

# **Intestinal Permeability and Auto-immune Disease**

***WG Bradford, MD, MPH***

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The immune system is headquartered around the intestinal tract (70% of it is located there to guard the body from infections). Inflammation in the intestinal wall can be caused by intestinal infections (such as intestinal parasites or pathogenic bacteria) or food sensitivity reactions (especially from Gluten in wheat and some other grains). This inflammation has been shown to cause abnormal leaks between the cells in the bowel wall (Intestinal Permeability, or "Leaky Gut"). This leakage allows molecules from the intestinal contents to leak through the wall into the immune system that is "guarding the gate" there (against any penetration by partially-digested food molecules, bacterial breakdown products, waste material, etc).

The immune system is designed to defend the rest of the body from any "invaders". Immune cells (lymphocytes) are activated by this alarm process (this is how vaccines work), and go through the bloodstream looking for similar suspects elsewhere in the body (like a police force). In autoimmune diseases, an inherited type of molecule on the cells of some part of the body looks similar (an inherited molecular pattern that the immune cells recognize), so these lymphocytes attack there trying to destroy the "invaders" (mistaken identity). The result is autoimmune disease of that tissue.

NOTE: The abnormal molecules activating the immune system may not be related to the intestinal infection or sensitizing food-molecules at all. They could be any molecules in the intestinal contents, but the inflammation-induced leakage between the intestinal cells lets everything else in through the "gate" (like an intravenous infusion of your intestinal contents!). This process cannot be repaired without identifying and eliminating the cause of the inflammation, healing the intestinal wall, and replacing the beneficial bacteria (probiotics) that help the immune system defend against the outside world.

Drug treatment of autoimmune diseases is designed to suppress the immune system so it can't do its "defense job" of attacking "invaders" (in this case, by mistaken identity, hitting the wrong target). This drug treatment unfortunately leaves the body more vulnerable to getting other problems such as cancer or serious infections, where you need a strong immune system for defense. (Anti-immune drugs all carry "Black-Box" warnings from the government to be aware of these hazards.)

Although anti-immune drug treatment suppresses the inflammatory attack against the target part of the body (and other immune functions that you need for good health), it does not address the cause, intestinal permeability. It does not identify and eliminate whatever is triggering the intestinal permeability, or repair the intestinal damage, or restore normal bacterial balance that your immune system needs for healthy function. (About 5000 scientific papers have been published on intestinal permeability in recent years.)

# Leaky Gut and Autoimmune Diseases.

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## **Source**

Mucosal Biology Research Center, University of Maryland School of Medicine, Baltimore, MD 21201, USA.  
[afasano@mbrc.umaryland.edu](mailto:afasano@mbrc.umaryland.edu)

## **Abstract**

Autoimmune diseases are characterized by tissue damage and loss of function due to an immune response that is directed against specific organs. This review is focused on the role of impaired intestinal barrier function on autoimmune pathogenesis. Together with the gut-associated lymphoid tissue and the neuroendocrine network, the intestinal epithelial barrier, with its intercellular tight junctions, controls the equilibrium between tolerance and immunity to non-self antigens. Zonulin is the only physiologic modulator of intercellular tight junctions described so far that is involved in trafficking of macromolecules and, therefore, in tolerance/immune response balance. When the zonulin pathway is deregulated in genetically susceptible individuals, autoimmune disorders can occur. This new paradigm subverts traditional theories underlying the development of these diseases and suggests that these processes can be arrested if the interplay between genes and environmental triggers is prevented by re-establishing the zonulin-dependent intestinal barrier function. Both animal models and recent clinical evidence support this new paradigm and provide the rationale for **innovative approaches to prevent and treat autoimmune diseases**.