

Breakthrough: study links Type 1 diabetes and Sjogren's syndrome

Australian scientists have identified a new group of immune cells that for the first time directly link two autoimmune diseases, Type 1 diabetes and Sjogren's syndrome.

Autoimmune diseases arise when the body's defences become overactive, and instead of attacking invading microbes, it starts to attack itself. In the case of Type 1 diabetes, the body attacks insulin-producing cells in the pancreas. In the case of Sjogren's syndrome, it attacks its own salivary glands.

Drs Cecile King and Helen McGuire, from Sydney's Garvan Institute of Medical Research noted particularly high numbers of a unique immune cell in the affected organs of mice with Type 1 diabetes and Sjogren's syndrome.

In collaboration with Associate Professor David Fulcher from Sydney's Westmead Hospital, very high levels of these same cells were found in patients with Sjogren's syndrome.

The newly identified population of cells is a sub-class of 'T helper cells', white blood cells that help other immune cells perform their tasks. Dr King is calling them 'TCCR9 cells' as they are distinguished from other T helper cells by their co-expression of two molecules: interleukin-21 (IL-21) and a cell surface receptor that is switched on when cells migrate through the gut (CCR9). Her findings are published in the prestigious international journal *Immunity*, now online.

"We know from our research in mice that if you target these cells, you can completely prevent immune mediated destruction of the salivary glands and pancreas," said Dr King.

"In other words, you can prevent mice that are genetically programmed to develop Sjogren's syndrome and Type 1 diabetes from ever developing those diseases."

"You find these cells in the gut, but there are very few of them in other parts of the body of a healthy person. When the body shifts into disease mode, TCCR9 cells are activated in the gut, and then disseminate to the accessory organs of the digestive system – the pancreas and salivary glands. Exactly what triggers that process remains unclear."

"When we looked at 15 patients with Sjogren's syndrome, we found there was a fivefold increase of these cells in their blood. While very interesting, we would need to analyse a much larger cohort for this figure to signify a general trend."

"So we intend to extend our study of patients with Sjogren's syndrome, as well as establish whether or not there are similarly expanded populations of these cells in people with Type 1 diabetes. This will determine whether these cells could become a biomarker of disease as well as a therapeutic target for patients with both with Type 1 diabetes and Sjogren's syndrome."

Article supplied courtesy of The Garvan Institute



Research into diabetes plays a key role in understanding the development of diabetes related complications, the risk factors associated with developing diabetes and brings closer the real possibility of preventing diabetes. With your help we can undertake research at a much faster pace, we thank you for your participation.

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