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GAPs in antigen transport

Mark Miller and colleagues discuss recent findings regarding the formation and function of goblet cell-associated passages that deliver small, soluble, luminal antigens to underlying lamina propria dendritic cells. [See page 452](#)

Mucosal lymphoid organs

Troy Randall and Reina Mebius discuss the mechanisms that control the development of mucosal lymphoid organs and how the various lymphoid tissues cooperate to maintain the integrity of the mucosal barrier. [See page 455](#)

Lack of T cell-independent IgA switching in the infant gut

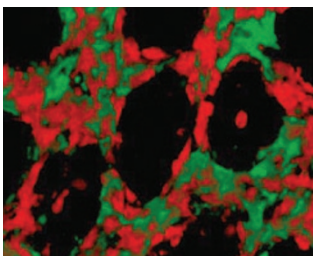
Claire Gustafson and co-workers demonstrate that the restricted development of immunoglobulin A (IgA) plasma cells in the intestine that occurs in the first month of an infant's life correlates with reduced expression of T cell-independent isotype switching within isolated lymphoid follicles. [See page 467](#)



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TRAIL and neonatal lung pathology

Malcolm Starkey and colleagues identify a critical role for tumor necrosis factor-related apoptosis-inducing ligand (TRAIL) in promoting infection and infection-induced pathology in the neonatal mouse lung following chlamydia respiratory infection. [See page 478](#)



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Flagellin acts on epithelial cells

Laurie Van Maele *et al.* present data supporting a primary role for Toll-like receptor 5 expressed by airway epithelial cells in the adjuvant activity of flagellin following intranasal administration. [See page 489](#)

Tissue-resident memory cells and influenza

Damian Turner and colleagues demonstrate that respiratory virus-specific tissue-resident memory T cells are generated and maintained in compartmentalized niches in the lungs of mice and humans, distinct from populations in lymphoid tissues or the circulation. [See page 501](#)

Local antigen presentation by CX₃CR1⁺ cells in colitis

Valerio Rossini and co-workers present data supporting a role for CX₃CR1⁺ phagocytes in presenting bacteria-derived antigens to activate and expand T cells in the intestinal lamina propria during colitis development. [See page 533](#)

Lipoxins and RSV infection

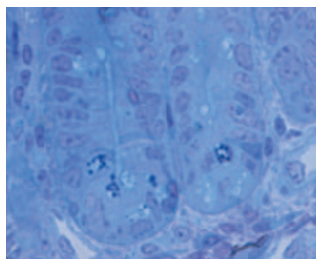
Kari Ann Shirey and colleagues demonstrate a primary role for the lipoxygenase pathway in the resolution of respiratory syncytial virus (RSV)-induced lung pathology by driving the differentiation of alternatively activated macrophages. [See page 549](#)

Dectin-2 sensing of HDM antigens

Deborah Clarke and co-workers identified a critical role for dectin-2 sensing of house dust mite (HDM) antigen in driving airway inflammation, probably through effects on cystinyl leukotriene production by alveolar macrophages. [See page 558](#)

*i*NKT cells and COPD

Muriel Pichavant and colleagues present data supporting a contribution by invariant natural killer T (*i*NKT) cells in the pathogenesis of chronic obstructive pulmonary disease (COPD). [See page 568](#)



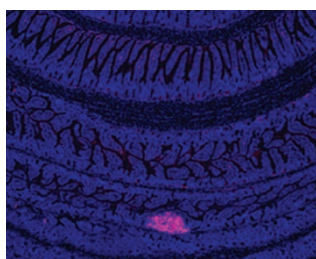
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MMP7 contributes to intestinal barrier dysfunction

Roosmarijn Vandenbroucke *et al.* observed that macrophage metalloproteinase 7 (MMP7) mediates systemic lipopolysaccharide-induced intestinal barrier dysfunction. [See page 579](#)

Aluminum ingestion enhances colitis

Guillaume Pineton de Chambrun and colleagues demonstrate the ability of environmentally relevant orally administered aluminum to impair intestinal barrier function and increase inflammation in several experimental colitis models in mice. [See page 589](#)



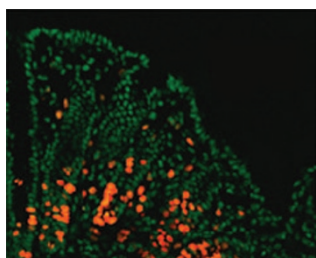
p 602

TNF- α -dependent lymphoid organ development in the absence of LTi cells

Glauca Furtado *et al.* demonstrate that lymphoid tissue organogenesis can be induced by tumor necrosis factor- α (TNF- α) production by myeloid cells in the absence of lymphoid tissue-inducer (LTi) cells, and they imply a role for this pathway in secondary lymphoid organ formation. [See page 602](#)

CEACAM5 induces regulatory CD8 T cells

Giulia Roda and colleagues describe a critical role for CEACAM5 in the ability of intestinal epithelial cells to engage CD8 α as well as, together with CD1d, induce the regulatory function of CD8 T cells. [See page 615](#)



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IL-27 drives Th17 cells in T cell-transfer colitis

Anabelle Visperas and co-workers report that host-derived interleukin-27 (IL-27) was able to drive T helper type 17 (Th17) differentiation in T cell-transfer

colitis via effects of myeloid cells on IL-6 and IL-1 β production. [See page 625](#)

Correlates of HIV protection in the foreskin

Jessica Prodger and colleagues identified possible immune correlates of protection against HIV infection in the foreskins of men in Uganda undergoing elective circumcision. [See page 634](#)

FPR1-induced NOX1 mediates epithelial repair

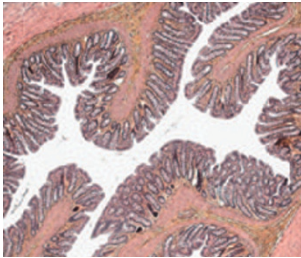
Ashfaquul Alam *et al.* describe a novel role for *N*-formyl peptide receptor 1 (FPR1) as a recognition receptor for perceiving the enteric microbiota that promotes repair of mucosal wounds via generation of reactive oxygen species from the enterocyte NOX1. [See page 645](#)

MSCs provide glucocorticoid-dependent protection

Raphaëlle Bessout and colleagues demonstrate that mesenchymal stem cell (MSC) treatment reduced radiation-induced intestinal damage through glucocorticoid-dependent effects on activated T cells. [See page 656](#)

DAP-12 contributes to delayed Th1 immunity during tuberculosis

Mangalakumari Jeyanathan and colleagues show that *Mycobacterium tuberculosis* infection delays T helper type 1 (Th1) immunity via immunoadapter DAP12 (DNAX-activating protein of 12 kDa)-regulated IRAK-M (interleukin-1 receptor-associated kinase M) and interleukin-10 expression in antigen-presenting cells. [See page 670](#)



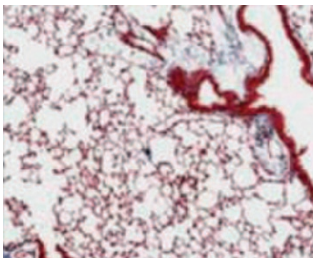
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IL-1 α from damaged epithelial cells contributes to lung inflammation

Monika Suwara *et al.* provide data indicating that interleukin-1 α (IL-1 α) released from damaged epithelial cells contributes to inflammation in the lung by activating inflammatory cytokine production from lung fibroblasts. [See page 684](#)

Combustion products cause pulmonary immunosuppression

Jordy Saravia and colleagues show that early-life exposure of mice to combustion particulates results in pulmonary immunosuppression and higher levels of immunoglobulin E and greater susceptibility to allergen challenge later in life. [See page 694](#)



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Pneumolysin activates Th17 cells in NALT

Christian Gray and colleagues demonstrate the ability of domain 4 pneumolysin (D4Ply) from

Streptococcus pneumoniae to activate CD4⁺ T cells, including T helper type 17 (Th17) cells in human nasopharynx-associated lymphoid tissue (NALT) and peripheral blood. The authors suggest that D4Ply may be useful in inducing pneumococcal clearance. [See page 705](#)

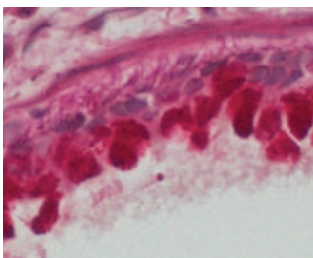
DSG1 in eosinophilic esophagitis

Joseph Sherrill and co-workers present evidence that the desmosomal cadherin desmoglein-1 (DSG1), an intracellular adhesion molecule, has a role in the regulation of esophageal barrier function and immune responses in eosinophilic esophagitis.

[See page 718](#)

TL1A drives ILC2s in allergy and gut helminth infection

Xin Yu *et al.* show that innate type 2 lymphoid cells (ILC2s) express the tumor necrosis factor–receptor superfamily member DR3 (TNFRSF25) and that its engagement with its cognate ligand TL1A enhances ILC2 expansion and survival. [See page 730](#)



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