**

**The research study was awarded with a pilot/ exploratory project grant of \$50,000 in July 2014.**

## Quality of Life Study on Acute and Late Effects of Radiotherapy in Gynaecological Cancer Patients

Gynaecological cancers are one of the most common cancers amongst women. The Singapore Cancer Registry<sup>1</sup> shows that cancers of the uterus, ovary and cervix are respectively the 4<sup>th</sup>, 5<sup>th</sup> and 10<sup>th</sup> commonest cancers afflicting our women today.

Surgery, radiotherapy and chemotherapy are effective treatment options for patients with gynaecological cancers, and these are commonly being used in combination to improve survival.

Unfortunately, the clinical management of gynaecological cancers has focused almost exclusively on prolonging the survival of patients and few research studies have adequately addressed issues relating to quality of life. Unsurprisingly, the overall survival rates of gynaecological cancer patients have increased in the last decade but this has led to a greater proportion of patients living with the adverse effects of curative treatment.

The lack of such researches impelled Dr Khoo Tan Hoon Seng and his team to develop a one of a kind study on Asian women, which aims to assess the rate of acute and late side effects of gynaecological radiotherapy in our local context, and how these may adversely affect patients' quality of life.

### The Principal Investigator



This study is headed by Dr. Khoo Tan Hoon Seng, a Senior Consultant Radiation Oncologist at NCCS. He has been working in radiation oncology since 1985 and completed his specialty training in 1991. Dr Khoo Tan sub-specialises in Gynae-Oncology.

### The Research Study

All gynaecological cancer patients at NCCS who will be undergoing radiotherapy within the year of study are being recruited. A quality of life questionnaire and treatment effect scoring system will be administered to patients before their first radiotherapy, and at fixed time points up to 3 years after completion of radiotherapy.

The study is close to accruing its 300<sup>th</sup> patient soon and is scheduled to close by the end of year 2016.

### Looking Towards the Future

Results of this study will assist oncologists to advise accurately and appropriately about treatment risks, symptom management and evaluate treatment outcomes for our patients more completely.

**This project was funded through philanthropy and the NCC Research Fund.**

**The research study was awarded with a pilot project grant of \$44,876 in November 2012.**

<sup>1</sup> [https://www.nrdo.gov.sg/docs/librariesprovider3/default-document-library/cancer-trends-report-2010---2014\\_web.pdf?sfvrsn=0](https://www.nrdo.gov.sg/docs/librariesprovider3/default-document-library/cancer-trends-report-2010---2014_web.pdf?sfvrsn=0)

# SUMMARY OF OTHER RESEARCH PROJECTS AWARDED DURING FY2014



In total, 15 projects were funded through philanthropy in this financial year. The following summarises some of these projects.

## Molecular Classification of Combined Hepatocellular-Cholangiocarcinoma

**Principal Investigator: Dr Ong Choon Kiat**

Combined hepatocellular-cholangiocarcinoma is a rare but an increasingly recognised type of liver cancer. However, the unclear diagnosis and cell origin of this cancer makes it challenging for clinicians to classify this cancer and decide on the treatment regimen. This study aims to trace the cellular origins of this combined cancer, and to identify frequently mutated genes in this cancer. From this, potential treatment targets in this rare cancer might be identified.

**This project was funded through philanthropy and the NCC Research Fund.**

## Interventions to Increase Colorectal Cancer Screening in the Singaporean Population

**Principal Investigator: Dr Richard Yeo, Prof Ha Tam Cam (Duke-NUS)**

Colorectal cancer is a serious health challenge in Singapore due to its continued increase in the number of patients diagnosed, and the death rate from this cancer. However, it is one of the most preventable and treatable cancers when detected early. Detection is done through a screening test that looks for the presence of small amounts of blood in the stool. This study aims to find out how better education for families and individuals will improve the number of people going for this test. The findings will help the Health Promotion Board and Singapore Cancer Society to improve their education strategies.

**This project was funded through philanthropy and the NCC Research Fund.**

## Identification of Effector Pathways of BRAF(V600E) which Play Pivotal Roles in BRAF(V600E)-Induced Tumourigenesis

**Principal Investigator: Hu Jiancheng**

Raf kinase is a protein that controls how cells survive, grow, and divide. In normal tissues, the Raf kinase is well controlled. In contrast, DNA mutations in many cancers such as melanoma, thyroid cancer, colon cancer, hairy cell leukemia, and ovarian cancer, affect the control of Raf kinase. The most frequent mutation of Raf kinase in cancers is BRAF(V600E). In this research, the team aims to find out how this mutation drives cancer development, and to develop ways to treat BRAF(V600E)-induced cancers. The team believes this research will explore some new drug targets and improve the development of new therapies against BRAF(V600E)-induced cancers.

**This project was funded through philanthropy and the NCC Research Fund.**

## Open Label, Single Arm Phase 2 Clinical Trial of Regorafenib in Patients with Multiply Recurrent Epithelial Ovarian Cancer

**Principal Investigator: Dr John Chia**

Epithelial ovarian cancer is a lethal disease and better treatments are urgently required. Preclinical studies have shown promising activity for a new oral drug, Regorafenib, in ovarian cancer. This research study looks at patients with more than one occurrence of this cancer, and who had two or more cytotoxic chemotherapy treatments. The study aims to measure how well those patients respond to Regorafenib, and if they can tolerate any side effects from that drug.

**This project was funded by Ms Jennifer Mui in tribute of the late Ms Wendy Wiluan through the NCC Research Fund.**

## Exploring the Links Between the Oncogenic PI3K Signalling Pathway and the Tumour Suppressive P73 Signalling Pathway in Cancer Metastasis and Drug Resistance

**Principal Investigator: Dr Wang Chao**

It is still not clear how a cancer can spread to other parts of the body, and how a drug becomes less effective over time. It is also not known if these two processes interact to produce a greater combined effect. Early results have shown a previously unknown interaction that may link two pathways for cancer development. The results from this study will improve the understanding of how cancers develop, and may provide new treatment targets for fighting against cancer.

**This project was funded through philanthropy and the NCC Research Fund.**

## National Lymphoma Translational Research Programme: from Genomics to Therapeutics

**Principal Investigator: Assoc Prof Lim Soon Thye**

Lymphoma is now amongst the top ten cancers in Singapore; however, there are no concerted efforts to meet the challenges posed by its rising rates. This programme aims to consolidate and expand Singapore's cancer network throughout multiple nations in Asia, setting up Singapore as the leader in therapeutic trials in lymphoma research.

This research proposal draws together a nationwide, multidisciplinary team to provide the fundamental understanding of disease mechanisms that can be translated into new drugs and treatments to improve survival in lymphoma patients.

**This project was funded by Excel Procurement (S) Pte Ltd, Huang & Co (S) Pte Ltd and New Century International Pte Ltd through the NCC Research Fund.**

# SUMMARY OF OTHER RESEARCH PROJECTS AWARDED DURING FY2015

In total, 16 projects were funded through philanthropy in this financial year. The following summarises some of these projects.

## Evaluating the Cost Burden of Cancer Care Among Adolescents and Young Adults

**Principal Investigator: Dr Mohamad Farid**

Adolescents and young adults (AYA) with cancer are patients between 16 and 39 years old. This demographic faces many challenges beyond physical toxicities of disease and treatment due to the significant life events attendant to AYAs that include sexual coming of age, establishing economic independence, and setting up a family. Set against these circumstances, the direct medical and indirect morbidity costs of cancer treatment can be especially burdensome. In this study, the team aims to determine the direct and indirect costs of medical care for AYA cancer patients, comparing it against the costs for AYA individuals without cancer. These will be assessed through electronic medical records, interviews and specifically designed questionnaires. With better definition of their economic and psychosocial needs, resources can be more optimally allocated to alleviate the significant burden of cancer amongst AYAs.

**This project was funded through philanthropy and the NCC Research Fund.**

## Somatostatin Receptor Imaging in Nasopharyngeal Cancer

**Principal Investigator: Dr Nei Wen Long, Dr Soong Yoke Lim, Dr Kelvin Loke**

Nasopharyngeal cancer is the 8<sup>th</sup> most common cancer among men in Singapore. Although current methods of diagnosis for this cancer are highly sensitive and accurate, it is sometimes difficult to detect cancer that has come back at or near the original location (recurrent) in a patient who had radiation therapy. This is because inflammatory tissues and recurrent tumours on standard imaging can look similar. Recent research have found moderate to high levels of somatostatin receptors in patients with nasopharyngeal cancer. Somatostatin receptors can be detected by imaging, which may open up new means to treat and diagnose nasopharyngeal cancer.

**This project was funded through philanthropy and the NCC Research Fund.**

## Chemical Inhibitors of Dihydropyrimidine Dehydrogenase (DPYD) Abrogates Metastatic Phenotypes in Colorectal, Gastric and Pancreatic Cancer

**Principal Investigator: Dr Clarinda Chua Wei Ling**

The distant spread of cancer (metastasis) to other organs is the key cause of death in those with colorectal, stomach and pancreas cancer. One key step in metastasis is a process known as Epithelial-Mesenchymal Transition (EMT). Previous studies done have identified key genes and enzymes that are important in the EMT process.

This study aims to test if genetic or drug interventions can reduce or prevent the EMT process and potentially reduce metastasis. If this is the case, new drug compounds can then be developed to target these genes and enzymes to potentially improve cure rates in these cancers.

**This project was funded through philanthropy and the NCC Research Fund.**

## Pilot Study for Development of Personalised Assays for Detection of Tumour Genomic Materials from Blood of Cancer Patients

**Principal Investigator: Dr Iain Tan**

Monitoring the size of tumours is an important issue in patients with cancer. The team aims to develop individualised analysis for detection of tumour DNA from blood of cancer patients. The result of this is a simple blood test to monitor tumour size of patients as they undergo treatment. This study seeks to optimise the performance of the test.

**This project was funded by Mr Deiters Berend through the NCC Research Fund.**

## Unravelling the Attraction of Tumour-Associated Macrophages Towards Medulloblastoma

**Principal Investigator: Asst Prof Teo Wan-Yee**

Medulloblastoma is the most common malignant brain tumour in children. A proportion of these patients remain incurable despite treatment and recurrences are almost always fatal. The tumour microenvironment has been shown to be increasingly important in the development of cancer. This study will examine tumour-associated macrophages located in the brain tumour microenvironment to develop novel therapies for medulloblastoma.

**This project was funded through philanthropy and the NCC Research Fund.**

## Establishing *In Vitro* and *In Vivo* Models for Screening Therapeutic Targets in Adenoid Cystic Carcinomas

**Principal Investigator: Assoc Prof Narayanan Gopalakrishna Iyer**

Adenoid cystic cancer is a difficult disease to treat and has a high tendency to spread, for which no drug has been useful. The study plans to grow fresh tumours obtained from 10 adenoid cystic cancer patients, in different techniques in culture and mice. They will then be tested with over 700 drug compounds so as to identify new classes of drugs that can be used to treat this rare form of cancer.

**This project was funded by GE Commercial Aviation through the NCC Research Fund.**

## Evaluation of Magnetic Resonance Imaging Versus Computed Tomography or Positron Emission Tomography Computed Tomography in the Detection of Peritoneal Disease Malignancies

**Principal Investigator: Dr Claramae Chia**

Computed tomography is currently the most popular imaging technique. However, it is unable to accurately evaluate the extent of peritoneal disease, which makes it difficult for surgeons to predict the extent of surgery. This study will evaluate the use of magnetic resonance imaging, determine its accuracy and compare its results to those of computed tomography, in order to determine the best treatment strategy for patients.

**This project was funded through philanthropy and the NCC Research Fund.**



## Manpower Support to Maintain Experimental Cancer Therapeutics Unit (ECRxU)

**Principal Investigator: Assoc Prof Tan Eng Huat**

The ECRxU at NCCS conducts early phase clinical trials and has contributed significantly to the global recruitment effort. The team's capability in managing complicated phase I trials has been well recognised by major pharmaceutical companies, which in turn bring more trials to NCCS. Manpower support to the team will help coordinate these clinical trials, which will provide additional treatment options to NCCS' patients. Currently, the trial coordinating team comprises 16 staff and there are about 40 actively recruiting trials.

**This project was funded by Mr Chew Kwee San through the NCC Research Fund.**

*The above projects are awarded between April and December 2015.*



# REACHING OUT TO THE COMMUNITY



## FUNd Times

FUNd Times is a quarterly e-newsletter for the NCCS charity funds. For cost and environment saving, FUNd Times is delivered electronically through email and keeps donors, volunteers and supporters informed and updated on the latest happenings and inspiring stories. Through FUNd Times, donors, volunteers and supporters can see how their generous donations, time and support are making a huge difference to our patients' lives.

Managed by the NCCS Corporate Communications team, FUNd Times achieved an average reach of 20,672 and 21,590 supporters per issue in FY2014 and FY2015 respectively. The FUNd Times team will continue their efforts to keep donors and supporters updated on the latest developments in the NCC Research Fund and the Community Cancer Fund.

To subscribe to FUNd Times, please email us at [comms@nccs.com.sg](mailto:comms@nccs.com.sg).



## Buddie the Badger

Meet Buddie the Badger! Buddie was born in 2012 as NCCS' first ever mascot and has been actively helping out in many patient care and public outreach events. Buddie the Badger represents fearlessness, tenacity and courage – the never give up attitude.

Buddie was very pleased to have partnered with many wonderful volunteers from schools and the community to contribute cheer during festive seasons. Buddie was excited to display his artistic side as he sang along with National Junior College students who carolled and distributed their handmade Christmas cards to patients. During Chinese New Year, Buddie and Anglo-Chinese Junior College students brought festive joy to patients at NCCS and gave away oranges and goodies sponsored by Event Security Specialists Pte Ltd.

Other Mascot outreach included Nurses Day, National Cancer Survivors' Day, Cansurvive 2015, Run For Hope 2016 and several NCCS staff engagement activities. NCCS and Buddie are excited to continue working with schools and the community to bring joy to patients and to spread awareness about cancer. Look forward to seeing more of Buddie in the near future!

Buddie the Badger mascot is partially funded by the NCC Research Fund.



Chinese New Year 2015



Nurses' Day 2014

## Giving @ NCCS



The GREAT@NCCS staff giving programme gives our employees the opportunity to support our research projects and needy patients.

To further encourage employees to give, the 3-2-1 Campaign was developed. The 3-2-1 Campaign was launched on Giving Tuesday in December 2014, a global day dedicated to giving back.

The significance of the 3-2-1 Campaign was donating 3 dollars or more, finding 2 others to do the same and their donations will be matched by 1 clinician.

## Buddie Donation Boxes

Since its launch, the Buddie donation box initiative has received much support from patients, donors and the public.

In July 2014, Candy Empire included the Buddie donation box in their outlet at The Star Vista. In March 2016, the donation figurines were displayed in two more outlets – Ion Orchard and Kallang Wave Mall. Besides Candy Empire, the donation figurines are also displayed at NCCS.

Through the figurines, more than \$13,000 and \$12,000 of donations have been received in FY2014 and FY2015 respectively for both NCC Research Fund and Community Cancer Fund.



## NCCS Giving Week 2015

In celebration of Singapore's Giving Week, NCCS launched its very own #NCCSGivingWeek2015 campaign to raise funds for cancer research and patient care. Staff and the community were encouraged to pledge their donations through posting their 'Selfless Selfie' on social media during the Giving Week, to spread the message of philanthropy. Through this campaign, \$15,415 was raised for the NCC Research Fund and Community Cancer Fund.



# RUN FOR HOPE 2016

## I Run for a Better Tomorrow!

Close to 10,000 people gathered in the early morning of 31 January 2016, eager and energised for Run For Hope 2016. The perfect morning played host to runners running for a meaningful cause – awareness, support and hope.

The day could not have started any better: fantastic weather, crisp morning air, the soft glow of the morning sun peeking from beyond the horizon. Guest-of-Honour, Mr Chee Hong Tat, Minister of State (Health and Communications & Information) kicked off the event with the traditional "wefie", but with a not-so-traditional twist. This year's "wefie" was taken with a flying drone camera! Mr Chee flagged off our eager 10km runners as well as the Executive Challenge before joining the participants in the 3.5km fun run/walk. The 23<sup>rd</sup> consecutive annual edition of Run for Hope raised \$427,000. The money raised for the NCC Research Fund will provide for seeding, bridging and advancement funds for an array of collaborative research projects.

Run For Hope also raises awareness on the importance of cancer research. It's important that we spread the awareness of what we can do to help, either through cancer prevention or supporting those affected by cancer. We would like to acknowledge the overwhelming love and support of our cancer survivors, family members, celebrity ambassadors and participants.

"Run for Hope is a way for the community to join the fight against cancer. Not everyone can be a cancer doctor or researcher, but everyone can run," explains Ms Flora Yong, Organising Co-Chair and Senior Manager, Division of Community Outreach and Philanthropy at NCCS.

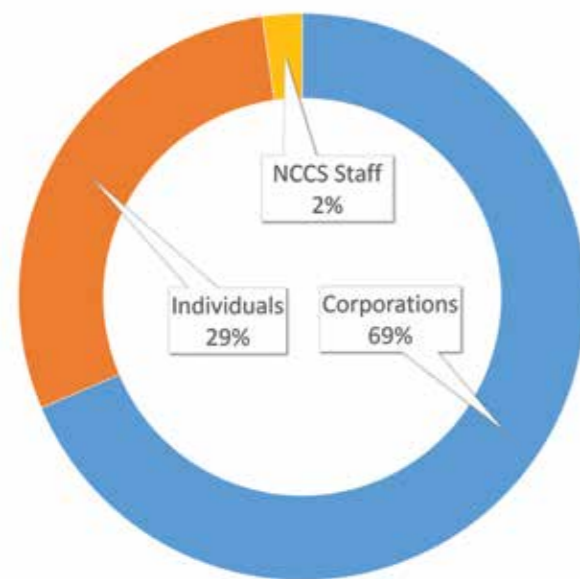
Reflecting on the event, she continues enthusiastically: "Run for Hope is the largest event in Singapore that unites the community in doing good for the cancer cause. It's heartening to witness thousands gathering in the wee hours of the morning to run for those affected by cancer." Flora has been involved in organising NCCS' signature event since 2011 and looks forward to being a part of it each year. She enjoys the challenges, idea and talent sharing as it enriches her experience. She also takes the time to express gratitude for her organising partners: "NCCS is fortunate to receive the goodwill support of Four Seasons Hotel and Regent Singapore who partner NCCS in organising this event every year. Without them, Run for Hope would not be possible."

The outpouring of support and love from participants, ambassadors, sponsors and volunteers made the Run for Hope 2016 one to remember and started the year with great meaning. See you at the next Run for Hope!

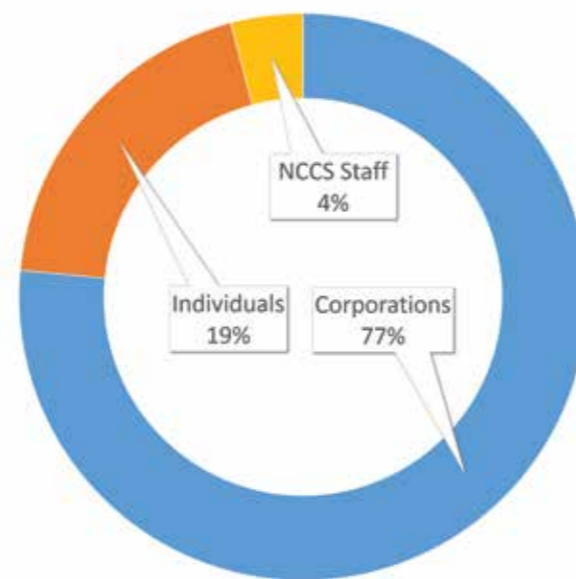


# DONORS AND FUND ALLOCATION AT A GLANCE

Sources of Donations (FY2014)



Sources of Donations (FY2015)



For Every \$1 We Spent (FY2014)



For Every \$1 We Spent (FY2015)



# FINANCIAL STATEMENTS

	FY2014 \$	FY2015 \$
<b>INCOMING RECEIPTS</b>		
Tax-Deductible Donations	3,951,829	13,363,489
Non Tax-Deductible Donations	340,123	162,570
Investment Income	1,690,837	655,337
<b>TOTAL RECEIPTS</b>	<b>5,982,789</b>	<b>14,181,396</b>
<b>EXPENSES</b>		
Direct Charitable Expenses (Local)	5,724,886	9,287,415
Operating/ Administration Expenses	618,693	1,092,757
Fundraising	2,733	1,729
Publicity	44,685	630
<b>TOTAL EXPENDITURE</b>	<b>6,390,997</b>	<b>10,382,531</b>
<b>BALANCE SHEET</b>		
<b>Assets</b>		
Tangible Assets	2,490	3,252
Investments	21,392,882	21,315,390
Accounts Receivables	580,277	1,411,978
Cash & Deposits	39,149,083	41,099,845
Others	10,480	10,253
<b>TOTAL ASSETS</b>	<b>61,135,212</b>	<b>63,840,718</b>
<b>Funds</b>		
General Fund	29,203,273	29,184,918
Endowment Fund	22,368,033	22,368,033
Designated/ Restricted Fund	8,196,140	12,013,361
<b>TOTAL FUNDS</b>	<b>59,767,446</b>	<b>63,566,312</b>
<b>Liabilities</b>		
Current liabilities	1,367,766	274,406
<b>TOTAL LIABILITIES</b>	<b>1,367,766</b>	<b>274,406</b>
<b>TOTAL FUNDS &amp; LIABILITIES</b>	<b>61,135,212</b>	<b>63,840,718</b>
<b>OTHER INFORMATION</b>		
No. of Employees	12	14
Total Employees Cost	\$476,547	\$881,990

## ACKNOWLEDGEMENT OF DONORS



The NCC Research Fund is honoured to thank and recognise the following individuals, corporations, foundations and community groups that have generously provided seed and bridge funds for translational and clinical research at the National Cancer Centre Singapore. Each gift supports research programmes that provide *hope* to our patients and their families.

<b>\$10,000,000 and above</b>	
Goh Foundation Limited	
<b>\$1,000,000 to \$9,999,999</b>	
Dr Chen Ai Ju	
New Century Foundation Limited	
<b>\$100,000 to \$999,999</b>	
Anonymous (2)	Lee Kok Wah
Boehringer Ingelheim Singapore Private Limited	National Cancer Centre of Singapore Private Limited
Chiu Teng Group Private Limited	Pengiran Muda Omar Ali
Jared Tang Jia Li	Sir Lambert Cornelis Bronsveld and Lady Bronsveld-Ngo Kim Lian
Lee Foundation Limited	
<b>\$10,000 to \$99,999</b>	
AIA Singapore Private Limited	Leong Wah Kheong and Christina Cheong
Anonymous (6)	Liberty Insurance Private Limited
AstraZeneca Singapore Private Limited	Ng Yan Mui
Chan Boon Hian	Pek Teng Beng 白德明
Cheong Fook Leong	Pontiac Land Group
Dr Ong Kong Wee	Regent Singapore
Far East Organization	Roche Singapore Private Limited
Four Seasons Hotel Singapore	Sng Gim Hong
Garth Adrian Whitehead	Tan Fuh Gih
Imelda Tanoto	Teo Chung Kee
Jennifer Loh	The Silent Foundation Limited
Kristian Tjandra	Wellspring Investments Limited
Lai San Yin William	

## "I'M GRATEFUL HE CURED ME"



"I was so lost, I felt alone", said Mdm Ang, now 58, describing her experience with late stage Liver Cancer when she was diagnosed in April 2012.

Noting abdominal pain, she visited her General Practitioner, who diagnosed the pain as stomach flu. At the same time, she signed up for a general health screening package at the clinic since she never had one.

The general screening included a Liver Function Test and Mdm Ang learned her blood level of Gamma GT cells was very high, which often indicates Liver Disease. Following the GP's advice, she underwent an ultrasound, which showed a large tumour in the liver. Tests also showed she was a chronic hepatitis B carrier.

The diagnosis surprised the wife and mother of three. Mdm Ang exercised regularly, had a healthy diet and drank only occasionally. She even had low cholesterol and low blood pressure.

Yet upon definitive imaging with CT scan, her doctors discovered at least four tumours that had filled up almost her entire liver. The largest was 14cm long; half the size of her liver. She consulted a few liver surgeons in town. Everyone said that surgical resection of the tumours would have left insufficient remnant liver and was incompatible with life. Even if there has been enough future remnant liver, surgical resection of multi-focal high volume liver cancer would have poor outcome as such cancers recur rapidly and patients would have had a very short survival. She also had not started treatment for hepatitis B yet.

In May, Mdm Ang consulted Professor Pierce Chow, an NCCS Senior Consultant Surgeon. Prof Chow discussed the case with his colleagues at the Comprehensive Liver Cancer Clinic in NCCS and arranged for her to be treated with Selective Internal Radiation Therapy (SIRT) with the radio-nuclide Yttrium-90, or Y-90. An earlier clinical trial completed by Prof Chow and his colleagues (the AHCC05 SirSa trial) had shown that SIRT shrink tumours quickly and with high efficacy. Mdm Ang remembered feeling despaired and nervous about the treatment outcome at that time.

In June, Y-90 was administered directly into the tumours in Mdm Ang's liver through the bloodstream. Her cancer responded well and shrunk in half in a few months. Because of the excellent response, the multi-disciplinary team at NCCS recommended a second administration of SIRT. Two smaller tumours were treated with radio-frequency ablation. Following her second treatment with SIRT, the largest tumour decreased to 4.9 cm. In April 2014, Prof Chow performed a partial hepatectomy to remove the remaining tumours and follow-up CT scans confirmed that she has remained cancer-free since.

"I am grateful he really cured me," says Mdm Ang, "I'm so blessed that I met him [Prof Chow]."

Today, Mdm Ang's remnant liver has grown back to full size. She is living an active life and has made significant lifestyle changes such as becoming vegetarian and removing alcohol from her diet. She has less stress and tries not to worry. Her third son is hoping to attend Medical School and become a Clinician Scientist, like Prof Chow.

"It's really wonderful, it's been four years already!" she said laughing. "Be positive and never give up. There is always new treatment and new medication. There is always a miracle."

