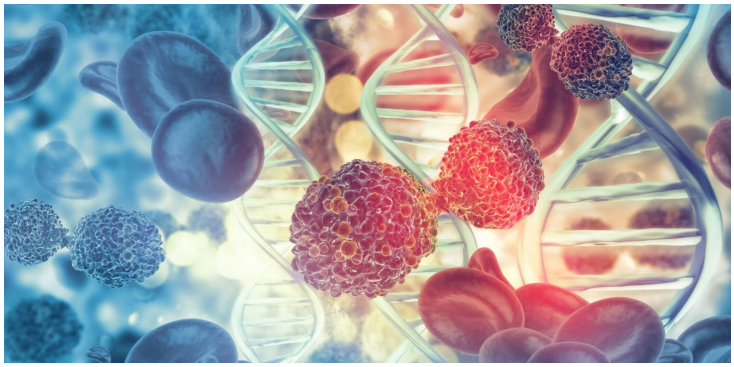
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ASIA EDITION

Australian National University gets Google funding worth $2.2 M to support cancer research

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ANU is one of 17 organisations selected globally from more than 3,000 applicants across 30 countries



The Australian National University (ANU) has been selected as a recipient of the Google.org Impact Challenge: AI for Science initiative. The research collaboration led by Dr Eli Niktab, Principal AI Engineer at the ANU National Centre for Indigenous Genomics (NCIG), will receive $2.2 million to crack the code of the biology underpinning resistance to chemotherapy drugs.

The team is creating a Cytotoxic Resistance Atlas, an open molecular map of cancer cell lines that have been shown to survive chemotherapy. Using a two-tiered AI engine they can pinpoint the genomic mechanism underpinning cancer resistance in tumour samples for hospitals and pathology labs during routine care.

The project brings together NCIG and The John Curtin School of Medical Research (JCSMR) node of the Joint Mass Spectrometry Facility at ANU; the Resistant Cancer Cell Line collection at the University of Kent; Canberra Hospital; PacBio; the Victorian Cancer Biobank; and the National Computational Infrastructure (NCI) in Canberra.

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Genomics has transformed some areas of cancer medicine, yet it still rarely tells an oncologist which conventional chemotherapy will work for an individual patient. Resistance differs markedly between individuals and tumours as cells that come under attack from a chemo drug rapidly invent new ways to thwart the treatment.

Research has identified how genetic backgrounds can change the outcome of a drug treatment for individuals. However, current tests look at a relatively small number of genes, often return no clear answer, and are not developed or tested in people with diverse genetic backgrounds.

This means the people least represented in genomic datasets, including Aboriginal and Torres Strait Islander Australians, are the least served. It's a gap in the data they were built on, not in the underlying biology of resistance.

The models will be trained onshore on Gadi, Australia's national supercomputer at the National Computational Infrastructure (NCI) in Canberra. The atlas data, the AI models and the software will be free to use for all researchers.

The long-term aim is to replace trial and error in chemotherapy selection with a molecular understanding of how an individual

patient's cancer is likely to fight back, before treatment time is lost.