

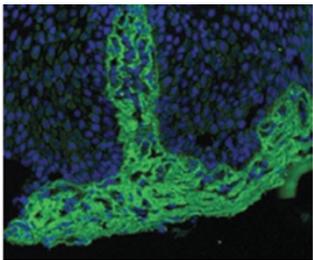
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Just how big is the mucosal immune system?

Tom MacDonald addresses the recent debate regarding the extent of lymphoid tissues contained within the mucosal immune system and concludes that the gut is still the largest lymphoid organ in the body. [See page 246](#)

Stromal cells in peripheral tolerance

In addition to central tolerance through presentation of self-antigens in the thymus and peripheral tolerance via the cross-presentation of self- and tissue antigens by dendritic cells, Collier and colleagues describe a third mechanism of CD8 T-cell tolerance mediated by presentation of endogenously expressed peripheral tissue antigens by lymph node stromal cells. [See page 248](#)



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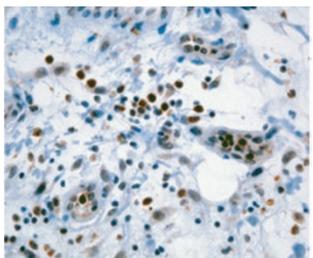
Epithelial cells in intestinal nematode infections

Nematodes very frequently infect the human intestine. David Artis and Richard Grencis review the crucial role of epithelial cells in sensing and directing innate and adaptive immunity to these important pathogens.

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Treatment of acute lung inflammation

This comprehensive review by Wissinger and colleagues describes what is known about the response to acute respiratory infection and examines potential therapeutic strategies for intervention, particularly when there is loss of immune homeostasis. [See page 265](#)



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Loss of mucosal Th17 cells during SIV infection

Loss of CD4⁺ T cells in the gut is associated with AIDS pathogenesis and enteropathy. The putative role of interleukin-17 in host defense against extracellular bacteria and fungi could indicate a role for these cells in this scenario. A report in this issue demonstrates that in highly viremic simian immunodeficiency

virus-infected macaques, the frequency of Th17 cells at mucosal sites is negatively correlated with plasma virus level. [See page 279](#)

Periostin facilitates tissue eosinophilia

Blanchard and colleagues make the novel observation that the extracellular matrix protein periostin is elevated in allergic eosinophilic esophagitis. The authors describe how periostin can regulate eosinophil accumulation in mucosal tissues during allergic inflammatory conditions by driving increased adhesion of eosinophils to fibronectin.

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Gene expression in appendicitis

Murphy and colleagues demonstrate that the expression of genes for interleukin (IL)-8 but not IL-12, interferon- γ , tumor necrosis factor- α , or IL-5 in acute appendicitis is indicative of an intense but tightly controlled innate inflammatory process.

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Inflammation of the genital mucosa during HIV infection

Our understanding of tissue-specific immunity during HIV infection is lacking. Lajoie and colleagues found high levels of tumor necrosis factor- α and interferon- γ in the genital mucosa of HIV-1-infected commercial sex workers, suggesting that active inflammation is present and may predispose or perpetuate HIV infection at this initial site of HIV exposure.

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Estradiol and innate protection

Polarized epithelial cells provide essential barrier and sensing functions in the female reproductive tract. Fahey and colleagues demonstrated that estradiol not only inhibits the expression of proinflammatory cytokines but also enhances the production of antimicrobial factors by human uterine epithelial cells, implicating their role in both innate and immune protection. [See page 317](#)