



FOR IMMEDIATE RELEASE

New Research Published in *Nature Structural and Molecular Biology* Shows How Wheat Activates the Immune Response to Gluten in Celiac Disease

Research Highlights ImmusanT's Approach to Restoring Tolerance to Gluten

CAMBRIDGE, Mass. — April 29, 2014 — [ImmusanT](#), a company focused on restoring tolerance to gluten and overcoming the need for gluten-free diet in patients with celiac disease, today announced that an article published online in the journal, *Nature Structural and Molecular Biology*, features research findings showing the molecular basis for immune recognition of gluten in patients with celiac disease. ImmusanT's collaborators in Australia, Monash University's Jamie Rossjohn, Ph.D., and Hugh Reid, Ph.D., led the study, along with the company's chief scientific officer, Bob Anderson, M.D., Ph.D. The international team also included Frits Koning, Ph.D., from the Leiden University Medical Center in the Netherlands.

"This study allows us to visualize how T cells in patients with celiac disease recognize the key component of wheat gluten that triggers celiac disease," commented Dr. Anderson. "The results of this study demonstrate the target for ImmusanT's approach to treating celiac disease — the molecular interaction that links dietary gluten to a discrete population of T cells, which can bind precisely to certain gluten peptides. These findings deepen basic understanding of T cells in celiac disease and autoimmune disease and will enable us to continue making progress in the development of treatments for this condition."

When a person with celiac disease consumes gluten, the individual's immune system responds by triggering T cells to fight the offending proteins, damaging the small intestine and inhibiting the absorption of important nutrients into the body. The vast majority of those who suffer from celiac disease, or approximately 90 percent of the worldwide patient population, carry the HLA-DQ2.5 immune recognition gene. Today's research findings show how T cells bind to the molecular complex formed by the gluten peptide attached to HLA-DQ2.5. This interaction is fundamental to the immune reaction to wheat gluten and related proteins found in rye and barley, in patients who carry the gene for HLA-DQ2.5.

"The research findings published today confirm what we suspected was happening on a molecular level to the majority of patients with celiac when they ingest gluten," said Leslie Williams, president and chief executive officer of ImmusanT. "Our lead candidate, Nexvax2[®], which is composed of peptides that bind to HLA-DQ2.5, targets gluten-specific T cells and reprograms them so that they act as allies instead of enemies, which means we are intervening right where the problem begins for patients at the molecular level."

Nexvax2 is a therapeutic vaccine designed to restore immune tolerance to gluten and allow patients to resume an unrestricted diet. ImmusanT is also developing a toolbox of biomarkers including a proprietary, functional T cell test for use both as a standalone diagnostic for celiac disease and as a monitoring tool for Nexvax2.

Visit the [Nature Structural and Molecular Biology website](#) to access the entire article.

About Celiac Disease

Celiac disease is a T cell-mediated autoimmune-like disease triggered by the ingestion of gluten from wheat, rye, barley and sometimes oats in genetically susceptible individuals. A gluten-free diet is the only current medical treatment for this disease. The community prevalence of celiac disease is 0.7 percent in the U.S., but 83 percent of cases go unrecognized. When a person with celiac disease consumes gluten the individual's immune system responds by triggering T cells to fight the offending proteins, damaging the small intestine and inhibiting the absorption of important nutrients into the body. With no available drug therapy, the only option for the approximately one percent of the global population that has celiac disease is to eliminate gluten from the diet. Compliance is often challenging, and nearly half the people on the strict elimination diet still have residual damage to their small intestine.

Undiagnosed, celiac disease is a major contributor to poor educational performance and failure to thrive in children. Untreated disease in adults is associated with increased risk of fractures and osteoporosis, problems during pregnancy and birth, short stature, dental enamel hypoplasia, dermatitis, recurrent stomatitis and cancer.

About ImmusanT Inc.

ImmusanT is a privately-held biotechnology company focused on restoring tolerance to gluten in celiac disease by harnessing new discoveries in immunology that aim to improve diagnosis and treatment and return patients to a normal diet, good health and improved quality of life. The company is developing [Nexvax2[®]](#), a therapeutic vaccine for celiac disease, and a companion diagnostic and monitoring tool to improve celiac disease management. ImmusanT's targeted immunotherapy discovery platform can be applied to a variety of epitope-specific autoimmune diseases. Founded in 2010, ImmusanT is backed by Vatera Healthcare Partners. More information may be found at www.ImmusanT.com, or follow [ImmusanT](#) on Twitter.

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