

Type 1 diabetes linked to immune response to wheat

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Scientists at the Ottawa Hospital Research Institute and the University of Ottawa have discovered what may be an important clue to the cause of type 1 diabetes. Dr. Fraser Scott and his team tested 42 people with type 1 diabetes and found that nearly half had an abnormal immune response to wheat proteins. The study is published in the August 2009 issue of the journal *Diabetes*.

Early in life, the immune system is supposed to learn to attack foreign invaders such as viruses and bacteria, while leaving the body's own tissues and harmless molecules in the environment alone (including food in the gut). When this process goes awry, autoimmune diseases and allergies can develop. [Type 1 diabetes](#) is an autoimmune disease that occurs when the immune system mistakenly attacks the pancreas, the organ that regulates blood sugar. Dr. Scott's research is the first to clearly show that [immune cells](#) called [T cells](#) from people with type 1 diabetes are also more likely to over-react to wheat. His research also shows that the over-reaction is linked to genes associated with type 1 diabetes.

"The immune system has to find the perfect balance to defend the body against foreign invaders without hurting itself or over-reacting to the environment and this can be particularly challenging in the gut, where there is an abundance of food and bacteria," said Dr. Scott, a Senior Scientist at the Ottawa Hospital Research Institute and Professor of Medicine at the University of Ottawa. "Our research suggests that people with certain genes may be more likely to develop an over-reaction to wheat and possibly other foods in the gut and this may tip the balance with the [immune system](#) and make the body more likely to develop other immune problems, such as type 1 diabetes."

In a commentary accompanying the paper, diabetes expert Dr. Mikael Knip of Finland said "These observations add to the accumulating

concept that the gut is an active player in the diabetes disease process."

Dr. Scott's previous research has shown that a wheat-free diet can reduce the risk of developing diabetes in animal models, but he notes that more research will be required to confirm the link and determine possible effects of diet changes in humans. Research is also needed to investigate links with celiac disease, another autoimmune disease that has been linked to wheat.

Source: Ottawa Hospital Research Institute

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