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Hype or hope: an opinion on nanotechnology

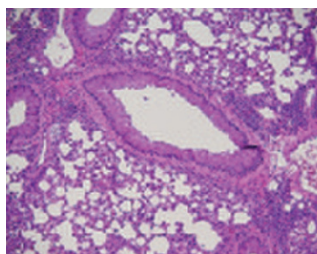
In this News and Highlights piece, Elke Cario gives us her perspective on the potential for nanotechnology to advance therapies for mucosal diseases. [See page 2](#)

Is IL-17 pro- or anti-inflammatory?

In this Commentary, Symons and colleagues comment on preclinical and clinical data demonstrating the opposing pathogenic versus protective effects of the IL-17 family of cytokines. [See page 4](#)

Cross-talk between the gut and lung

In this elegant Review, Keely and colleagues compare and contrast the clinical and epidemiological characteristics of chronic obstructive pulmonary disease (COPD) and inflammatory bowel disease (IBD). The two diseases share more similarities than you think. [See page 7](#)



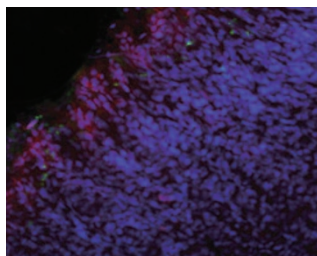
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TLR4 in gonococcal infection

Packiam and colleagues demonstrate that TLR4 regulates early inflammatory responses in the reproductive tract following infection by *Neisseria gonorrhoeae*, resulting in control of bacterial replication. [See page 19](#)

NK cells and HIV in the gut

Sips and colleagues show that natural killer (NK) cells can expand within the epithelial compartment and the lamina propria of the intestine in patients with HIV infection, particularly in individuals in whom CD4 cells do not recover in response to HAART. [See page 30](#)



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Aerosolized vaccination

Bolton and colleagues demonstrate comparable immune responses and improved disease outcome for aerosolized versus intramuscular delivery of a recombinant adenovirus vaccine in a macaque simian immunodeficiency virus model, supporting the utility of mucosal immunization as a viable alternative to parenteral vaccination. [See page 41](#)

Lung CD103⁺ DCs drive Th2 responses

Nakano and colleagues demonstrate that CD103⁺ dendritic cells (DCs) acquiring antigen in the lung or lung-draining lymph nodes prime Th2 differentiation whereas CD11b^{hi} CD103⁻ cells from the same location promote Th1 responses. Furthermore, the absence of CD103⁺ DCs prevented asthma-like responses in allergen-challenged mice, indicating a role of these cells in priming Th2 responses to inhaled allergens. [See page 53](#)

Antimicrobial activity by buccal epithelia

Sorenson and colleagues present evidence indicating that oral buccal epithelial cells may employ IL-1 α in a paracrine manner to promote production of the antimicrobial complex calprotectin (S100A8/A9), providing protection from invasion by the enteric pathogen *Listeria monocytogenes*. [See page 66](#)

T-cell responses feel the heat

Vanilloid receptor 1 (VR1) is expressed on cells of the immune and nervous systems. Nevius *et al.* demonstrate that engagement of this receptor by orally administered capsaicin (the 'hot' component of chili peppers) can reduce T-cell responses and prevent the development of type 1 diabetes in mice. [See page 76](#)

Helicobacter heilmannii and the neonatal FcR

Ben Suleiman and colleagues used mice deficient in the neonatal Fc receptor for IgG (FcRn) to demonstrate its role in preventing colonization of the stomach by *Helicobacter heilmannii*. [See page 87](#)

The yin and the yang of IL-23

Cox and colleagues demonstrate that deletion of IL-23p19 or IL-23R in DSS colitis reduces pathology, whereas in IL23R and Rag2-double knockout mice T cell-transfer colitis was exacerbated. This study highlights the opposing effects of IL-23R expression on the cells of the innate versus the adaptive immune system. [See page 99](#)