

CLINICAL SPECIFICATIONS

GLUTENIN-21-MER

Function:

Glutenin or Glutenine is a wheat protein that together with gliadin produces gluten. Glutenin gives firmness to bread dough during the kneading process by increasing the stability through a 3-dimensional network.

Antibodies Appear:

Celiac disease^{1,2,4,5}
 Dermatitis Herpetiformis¹

Known Cross-Reactions: Dermal elastin,¹ Rice globulin,³ anti-Rotavirus IgG⁶

Clinical Significance:

Glutenin makes up one of the T cell stimulatory gluten peptides found in wheat.⁴ Wheat Glutenin (like rice globulin) is rich in glycine and glutamic acid or glutamine,³ and like gliadin, Glutenin is insoluble in water.⁵ However, they differ in that gliadins are alcohol soluble, while Glutenin is broken down by acid or alkaline water. Antibodies IgG and IgA to Glutenin are found in patients with Celiac disease^{2,4} and IgA antibodies are found in patients with Dermatitis Herpetiformis.¹ Studies indicate that there is a reduction in antibodies against Glutenin after implementation of a gluten-free diet.^{1,5}

References:

1. Bodvarsson, et al. Dermatitis herpetiformis – an autoimmune disease due to cross-reaction between dietary glutenin and dermal elastin? Scan J Immunol, 1993; 38(6):546-550.
2. Howdle. Gliadin, glutenin or both? The search for the holy grail in coeliac disease. Eur J Gastroenterol Hepatol, 2006;18(5):483-491.
3. Kamatsu and Hirano. Rice seed globulin: a protein similar to wheat seed glutenin. Phytochemistry, 1992; 31(10):3455-3459.
4. Mitea, et al. Fine specificity of monoclonal antibodies against celiac disease-inducing peptides in the gluteome1-3. Am J Clin Nutr, 2008; 88:1057-1066.
5. Stern, et al. Analysis and clinical effects of gluten in coeliac disease. Eur J Gastroenterol Hepatol, 2001; 13:741-747.
6. Vojdani. Reaction of monoclonal and polyclonal antibodies made against infectious agents with various food antigens. J Clin Cell Immunol, 2015; 6:359.