

# nature REVIEWS

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## IMMUNOLOGY



**TICK, TOCK, TICK, TOCK**  
Circadian rhythms in the immune

**IVIg therapy**  
How does it mediate its



Neutrophil recruitment p159

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## REVIEWS

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FEATURED  
ARTICLE

### Neutrophil recruitment and function in health and inflammation

Elzbieta Kolaczowska and Paul Kubes

It is becoming clear that the immune functions of neutrophils are more complex than once thought. Here, the authors provide an updated version of the classical neutrophil recruitment cascade and discuss the pro-inflammatory and anti-inflammatory roles of these cells in different immune settings.

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### Intravenous immunoglobulin therapy: how does IgG modulate the immune system?

Inessa Schwab and Falk Nimmerjahn

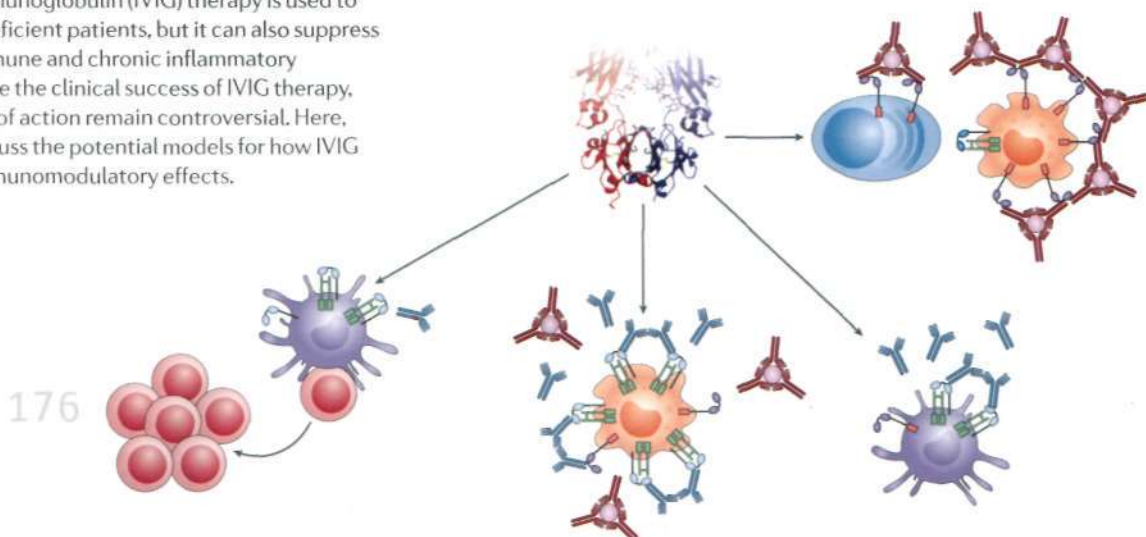
Intravenous immunoglobulin (IVIg) therapy is used to treat immunodeficient patients, but it can also suppress various autoimmune and chronic inflammatory diseases. Despite the clinical success of IVIg therapy, its mechanisms of action remain controversial. Here, the authors discuss the potential models for how IVIg mediates its immunomodulatory effects.

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### Circadian control of the immune system

Christoph Scheiermann, Yuya Kunisaki and Paul S. Frenette

Here, the authors discuss recent evidence indicating that components of the immune system are under the control of circadian rhythms. The circadian oscillations of immune mediators may allow the host to anticipate threats more efficiently but may also contribute to circadian exacerbations of chronic diseases. In addition, these circadian rhythms should be considered in the design of preclinical animal models, when harvesting human tissue samples and in vaccine administration.



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Roles of the lymphotoxin receptor pathway in immune homeostasis and in the control of microorganisms

Vaibhav Upadhyay and Yang-Xin Fu

Triggers and drivers of autoimmunity: lessons from coeliac disease

Ludvig M. Sollid and Bana Jabri

### Links to further information

The full text of articles includes author biographies, links to glossary terms and links to websites and databases with relevant information.

**At a glance** provides a bullet-pointed summary of the main topics covered in each article.

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## PERSPECTIVES

## OPINION

- 199 **Effector-triggered versus pattern-triggered immunity: how animals sense pathogens**

*Lynda M. Stuart, Nicholas Paquette and Laurent Boyer*

Lynda Stuart and colleagues discuss the ability of animals to sense perturbations in host cells caused by pathogen effectors. On the basis of recent mechanistic evidence, they suggest that such effector-triggered immunity might be as widespread in animals as in plants.

## OPINION

- 206 **Orchestrated leukocyte recruitment to immune-privileged sites: absolute barriers versus educational gates**

*Ravid Shechter, Anat London and Michal Schwartz*

In this Opinion article, the authors present a model of the barrier systems that control immune cell access to immune-privileged sites. They suggest that immune cell trafficking through 'true' endothelial barriers in the parenchyma results in destructive inflammation, whereas 'educational' epithelial gates allow for selective trafficking to facilitate immunosurveillance of these sites.

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