

Research finding could lead to new therapies for patients with gluten intolerance

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Researchers at McMaster University have discovered a key molecule that could lead to new therapies for people with celiac disease, an often painful and currently untreatable autoimmune disorder.

Celiac disease is a [food](#) sensitivity to dietary [gluten](#) contained in cereals. In people who are genetically predisposed, gluten containing food will trigger an immune response that leads to destruction of the intestinal lining, abdominal pain, changes in bowel habits, malnutrition and many other symptoms that include anemia, and neurological problems.

People with this disease cannot eat food containing wheat, rye or barley, which is a main source of protein intake in the western diet.

Researchers in the Farncombe Family Digestive Health Research Institute at McMaster University have discovered that a molecule, elafin, which is present in the intestine of healthy individuals, is significantly decreased in patients with [celiac disease](#). The research was published in *The American Journal of Gastroenterology*.

When people with celiac disease eat food containing gluten , the digestive enzymes cannot digest it, and left over peptides from digestion induce inflammation. This inflammation is further amplified by an enzyme called tissue transglutaminase 2.

An intriguing finding of the research, say scientists, was that elafin, by interacting with the transglutaminase 2 enzyme, decreased the enzymatic

reaction that increases the toxicity of peptides derived from gluten. In studies with mice, the researchers found that the administration of the elafin molecule protects the intestinal lining of the upper gut that is damaged by gluten.

Following a gluten-free diet is very difficult, because gluten is used not only in the food industry but in the cosmetic and pharmaceutical industries as a common, low cost filler.

"People who have to strictly avoid gluten for life often find this very difficult due to these hidden sources," said Elena Verdu, associate professor of Medicine in the Michael G. DeGroote School of Medicine. "There is a great need for a therapy that will protect patients with celiac disease from these accidental contaminations."

Verdu says the results raise the possibility of elafin administration or replacement as a new adjuvant therapy to the [gluten free diet](#). "This would add flexibility to a restrictive lifelong diet, and increase patients' quality of life and potentially accelerate the healing of celiac lesions."

The research has implications beyond celiac disease.

Recently, [gluten intolerance](#) has been reported in patients who do not have celiac disease (non-celiac gluten sensitivity).

Development of new therapies such as this one could help in the management of common gastrointestinal disorders such as irritable bowel syndrome that could be also triggered by wheat containing food.

Provided by McMaster University

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