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Susceptibility to disease is controlled by a combination of genetic and environmental factors that affect the function of the immune system. One such genetic association is illustrated by dendritic cell (DC) deficiency, which increases susceptibility to intracellular infections. Matthew Collin and colleagues, on page 575, review the recent identification of humans with genetic DC deficiencies and discuss the insight these individuals have provided into the origins and functions of human DCs.

Several other articles this month examine effects of the environment on immune responses. On page 584, Prue Hart and colleagues look at the human immune processes that are affected by ultraviolet (UV) radiation exposure and vitamin D status to determine whether UV-mediated immunomodulation can be fully accounted for by the production of vitamin D in the skin.

Michael Gleeson and colleagues (page 607) discuss the mechanisms by which regular exercise can exert anti-inflammatory effects. These effects can protect against the development of chronic inflammation-associated diseases, but the immunosuppression associated with intensive training might increase the risk of infection. Psychological stress might also contribute to immunosuppression in elite athletes; on page 625, Michael Irwin and Steven Cole provide their perspective on how stress signals from the nervous and endocrine systems can modulate innate immune responses. The reciprocal neuro-immune circuit they describe has implications for socio-environmental influences on disease and for the treatment of both inflammatory and psychological disorders. They speculate that anticipation of a potential threat by the nervous system might be able to 'prepare' the immune system, which suggests that both genetic and environmental factors can predispose an individual to a particular immune response.



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