

Transepithelial antigen delivery in the small intestine: different paths, different outcomes.

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Source

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Abstract

PURPOSE OF REVIEW:

The intestinal epithelium is a dynamic barrier protecting the body from the multitudes of luminal micro-organisms present in the gut. However, this barrier is not impermeable and mechanisms exist that allow small amounts of antigen to traverse the epithelium in controlled manner to maintain tolerance and to mount immune responses. This review will summarize our current understanding of how luminal antigens traverse the small intestine epithelium without disrupting the epithelial barrier and how these antigen delivery pathways might influence the resulting immune responses.

RECENT FINDINGS:

Recent findings have revealed four pathways for transepithelial antigen delivery in the absence of barrier disruption. We propose that during homeostasis, antigen introduced through microfold cells induces immunoglobulin A responses, antigen delivered by goblet cell-associated antigen passages contributes to peripheral tolerance, and antigen delivered by paracellular leak initiates immune responses in the mesenteric lymph node. In contrast, dendritic cell transepithelial dendrites may play an important role in host protection during pathogen infection, but do not appear to play a role in antigen capture by lamina propria dendritic cells in the steady state.

SUMMARY:

These observations indicate that the route by which antigen crosses the epithelium directs the outcome of the subsequent immune response.