



Cover illustration
Coloured X-ray of a hand
with rheumatoid arthritis.
The finger joints have
become inflamed and
swollen. (Du Cane Medical
Imaging Ltd/SPL)

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AUTOIMMUNITY

The concept of autoimmunity was first predicted by Nobel Laureate Paul Ehrlich at the start of the twentieth century, and he described it as 'horror autotoxicus'. His experiments led him to conclude that the immune system is normally focused on responding to foreign materials and has an inbuilt tendency to avoid attacking self tissues. But when this process goes wrong, the immune system can attack self tissues resulting in autoimmune disease. The perplexing issue of what allows the immune system to attack self tissues is a continuing focus of research, as the following collection of reviews demonstrates.

In the past, autoimmune diseases have been studied on the basis of the organ affected, but in recent years the focus has switched to a more cross-disciplinary approach with a view to providing a better understanding of the common mechanisms underlying the pathogenesis of these diseases.

This research is now paying off. Previous therapies have essentially been blanket immunosuppressive ones, but recently selective therapies that target pathways common to several autoimmune diseases have been successful in the clinic. These include treatments that target the cytokines tumour necrosis factor and interferon- β . Another approach is the controversial idea of using haematopoietic stem cells for treating severe refractory autoimmune disease.

Such approaches should provide a better understanding of the pathogenic mechanisms of disease and should lead to the development of new therapeutic approaches.

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Elaine Bell, Chief Editor, *Nature Reviews Immunology*
Lucy Bird, Associate Editor, *Nature Reviews Immunology*

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