

CLINICAL SPECIFICATIONS

NON-GLUTEN WHEAT PROTEINS

Function:

Wheat proteins/peptides are commonly categorized as gluten and non-gluten. Non-gluten protein alpha-amylase is a very small portion of wheat. Non-gluten protein globulin is considered an endosperm protein. Globulin is a non-prolamin protein, which serves as nutrient reserve for germinating embryo and protects the embryo from insects and pathogens.

Associated With:

Baker's asthma¹
 Wheat allergy²
 Chronic urticaria³
 Wheat-dependent exercise-induced anaphylaxis⁴
 Dermatitis herpetiformis⁵
 Crohn's disease⁶

Known Cross-Reactions: Alpha-amylase: A β ₄₂ peptide;⁷ gamma-Gliadin and Glutenin⁸

Globulin: A β ₄₂ peptide;⁷ Peanut, Soybean^{reviewed in 9}

Clinical Significance:

Alpha-amylase, a water-soluble component of wheat, is highly antigenic; if it should escape digestion, it can activate toll-like receptor-4 (TLR4).¹⁰ IgG antibodies to non-gluten proteins may be present due to cross-reactivity between non-gluten and gluten proteins.^{5,6} Homology between gamma-gliadin and non-gluten proteins has been shown.⁵ Furthermore, wheat, barley, rye and corn belong to the same family of alpha-amylase inhibitors.¹¹ In an amyloid beta cross-reactivity study, wheat amylase and globulin were two of the most highly cross-reactive food antigens detected.⁷ Due to cross-reactivity with amyloid beta peptide,⁷ patients with circulating antibodies to non-gluten proteins may be at greater risk for AD and other neurological disorders when the blood-brain barrier is breached.

References:

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