

EXCLUSIVE Victorian researchers' world-first breakthrough to help treat and cure 400,000 children with rare cancers

AI LEAGUE OF OUR OWN

ROBYN RILEY MEDICAL EDITOR

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Intelligent cancer 'atlas' a lifesaver for kids everywhere

World on our shoulders

EXCLUSIVE

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VICTORIAN researchers have made a global breakthrough allowing doctors to use artificial intelligence to potentially help treat and cure 400,000 children with rare cancers.

Melbourne scientists will announce today they have created the world's first Childhood Cancer Model Atlas, which experts say will become one of the most valuable resources for fight-

ing the disease. The Centre for Cancer Research at the Hudson Institute of Medical Research in Melbourne detailed the stunning innovation in the journal *Cancer Cell*.

Professor Ron Firestein, who led the team, says the atlas is the result of a global

partnership of 35 institutes and hospitals coming together to develop new treatments for childhood cancer.

It had established Melbourne as a global hub for medical researchers looking to cure childhood cancer and would "save time, save money and save lives".

The CCMA was created, using a unique collection of high-risk pediatric cancer cell lines donated by children across the world, including in Melbourne. These cell lines represent 18 of the most deadly and rare childhood

tumours and for the first time are located at one site.

Using predictive models and machine learning in the form of AI, the team has used these precious cell lines to develop precision medicine opportunities to treat brain cancers and sarcomas in

children. Professor Firestein told the Herald Sun the atlas was available to every pediatric oncologist and childhood cancer researcher

worldwide. It had its own interactive portal and was the result of seven years of investigation by the team and supported with a \$7m investment by the Children's Cancer Foundation.

A clinician-scientist, Professor Firestein said this was a lifeline for hundreds of thousands of children and their families.

In February the Herald Sun revealed the Zero Childhood Cancer Program was expected to be rolled out by the end of the year to carry out genetic sequencing on the tumours of about 1000 Australian children diagnosed with cancer each year.

"Sequencing a patient's tumour is certainly important, and is already being done with programs like Zero, but where CCMA (atlas) is different is our ability to comprehensively test the activity of tens of thousands of genetic targets and drugs to identify the next generation of medicine," Professor Firestein said.

He said AI enabled the team to find predictive features that could tell researchers and clinicians not only which therapies or drugs could work, but also which patients they would work on.

"That's really important because it ensures that each patient gets the best possible drug tailored for their cancer type" he said.

Professor Firestein said that with the success of the program, the number of patients analysed by the

team has grown exponentially, providing a treasure trove of data.

This information is then shared using an online data portal which allows communication between researchers, clinicians and patient advocates and encourages crowd-sourcing

new drugs and targets.

Professor Firestein said the CCMA enabled the real-time sharing of cancer tumour models and data, and that it was user-friendly and accessible to anyone. He said there was a desperate need to find new treatments and cures for the cancers that affected children.

One in five children with cancer do not survive, and the disease is the biggest killer of Australian children.

Details: hudson.org.au.

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Luca Boggia-Hall, 8, and (left) with mum Monique Boggia and father Baden Hall.
Pictures: Jason Edwards