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Understanding the molecular mechanisms of disease is crucial for developing effective treatment strategies. In this issue, three articles review recent data that provide new clues about the mechanisms that are responsible for three distinct diseases, and they discuss the implications of these data for disease treatment.

Infection and inflammation have been linked to tumour development for many years. As Michael Karin and Florian Greten discuss on page 749, it is becoming clear that nuclear factor- κ B (NF- κ B) is central to this association and that it can promote tumorigenesis both directly, in a tumour-cell-intrinsic manner, and indirectly, by its activation in immune cells, which leads to production of growth and survival factors that increase tumour-cell proliferation. As the authors suggest, targeting the NF- κ B pathway might therefore provide a multi-pronged approach to the treatment of cancer.

Similarly, as Ashley Haase reviews on page 783, new understanding of the early stages of HIV and simian immunodeficiency virus (SIV) infection at mucosal surfaces indicates that there is a stage in the establishment of disease at which both the virus and the host are vulnerable, to intervention and to infection, respectively. This provides hope that strategies could be designed to target this stage of infection.

Last, a Review article by Robert Colvin and Neal Smith, on page 807, highlights the role of alloantibodies in mediating both acute and chronic allograft rejection. The mechanisms by which alloantibodies mediate rejection are distinct from those used by T cells, which are the target of most current treatments for transplant recipients. Alloantibodies therefore provide a new immune effector to target in the quest to prevent transplant rejection.



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