

Discussion Meeting #8



[Is Gluten Sensitivity Real? A Critical Look \(healthline.com\)](#)

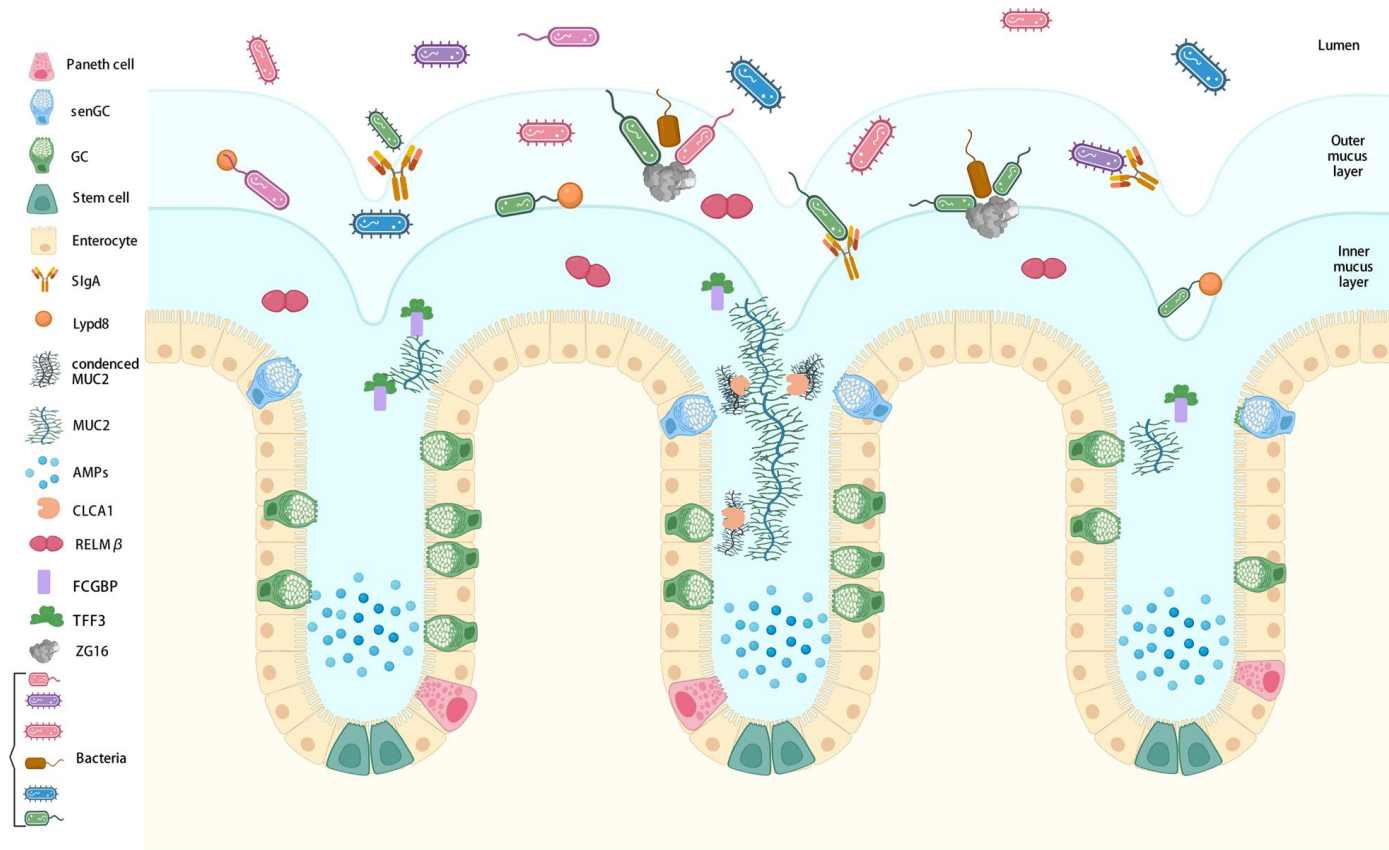
[Non-celiac wheat sensitivity: rationality and irrationality of a gluten-free diet in individuals affected with non-celiac disease: a review - PMC \(nih.gov\)](#)

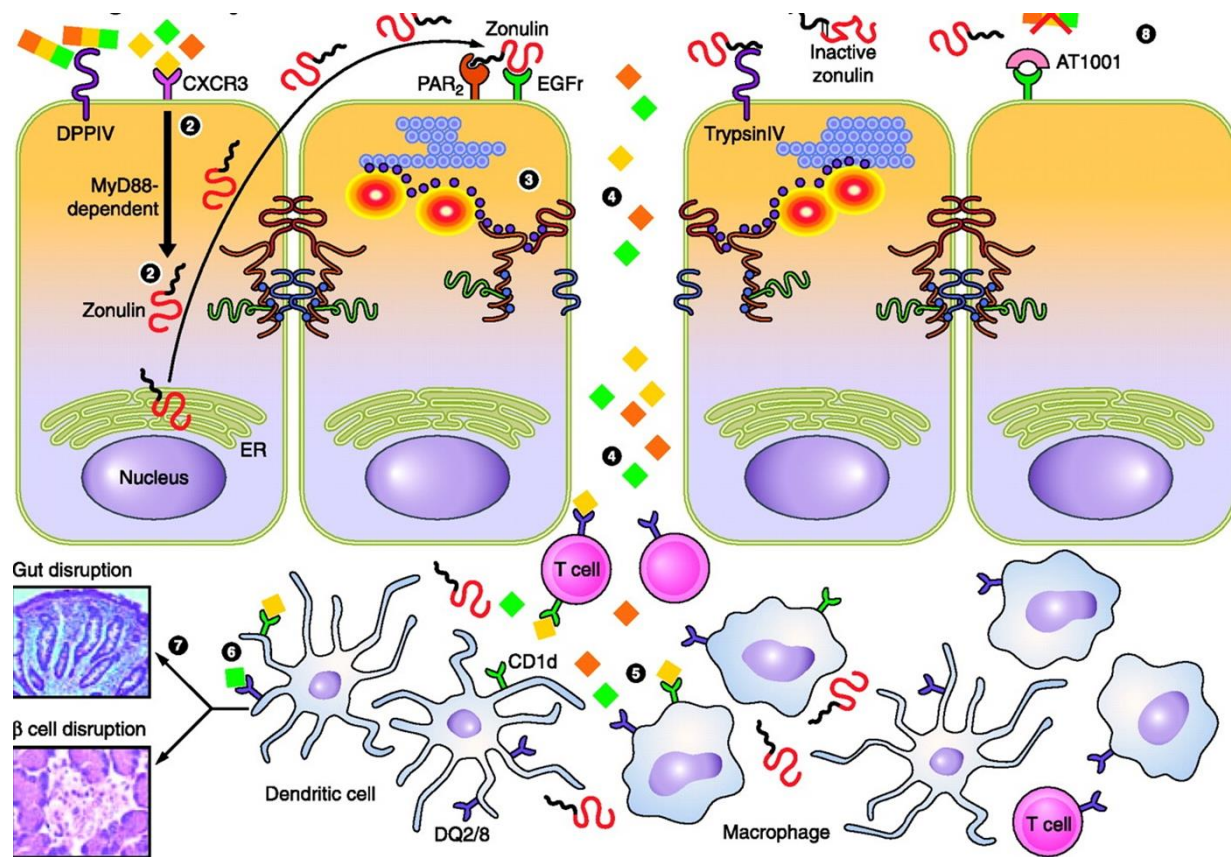
<https://www.nature.com/articles/s12276-023-00960-y>

[From coeliac disease to noncoeliac gluten sensitivity; should everyone be gluten free? - PubMed \(nih.gov\)](#)

[What's really behind 'gluten sensitivity'? | Science | AAAS](#)

[What's So Bad About Gluten? | The New Yorker](#)





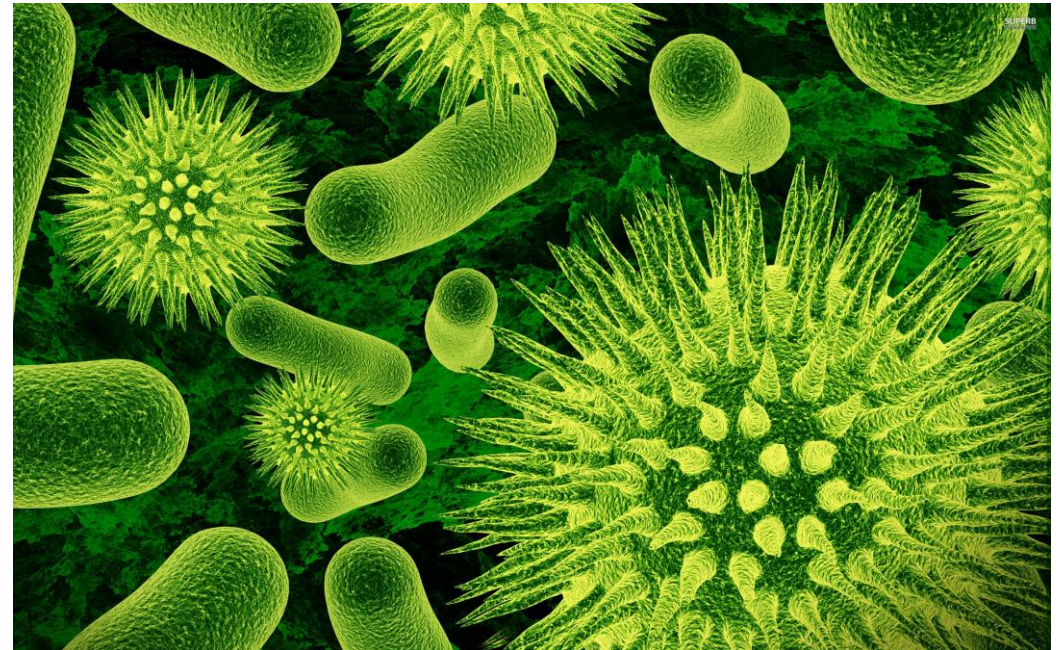
What Researchers Have Found

Oral bacteria produces proteolytic enzymes in the mouth

Gluten digestion begins there (and perhaps other types of protein)

Celiacs do have different enzymes that healthy controls and these are more elevated

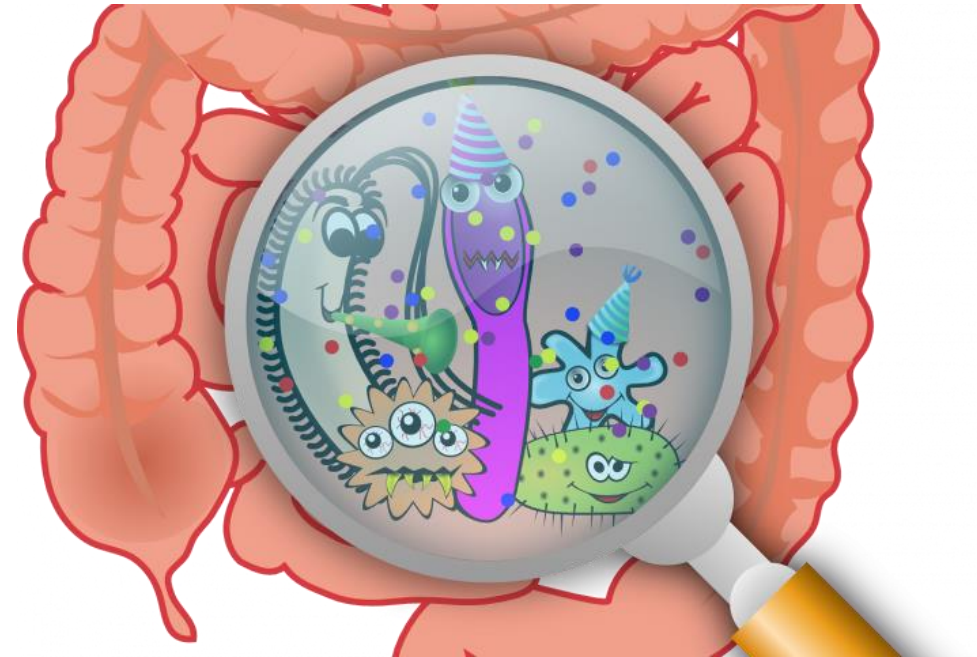
Researchers are not sure what this means for celiacs and the development of the disease



Small Intestines

Researchers have investigated the role of gut bacteria in small intestines

They found that 114 bacterial strains belonging to 32 species were isolated; 85 strains were able to grow in a medium containing gluten as the sole nitrogen source, 31 strains showed extracellular proteolytic activity against gluten protein and 27 strains showed peptidolytic activity towards the gliadin 33 mer peptide, an immunogenic peptide for celiac disease patients



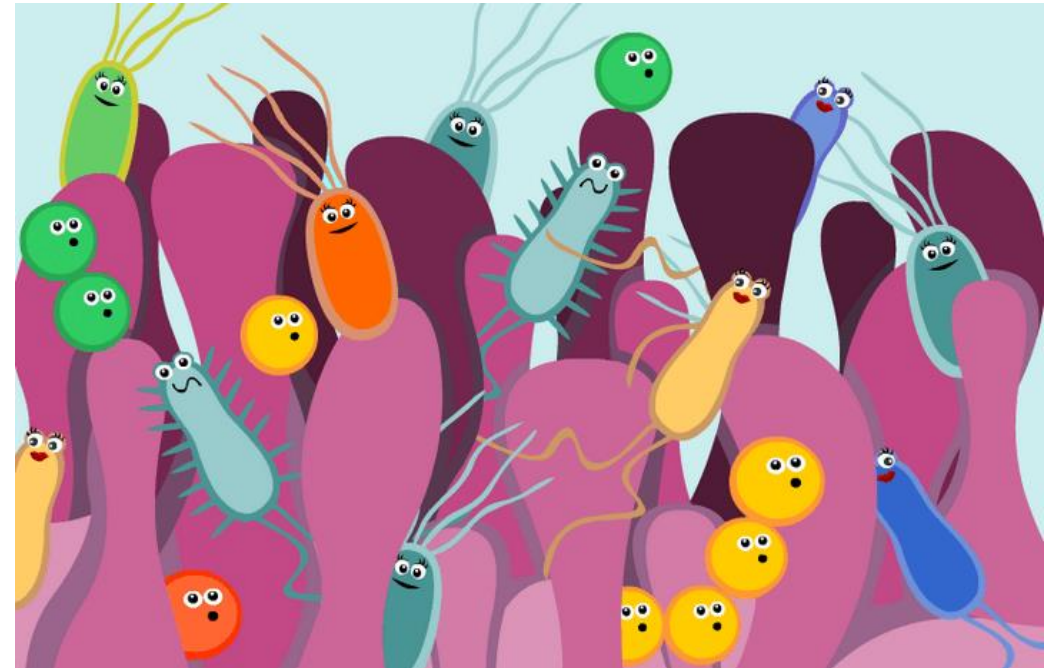
Large Intestines

22 human faecal samples were cultured with gluten as the principal nitrogen source,

144 strains belonging to 35 bacterial species that may be involved in gluten metabolism in the human gut were isolated.

94 strains were able to metabolize gluten,

61 strains showed an extracellular proteolytic activity against gluten proteins



Several strains showed a peptidasic activity toward the 33-mer peptide, an immunogenic peptide in coeliac disease patients.

Most of the strains were classified within the phyla Firmicutes and Actinobacteria

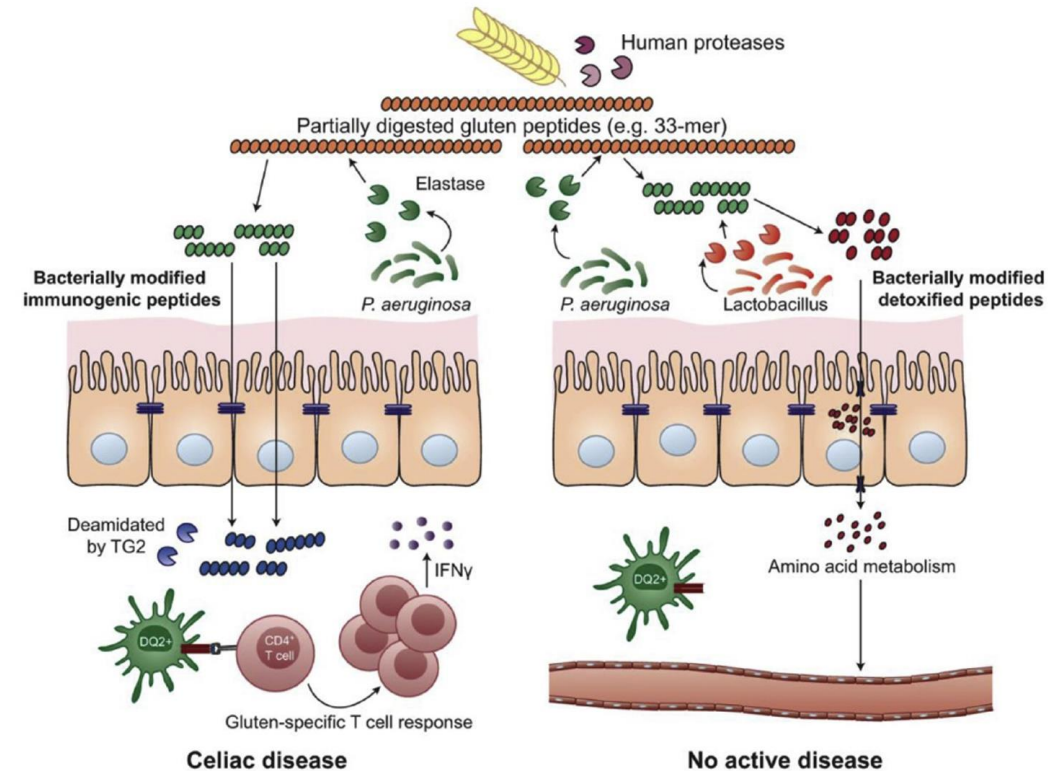
Mainly from the genera *Lactobacillus*, *Streptococcus*, *Staphylococcus*, *Clostridium* and *Bifidobacterium*.



Bad Bacteria

Pseudomonas aeruginosa, an opportunistic pathogen in the small intestine, which was unique to celiac disease patients.

In vitro, that *P. aeruginosa*, through its elastase activity, degrades gluten to produce immunogenic gluten peptides that can stimulate gluten-specific T cells from HLA-DQ2 celiac disease patients.



Credit: Caminero et al./

What Does This Means

Gluten has a role to play for the bacteria through the whole system

The reason it may not complete degrade in the small intestines is that is it also used in the large intestine

The partial gluten molecules that make it to the colon are needed for the nitrogen that helps stimulate the feeding of the bacteria

In turn the bacteria feed on it and degrade it

Can be good strains or bad



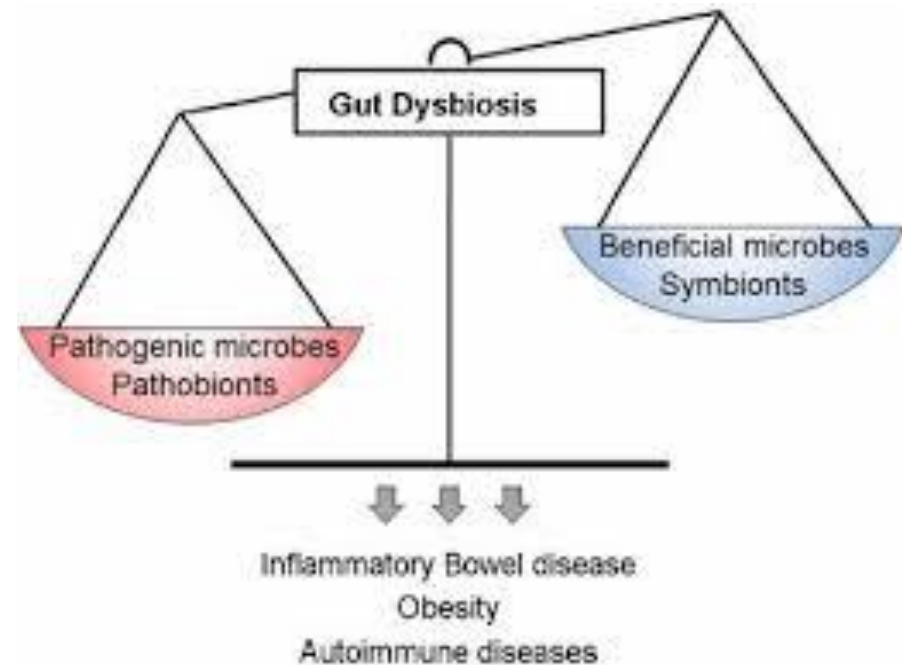
In Celiac's – gluten-degrading bacteria may be doing too much in the small intestines – degrading it to gliadin

Perhaps it is supposed to be a larger molecule to be fully degraded in the colon

Researchers don't know yet.

Dysbiosis is present in Celiac's and those with gluten issues

So just like many carbs – gluten can be aiding the bad instead of the good.



Limits to Research

Research study conclusions are not facts

At best, they provide a piece to the puzzle

It is important to not overstate the results

Researchers are conservative

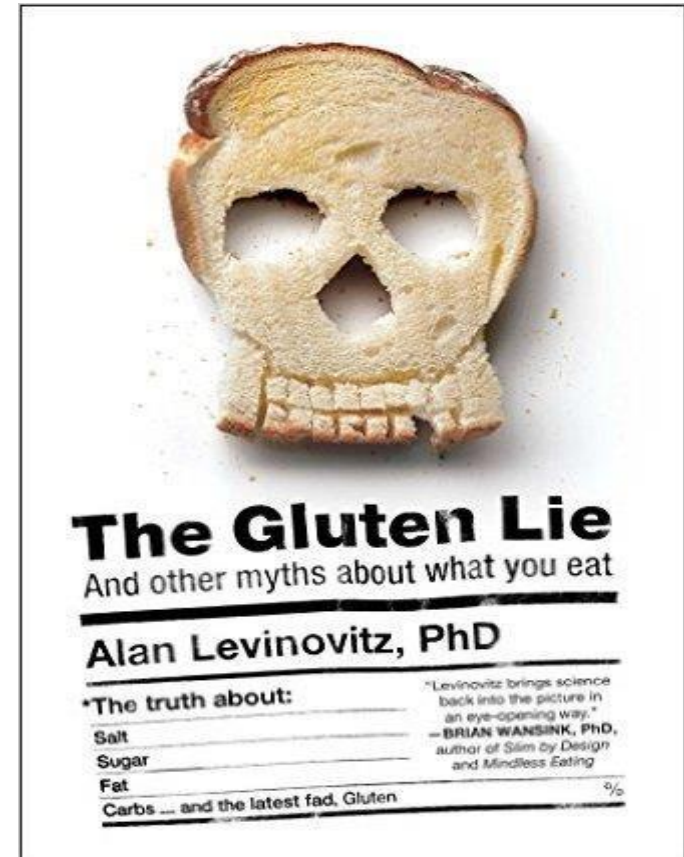
We live in an age where small research results are blown up into huge theories and presented as facts



The Gluten Lie

And Other Lies About What You Eat by
Alan Levinovitz

Fascinating book about *“debunking the myths that dominate the American diet and showing readers how to stop feeling guilty and start loving their food again—sure to ignite controversy over our obsession with what it means to eat right.”*



Keep an Open Mind

We are easily influenced – most never check out or question what they hear or read

Monash University found in a placebo, double blind study all groups reported worsening of symptoms including the placebo group leading researchers to conclude no correlation with gluten and NCGS



There are other studies like this that shows how easily influenced people are.

Research is going to continue to expand what we know about gut bacteria and gut function

Supplements will get more targeted

We just have quite away to go

