

GLUTEN MANAGER™ GLUTEN DIGESTIVE ENZYMES*

It is estimated that up to 10% of people are sensitive to dietary gluten. A number of individuals have been prescribed a gluten-free diet or have removed gluten from their diet for a variety of health-related reasons. Gluten can cause immunological and unwanted opioid-like effects on the nervous system of sensitive individuals. Avoiding dietary gluten can be a challenge, even for those who diligently apply knowledge of recipes, ingredients, and food preparation methods. Incidental gluten exposure for those following a gluten-free diet routinely occurs, most often when the cooking methods or ingredients are largely unknown. In a study of individuals with very high sensitivity to gluten that were following a gluten free diet, 66% suspected unintended exposure.⁷

Gluten is a protein found naturally in wheat, barley, and rye. This protein is proline-rich which means the gluten peptide resists gastrointestinal digestion. Typically, smaller proteases are the type of enzymes used by the body to break down proteins. One such protease, prolyl endopeptidase, will cleave internal gluten peptide bonds*. Another protease, exopeptidase hydrolyze the terminal bonds of a polypeptide. Used together, an endopeptidase and an exopeptidase will hydrolyze the bonds resulting in a smaller proline peptide chain that can be more completely digested*.

ENDOPEPTIDASE



EXOPEPTIDASE



Gluten Manager™ has dual mechanism-of-action that hydrolyzes gluten at both the middle and end of the gluten molecule through the use of prolyl endopeptidase (Tolerase® G) and standardized dipeptidyl-peptidase IV enzyme activity (DPP-IV)*†. The use of both types of digestive enzymes degrades the proline peptide into smaller chains*.

† Theoretical mechanism of action using Tolerase® G & DPP-IV*



†THEORETICAL MECHANISM OF ACTION USING TOLERASE® G AND DPP-IV*



GLUTEN MANAGER™

What makes Gluten Manager™ so special?

- Gluten Manager™ is designed to support individuals following a gluten-free diet.*^{1,5}
- A proprietary, dual mechanism-of-action enzyme formula hydrolyzes gluten at both the middle and end of the gluten molecule.*^{11,2,3,4}
- Gluten Manager™ contains both prolyl-endopeptidase (Tolerase® G) and standardized dipeptidyl-peptidase IV enzyme activity (DPP-IV).^{1,4}
- Stable at low pH

Description

Gluten Manager™ contains two types of microbial enzymes intended to degrade gluten protein.* This product contains both prolyl endopeptidase (Tolerase® G) and standardized dipeptidyl-peptidase IV enzyme activity (DPP-IV).^{1,4} The combination of activity causes a degradation or more specifically hydrolyzation reactions at both ends as well as the middle of the gluten molecule.*¹¹⁻⁴ Both the prolyl endopeptidase (Tolerase® G) and the dipeptidyl-peptidase (DPP-IV or DPP4) exopeptidases are derived from *Aspergillus niger* and *Aspergillus oryzae* respectively, providing a vegan-friendly solution.

Gluten Manager™ is designed to support individuals following a gluten-free diet.*^{1,5} Clinical research suggests Tolerase® G is able to digest gluten in the stomach before it reaches the small intestine in healthy volunteers.*¹ Julia König, PhD from Örebro University in Sweden, who was the lead investigator in clinical trials using Tolerase® G, notes that this enzyme functions in the acidic environment of the stomach making it rather unique.

How it Works

In a human clinical trial, twelve healthy volunteers were randomized to either receive a 300 gram test meal containing four grams of gluten protein and 1,600,000 PPI (Protease Picomole International units) of Tolerase® G or the 300 gram test meal with a placebo.¹ The design of this study included a crossover so that participants were assigned both interventions at different times with a one week washout period in between. The subjects of this trial had gastric and duodenal aspirates of alpha-gliadin sampled throughout the testing which was four continuous hours after meal consumption. The inclusion of Tolerase® G reduced the levels of alpha-gliadin in both gastric and duodenal aspirates.* Area under the curve (AUC) analyses were done to better represent the variances in gastric emptying times between participants. This human experimental design supports previous studies.^{2,3,5}

Conclusion

Individuals embarking upon or continuing a gluten-free diet benefit from support in terms of information such as sources of hidden gluten, gluten-free cooking, and tips to avoid gluten while on the go. These same individuals may benefit from physiologic support as well in case of incidental exposures.* Gluten Manager™ is designed with these individuals in mind.*

† THEORETICAL MECHANISM OF ACTION USING TOLERASE® G AND DPP-IV*

Supplement Facts

Serving Size 2 capsules

Servings per container 30

Amount per 2 capsules	%DV
Microbial Enzymes	731mg**
Proprietary Protease Blend providing:	
Tolerase® G Prolyl Endopeptidase	240,000 PPI
Dipeptidyl Peptidase (DPP-IV) Activity	100,000 HUT

Other ingredients: hydroxypropyl methylcellulose (vegetable capsule), cellulose, calcium laurate, silicon dioxide

Recommendation: Take 1 or 2 capsules at the beginning of each meal or as recommended by your healthcare professional.

Caution: While Gluten Manager™ will reduce the level of reactive gliadin and gluten proteins in a meal, it is advised that celiac disease sufferers continue with their normal gluten exclusion diet as even small amounts of gliadin can cause adverse reactions in the most sensitized individuals. If pregnant, nursing, or taking prescription drugs, consult your healthcare professional prior to use.

Contains no: sugar, salt, yeast, wheat, gluten, soy, artificial colors, flavors, preservatives, or ingredients of animal origin.

Tolerase® G is a trademark of DSM. Tolerase® G is not intended to replace a gluten-free diet. Tolerase® G is not intended to treat or prevent celiac disease.

Integrative Therapeutics

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References

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*THESE STATEMENTS HAVE NOT BEEN EVALUATED BY THE FOOD AND DRUG ADMINISTRATION. THESE PRODUCTS ARE NOT INTENDED TO DIAGNOSE, TREAT, CURE, OR PREVENT ANY DISEASE.