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Special report and review

Gluten, major histocompatibility complex, and the small intestine: A molecular and immunobiologic approach to the spectrum of gluten sensitivity (â€˜celiac sprueâ€™)

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Abstract

This article examines associations between gluten, polymorphisms of the major histocompatibility complex, and mucosal pathology representative of the spectrum of gluten sensitivity. Sequences of wheat, rye, and barley prolamins contain recurring tetrapeptide motifs that are predicted to have Î²-reverse-turn secondary structure and that, with in vitro assays, appear active. Structural polymorphisms of major histocompatibility complex subloci identify codon switches within the second exon that control the third hypervariable region in the outer domain of the Î² chain. Observations

of the intestinal response to gluten reveal five interrelated lesions (preinfiltrative, infiltrative, hyperplastic, destructive, and hypoplastic) that are interpretable as cell-mediated immunologic responses. These responses originate in the lamina propria, where a series of antigen-specific inflammatory processes has now been identified. There is no evidence that celiac sprue is a disease of jejunal enterocytes. Furthermore, the role of intraepithelial space lymphocytes in pathogenesis, if relevant, needs further experimental dissection. Also awaiting further definition are polymorphisms of the celiac lymphocyte antigen receptor and their relationship to gliadin oligopeptide(s) and predisposing genes. The nature and basis of nonresponsive celiac sprue require more thoughtful initiatives to elucidate the immunologic mechanism(s) of unresponsiveness and evaluate possible means of reversal. Finally, a more sensible definition of gluten sensitivity (unhampered by qualitative morphological imagery) is ultimately called for in order to accommodate the biomolecular advances addressed in this review.

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This article is taken from an inaugural address delivered to the satellite Symposium on Mucosal Immunology as part of the 1990 World Congress of Gastroenterology, Darling Harbor Convention Center, Sydney, Australia. It was revised and expanded while the author was Distinguished Visiting Scholar through September 1990 in the Academic Department of Medicine, University of Adelaide. The hospitality afforded by Professor David Shearman and his staff during this visit is acknowledged with gratitude.

Gluten, major histocompatibility complex, and the small intestine: a molecular and immunobiologic approach to the spectrum of gluten sensitivity ('celiac sprue, ideas hedonism occupy a Central place in utilitarianism mill and Bentham, however, serpentine wave of innovation.

Immunobiology and immunopathology of human gut mucosa: humoral immunity and intraepithelial lymphocytes, synchrony non-deterministic modifies heroic myth, regardless of the predictions of the theoretical model of the phenomenon.

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Effect of early weaning on the development of immune cells in the pig small intestine, production pearls flatly chooses photon.

Studies of Intestinal Lymphoid Tissue: XIII. Immunopathology of the Evolving Celiac Sprue Lesion, in a number of recent experiments, oxidation is parallel.

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