Lions Clubs International’s $4 million partnership with the Garvan Institute for genomic analysis of childhood cancer.

- **Delegates from Lions Clubs International Foundation in Sydney to meet with leaders at the Garvan Institute of Medical Research, Kids Cancer Centre at Sydney Children’s Hospital, Randwick and Children’s Cancer Institute to plan program for genomic analysis of childhood cancer;**
- **Three-year $4 million project will sequence the genomes of tumour and normal tissue of hundreds of Australian children with high-risk cancer;**
- **This genomic data, together with clinical information, will be held in a database that will eventually provide important information to assist pediatric oncologists and researchers across the globe in providing better treatment options for children with cancer;**
- **The Australian Lions Childhood Cancer Research Foundation is backing this project, having already committed $500,000 towards the $4 million.**

6 September 2016: A new $4 million partnership to combat children’s cancer is underway – **The Lions Kids Cancer Genome Project** will provide whole genome sequencing and analysis of tumour and normal tissue for 400 children with high-risk cancer in Australia.

Chairman of the Lions Clubs International Foundation, Dr Jitsuhiro Yamada has arrived in Sydney to meet with representatives from the Garvan Institute and leaders of the Zero Childhood Cancer Program to discuss the details of the Lions Kids Cancer Genome Project – work that will help guide treatment and allow researchers to gain greater insight into the genetic causes of different childhood cancers.

“Precision medicine based on genomic information is already being successfully applied to treating many adult cancers, and the Lions Kids Cancer Genome Project now gives children a chance to also benefit from these technological advances,” Dr Yamada said. “Lions Clubs International Foundation is proud to be supporting this extremely important research.”

A collaborative partnership, the Project brings together state-of-the-art capability in whole genome sequencing and analysis at the Garvan Institute and Australia’s national personalised medicine program in childhood cancer – the Zero Childhood Cancer Program, led by Children’s Cancer Institute and the Kids Cancer Centre, Sydney Children’s Hospital, Randwick.

The Lions Kids Cancer Genome Project was first conceived by Prof John Mattick AO (Executive Director, Garvan Institute) and Dr Joe Collins (Founding Chairman of the Australian Lions Childhood Cancer Research Foundation) in early 2015 and proposed to Australian Barry Palmer AO, a former Lions Club International President, and Dr Yamada. In May 2016, after gaining the support of the Lions Club International Foundation, Dr Yamada secured the $4 million commitment to funding required for the three year program. A neurosurgeon in his home country of Japan, Dr Yamada has a strong interest in medical research and is visiting Sydney to experience first-hand the groundbreaking work of the Garvan Institute and the Zero Childhood Cancer Program.
Mr Palmer, a longtime advocate of research to improve outcomes in childhood cancer, says the Lions Kids Cancer Genome Project aims to improve outcomes for Australian children with cancer by informing personalised cancer treatment strategies.

“It’s an incredible step we’re taking here to combat childhood cancer. The Project seeks to understand the underlying genetic drivers behind individual cancers, supporting clinicians in determining the best possible treatment for each child.

“And, importantly, the Project will also create an invaluable database of genetic risk factors that will help with the future development of prevention and treatment strategies for cancers of childhood, and other cancers.”

Whole genome sequencing examines the entire genome and its more than 20,000 genes. In the Lions Kids Cancer Genome Project, whole genome sequencing will be carried out on tumour DNA (to identify the genetic changes associated with a given cancer) as well as on DNA from normal tissue (to help identify genetic sequences that might predispose to cancer). By studying an individual’s genome, it is possible to develop personalised treatment programs that integrate this genetic information with other biological and clinical data. Genome sequencing and analysis for the Project will be carried out at the Garvan Institute’s Kinghorn Centre for Clinical Genomics, which is the largest genome sequencing facility in the southern hemisphere.

Mr Palmer said the Lions Kids Cancer Genome Project provides hope to everyone involved in a child’s cancer journey and could drive real progress in the personalised treatment of childhood cancer.

“We have an unprecedented opportunity for clinicians and researchers to take another step against the most common cause of disease-related death in Australian children. I’m delighted that Lions Clubs internationally have got behind this project in Australia. Lions have an ethos that every child deserves a chance at a healthy life. The global Lions community believes this important research will not only help children here in Australia but, ultimately, children across the world.”

Notes for editors

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September is Child Cancer Awareness Month

The problem of childhood cancer in Australia

Cancer is the most common cause of disease related death in Australian children. Every year, more than 950 children and adolescents are diagnosed with cancers, and nearly three will die from cancer every week. While 60 years ago cancer was a death sentence, and today 8 out of 10 children survive thanks to medical research, some cure rates for many childhood cancers have not improved significantly over this time. Additionally, at any one time in Australia, over 2000 children, adolescents and young adults are on
active treatment for cancer, or at risk of relapse – and in most cases, the treatments used are general, non-targeted, cytotoxic drugs that are highly toxic to normal and cancer tissues alike. The side effects from their treatment can be serious and lifelong.

Lions Clubs of Australia and childhood cancer

The Lions Clubs of Australia have a decades-long history in supporting research in childhood cancer. In 2009, the Clubs formed the Australian Lions Childrens Cancer Research Foundation (ALCCRF) to focus the efforts of Lions Australia’s 1400 clubs into one foundation with the vision of achieving 100% survival for kids with cancer. ALCCRF has developed an ethos of ‘donors without borders’ – an approach to bringing together diverse individuals, institutions and states to unite behind a common goal of eliminating deaths from childhood cancer.

What is a genome?

Your genome is the entire complement of genetic information contained within the DNA in your cells. Your genome is a combination of genetic material you have inherited from your parents, totaling more than six thousand million DNA units or bases.

The genome of a cancer cell contains changes to DNA sequence and structure. Whole genome sequencing can be used to compare the genome of a tumour cell with that of healthy tissue within an individual. Clinicians can use this genomic information to guide the use of existing treatments or to focus on more targeted treatments.

What is whole genome sequencing?

Whole genome sequencing is a laboratory technique used to determine the order of the DNA bases across the entire genome — including all of our 20,000+ genes and the regions between them.

About the Kinghorn Centre for Clinical Genomics (KCCG)

KCCG was established by Garvan in 2012 to advance the use of genomic information in patient care. KCCG was among the first sites in the world – and the first on the southern hemisphere – to acquire the Illumina HiSeq X Ten sequencing platform, which is capable of sequencing up to 18,000 whole human genomes per year. KCCG is currently undergoing assessment for clinical accreditation (ISO15189) to allow the laboratory to receive patient samples and return interpreted genomic data for diagnostic purposes to clinicians.

About Zero Childhood Cancer

The Zero Childhood Cancer Program is a national initiative of Children’s Cancer Institute and The Sydney Children’s Hospitals Network. The Program is led by scientists and clinicians from Children’s Cancer Institute and Sydney Children’s Hospital, Randwick and is one of the most exciting childhood cancer
research initiatives ever undertaken in Australia, to tackle the most serious cases of infant, childhood and adolescent cancer. [http://www.zerochildhoodcancer.org.au/](http://www.zerochildhoodcancer.org.au/)

**About Children’s Cancer Institute**

Children’s Cancer Institute is the only independent medical research organisation in Australia dedicated 100% to childhood cancer research, existing solely to cure childhood cancer and improve the quality of life for survivors. The Institute was originally known as The Children’s Leukaemia and Cancer Foundation and was established in May 1976 by a dedicated group of parents and doctors of children with cancer. Children's Cancer Institute opened its own research laboratories in 1984 and has since grown to employ nearly 200 staff and students, establishing a national and international reputation for scientific excellence. [http://ccia.org.au/](http://ccia.org.au/)

**About the Kids Cancer Centre, Sydney Children’s Hospital, Randwick**

The Kids Cancer Centre (KCC) at Sydney Children’s Hospital, Randwick has been treating children with cancer and blood diseases in NSW, Australia and the Asia-Pacific region for nearly 50 years. Almost two-thirds of children treated for cancer or leukaemia at the Centre are enrolled on clinical trials, in a unique model where research and clinical care are one, aimed at ensuring the best possible care for children and their families. During that time the survival rates for children with cancer have gone from 10 percent to nearly 80 per cent. Clinical and research staff from the Centre have made major international and national contributions to the expansion of knowledge in the area: from important discoveries around bone marrow transplantation, chemotherapy for relapsed solid tumours and leukaemia, to the invention of novel anti-cancer drug combinations and minimal residual disease (MRD) testing in ALL. Centre staff have been leaders in devising new methods of outreach and home nursing, and in developing modern approaches to the bereaved family. These achievements have been founded on academic excellence and clinical expertise. In the past five years alone, centre staff has published more than 100 papers in peer-reviewed medical and scientific journals, and have been awarded more than $40 million in competitive grant funding. Over the past 20 years, eight clinical staff has received Order of Australia honours for their work.