

Scientists prove link between viral infection and autoimmune disease

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Common viral infections can pave the way to autoimmune disease, Australian scientists have revealed in breakthrough research published internationally today.

Professor Mariapia Degli-Esposti, from The University of Western Australia and the Lions Eye Institute, said the research proved a link between [chronic viral infection](#) and autoimmune disease.

"This is a very significant discovery because we now know more about the pathways that lead to disease," Professor Degli-Esposti said.

Published in the leading journal *Immunity*, the Australian research found that chronic cytomegalovirus (CMV) infection could lead to the development of Sjogren's (SHOW-grins) syndrome.

CMV - a member of the herpes family - is a common viral infection that causes mild flu-like symptoms in healthy people but can lead to more serious illness in those with compromised immune systems.

Between 50 and 80 per cent of people in developed countries are infected with CMV. Although normally innocuous, given the right genetic background, chronic viral infection with CMV can trigger autoimmunity.

"Sjogren's syndrome (SS) is the second most common autoimmune disease in humans, affecting up to three per cent of the population or more than four million people in the United States alone," Professor Degli-Esposti said.

"It affects the function of salivary and lacrimal glands and leads to a debilitating disease characterised by the loss of saliva and tear production."

Overwhelmingly, it is a disease suffered by women, with most symptoms of the disorder emerging in the 40 to 60 year age group.

There are two forms - primary Sjogren's syndrome, defined as a dry eye and mouth that occurs by itself - and secondary Sjogren's syndrome, with the same symptoms occurring in those with a major underlying disease such as rheumatoid arthritis or systemic lupus.

"In our model of SS we have been able to dissect the exact cellular and molecular mechanisms that lead to the development of this common autoimmune disease," Professor Degli-Esposti said.

"We have now gained critical insights into the pathways that need to be targeted to provide improved treatments for a common and debilitating human condition."

Professor Degli-Esposti said this new research was highly significant because it had identified a cause of SS, and in doing so, demonstrated a novel, unknown function of an immune cell population.

"Up until now, research in this area has been speculative and animal models have been extremely limited," she said.

"This research gives us new understanding and offers the hope of improved and better targeted therapeutic treatments into the future."

Provided by University of Western Australia

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