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Media Statement

WA TEAM DISCOVERS HOW STATINS SPARK TYPE 2 DIABETES

West Australian scientists have secured new funding to explore a discovery that could reduce cases of type 2 diabetes linked to the use of cholesterol-lowering statin medications.

The team of Curtin University researchers, led by Professor Fergal O’Gara, has found in a new mouse study that statins drive changes in the body’s gut bacteria, which can trigger the development of type 2 diabetes.

“The beneficial gut bacterial population is collectively referred to as the ‘microbiome’ and its importance to our health status has only recently come to prominence in the medical world,” said Professor O’Gara.

“Our microbiome is now being referred to as the equivalent of a new organ in the body that also needs to be managed and protected.”

Independent studies have reported up to a 12 percent increase of new type 2 diabetes cases among patients taking statins but – until now – the cause has been a mystery.

“Our work has demonstrated for the first time profound changes in the microbial composition of the gut following statin treatment and in our study mice experienced higher fasting blood glucose levels and weight gain,” said Professor O’Gara.

“We discovered the changes in gut bacteria were linked to the activity of a key protein receptor called PXR which is known to be involved in lipid and glucose metabolism. Both of these pathways are also altered in type 2 diabetes.”

Professor O’Gara said the Curtin team would use a new \$80,000 grant from Diabetes Research WA, the state’s peak diabetes research funding group, to investigate how the PXR and gut bacteria axis is modulated during statin use.

“As part of this research, we’ll also investigate ways to prevent these negative effects which may ultimately lead to the development of new probiotic-type therapeutics to counteract the negative impact of the statin,” he explained.

“We are very excited about this work because we believe that a full appreciation of the role of the gut microbiome has not been adequately factored into the complex puzzle with regards to type 2 diabetes research.”

Diabetes Research WA executive director Sherl Westlund said with statins in common use in Australia amongst those with or at high risk of cardiovascular disease and rising rates of type 2 diabetes impacting families across the country, it was important research such as this was supported.

“This work also has the potential to reduce not only cases of statin-induced type 2 diabetes but type 2 rates on the whole by understanding more about the PXR protein and its relationship with the cell factory in the gut,” she said.

The first phase of the team’s research has been published* in the highly respected international research journal, BMC Microbiome.

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The research team is now recruiting West Australians with pre-diabetes for a trial as part of this research.

To find out more about the study, contact jose.caparros-martin@curtin.edu.au.

Diabetes Research WA, based at Royal Perth Hospital, was established in 1976 to stimulate research into diabetes in Western Australia and has distributed more than \$5.8 million dollars for this work.

For information, please visit www.diabetesresearchwa.com.au or call (08) 9224 1006.

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*<https://www.ncbi.nlm.nih.gov/pubmed/28793934>

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