



Our mission is...

*“to improve the health and quality of life
for all Australians through
excellence in medical research”*

Centenary’s scientists are committed to research on diseases affecting Australians, such as multidrug resistance in cancer, the genetic basis of heart disease and sudden death, gene therapy for cancer, genetic and haematological disorders, allergies, asthma, childhood diabetes, inflammatory bowel disease, HIV, tuberculosis, liver disease and organ transplantation.

Sudden Cardiac Death

Most people think heart disease is a problem of old age. It isn’t. Sudden cardiac death kills 100 Australians under the age of 35 every year. With no warning signs, even athletes are targets, with some of our fittest sports stars being struck down in their prime.

Finding its cause and searching for cures is what our **Molecular Cardiology** group is all about. Recently, Centenary scientists have found several faulty genes which they have called “killer genes” that might be to blame for the severe form of the disease. They plan to develop tests that can detect people who are at risk of sudden death and invent treatments that can stop it happening

Cancer

Cancer strikes when we least expect and few families are spared but thanks to better treatments more people are surviving. However, only 1 in 5 patients survive when drugs are the main treatment option. Why? The tumours become resistant to the anticancer drugs.

Our **Cancer Drug Resistance** group is investigating drug resistance in order to improve chemotherapeutic treatments for cancer patients.

Gene Therapy

Gene therapy has the potential to treat diseases as diverse as haemophilia and cancer. Our **Gene Therapy** group aims to develop therapeutics that may one day lead to cures for cancers, heart and genetic diseases as well as degenerative diseases. This year we reported a major milestone in gene therapy by harnessing a harmless virus to transport a missing gene into the liver of men suffering from haemophilia.

Childhood Diseases

Kids and Asthma; it’s a combination that shouldn’t mix. Sadly it has become the biggest health problem facing one in six Australian kids. Centenary scientists believe the cause lies with our immune system that normally protects us against harmful bacteria and germs. Scientists believe our obsession with cleanliness leads to the immune system having less to do. With spare time on its hands the immune system can see harmless molecules like dust as dangerous infections. The result is asthma.

Just as vaccines can help equip our immune system to keep us free from disease, Centenary’s **T Cell Biology** group are looking at ways to teach it to ignore everyday things that cause no harm while remaining alert to the germs that can. They are developing a test that can predict whether someone will develop asthma. The test can also be used for other diseases in which the immune system is dysfunctional e.g. childhood diabetes.

Liver Disease

Liver disease is one of Australia's major health problems with many causes including alcohol and viruses.

Our **Liver Immunobiology** group are working on how liver disease develops and treatments that might control the disease, or prevent our body from rejecting a liver transplant when it is the chosen treatment option.

We invite you to become a member of the **Research Society** today.