



Media Statement

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Researchers identify how new type of immune cells are first line of defence in body's fight against viral infection

New research has shown how a recently identified sub-set of immune cells act as the body's first responders to viral infection.

In a collaboration with Memorial Sloan Kettering Cancer Center in New York, researchers at the Lions Eye Institute (LEI) in Perth found that tissue-resident type 1 innate lymphoid cells (ILC1s) serve an essential early role in fighting infection through rapid production of an important anti-viral protein.

The findings, recently published in the highly-prestigious journal *Cell*, challenge the belief that the body's immune response to viral infection is primarily dealt with by other well described immune cells.

The LEI's Dr Iona Schuster said ILC1s had only been identified and described in the last few years and their role in the immune response to viral infection had not been well understood until now.

"This paper is the first time we've managed to show that ILC1s play a really important role in the early response to viral infection," Dr Schuster said.

"They're like the foot soldiers, they are present in a tissue for immediate surveillance and when a virus comes in, following activation signals from other cells in the tissue,

they respond extremely fast and execute a previously unappreciated protective function.

“They help control viruses before the big guns – other immune lymphocytes known as natural killer cells and T cells – are recruited into battle to completely eliminate the infection.”

Dr Schuster said a better understanding of ILC1s could lead to better management of viral infection in future.

“This is fundamental discovery research that improves our understanding of how the immune system functions in response to external challenges. Understanding how and when these immune cells respond is essential to design therapies that harness these responses therapeutically,” she said.

LEI Director of Research Professor Mariapia Degli-Esposti said ongoing studies were examining the role of this new cell population in responses to infection at other barrier sites, such as the eye, and were also investigating the role they play in response to malignancy.

“These are pioneering studies and the future is very exciting as this research is putting a missing piece in the puzzle that will lead to major changes in understanding and controlling viral infection and cancer,” she said.

Dr Schuster has continued to collaborate with Professor Joseph Sun and his team, especially Dr Tim O’Sullivan, at the Memorial Sloan Kettering Cancer Center after winning the \$10,000 Healy Collaborative Research Award, which is administered by the Raine Medical Research Foundation.

To read the full research paper, visit [http://www.cell.com/cell/fulltext/S0092-8674\(17\)31183-2](http://www.cell.com/cell/fulltext/S0092-8674(17)31183-2)

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