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New hope for liver patients

Clinicians from Royal Prince Alfred Hospital and the Centenary Institute have discovered a cell which plays a vital role in preventing harmful microbes from spreading throughout the body by accessing the liver.

About 20 Australians die from liver disease each day, with liver cancer the fastest-growing cause of cancer death in Australia.

David Bowen, Patrick Bertolino and Geoff McCaughan have published their work in the prestigious journal *Immunity*.

“These cells act like sentinels; they display arm-like features able to sense dangerous pathogens or microbes in their environment,” said Associate Professor Bertolino.

“When harmful microbes are detected, the same cell recruits an army of white blood cells that destroy the invaders before they cross the liver’s outer membrane and disseminate in the body.”

The newly discovered cell’s role in protecting the liver is significant because from the liver, disease can spread rapidly, said Associate Professor Bowen.

“With each heartbeat, a fifth of our blood goes through the liver, so gut bugs can be carried into the body via the liver. This is why the liver’s ability to fight disease is vitally important.”

This discovery is considered so important because the liver plays a vital role in fighting, not just liver disease, but all diseases.

Microbes can enter our system through the nose as we breathe them in, through the food we eat and also via our blood stream, from mosquitoes, for example.



Dr Geoff McCaughan in a consult with patient Graeme Plater

The liver, a highly vascularised detoxification organ, is critical to clear blood borne pathogens. Those associated with food, such as listeria, can also enter the body by breaching the gut barrier and by directly accessing the liver outer membrane from the abdominal cavity.

The way in which the liver prevents dissemination of these pathogens has been unclear until now.

This significant milestone will deepen scientific knowledge of how the liver effectively fights disease and the new discovery is likely to inform future investigations into the battle against liver disease and liver cancers.

For Graeme Plater, a routine blood test uncovered advanced liver disease.

The grandfather of six was given a liver transplant, currently the only effective treatment for liver disease and cirrhosis. He is now hopeful that there will soon be more options for patients.

The ground-breaking study also involved the Singapore Immunology Network, the University of Sydney and the University of Sydney.

About 20 Australians die from liver disease each day, with liver cancer the fastest-growing cause of cancer death in Australia.

“Now that this cell has been discovered, further tests need to be carried out to fully understand the role and how it can be targeted to treat conditions such as liver disease and liver cancer.

This discovery will likely lead to the development of better treatments for patients”, says Associate Professor Bertolino.

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