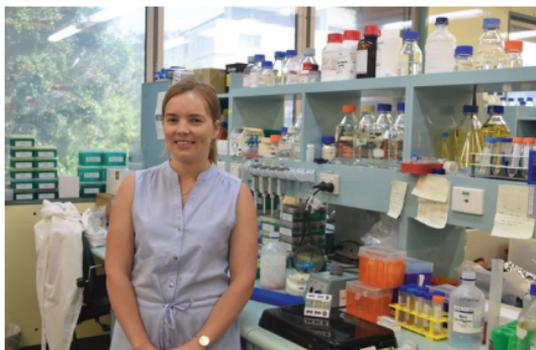


DR JESSAMY TIFFEN



"Every day in the lab holds the excitement of possibility that the next experiment may harbor the next big breakthrough that will really benefit patients suffering from cancer." Jessamy

THE IMPACT ON OUR NATION

More than 15 Australians will be diagnosed with cancer every hour this year.¹

Cancer control is a national health priority in Australia – as a disease group it has significant implications for individuals, families, communities and our national health system.

Australia's National Health Priority Areas are diseases and conditions given focused attention because of their significant contribution to the burden of illness and injury in the Australian community.²

Environmental factors such as smoking, diet, alcohol, and exposure to sunlight are believed to still outweigh genetic factors associated with cancers.

It is estimated that Melanoma was the fourth most diagnosed cancer in Australia in 2017¹ and that more than 1,800 Australians lost their lives to Melanoma last year.³

¹<https://canceraustralia.gov.au/affected-cancer/what-cancer/cancer-australia-statistics>

²<http://www.abs.gov.au>

³<https://www.melanoma.org.au/understanding-melanoma/melanoma-facts-and-statistics/>

⁴<https://www.cancercouncil.com.au/cancer-information/cancer-treatment/immunotherapy/types-of-immunotherapy>

CENTENARY INSTITUTE'S RESEARCH

In cancer research, we have specific projects for prostate cancer, liver cancer, breast cancer, pancreatic cancer, melanoma, lung cancer and leukaemia. Our research looks to improve treatment and diagnostics for all solid cancers by altering their blood supply and prohibiting the cells cancerous cells from spreading (metastasising) to new parts of the body.

WHAT DOES IT ALL MEAN?

Immunotherapy - a type of cancer drug treatment that focuses on using the body's own immune system to fight cancer. It focuses on the type of immunotherapy called checkpoint inhibitors.

Checkpoint inhibitors - On the surface of T-cells are proteins called "checkpoints" that stop the immune system from attacking cancer cells. Drugs called checkpoint inhibitors block certain proteins so the T-cells can recognise and destroy cancer cells.⁴

The epigenome - is a multitude of chemical compounds that can tell the genome what to do.

The human genome - is the complete assembly of DNA (deoxyribonucleic acid)-about 3 billion base pairs - that makes each individual unique. Epigenetic changes affect our cells and how they function and consequently our body's health - sometimes these changes are positive and sometimes they are negative.

DNA (Deoxyribonucleic acid) - is a molecule that carries the genetic instructions used in the growth, development, functioning and reproduction of all known living organisms.

Genes - are small sections of DNA within the genome that code for proteins. They contain the instructions for our individual characteristics - like eye and hair colour.

Whole genome sequencing - is the process of determining the complete DNA sequence of an organism's genome at a single time.

Genetic profiling - is information about specific genes, including variations and gene expression, in an individual or in a certain type of tissue. A genetic profile may be used to help diagnose a disease or learn how the disease may progress or respond to treatment with drugs or radiation.

In compiling the information contained in, and accessed through, this brochure ("information") the Centenary Institute has used its best endeavours to ensure that the information is correct at the time of publication but takes no responsibility for any error, omission or defect therein.