

nature

REVIEWS

april 2013 volume 11 no. 4
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MICROBIOLOGY

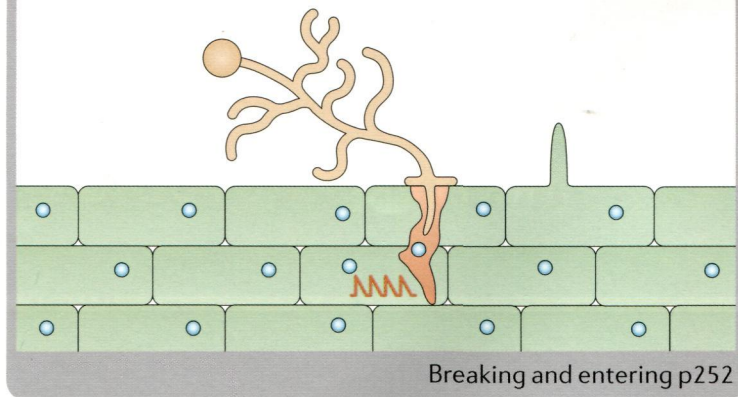


A SOCIAL BAROMETER?

Competition sensing and bacterial stress responses

Obey your microbial masters

The gut microbiota and host development



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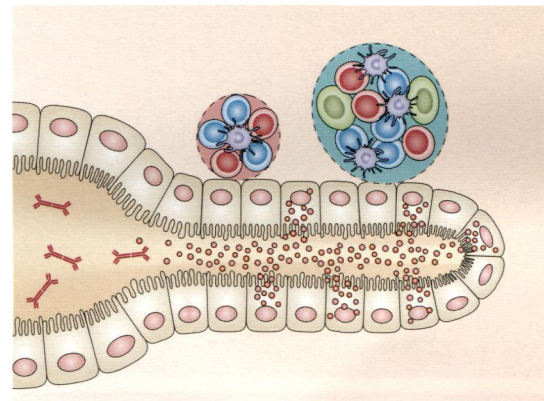
REVIEWS

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ARTICLE

The gut microbiota — masters of host development and physiology

Felix Sommer and Fredrik Bäckhed

The gut microbiota, traditionally studied in the context of disease, has emerged as a key regulator during normal homeostasis. Here, Sommer and Bäckhed discuss how the gut microbiota promotes the development and homeostasis of the immune system and orchestrates several aspects of human physiology, including tissue morphogenesis, metabolism and even behaviour.



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Regulation of human papillomavirus gene expression by splicing and polyadenylation

Cecilia Johansson and Stefan Schwartz

The ability of human papillomaviruses (HPVs) to cause disease is strongly dependent on the strict coordination of viral gene expression with the differentiation state of the infected cell. Here, Johansson and Schwartz summarize the role of splicing and polyadenylation in the regulation of HPV gene expression and discuss the viral and cellular factors that control these processes.

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Speak, friend, and enter: signalling systems that promote beneficial symbiotic associations in plants

Giles E. D. Oldroyd

Many plants engage in symbiotic associations with microorganisms, in which the interactions are beneficial to both partners. Two of the best studied partnerships are rhizobial and mycorrhizal colonization. Giles Oldroyd highlights the commonalities in the symbiosis signalling pathways involved in these associations and how, despite these commonalities, sufficient specificity is maintained to ensure appropriate responses to each symbiont.

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A cornucopia of human polyomaviruses

James A. DeCaprio and Robert L. Garcea

In recent years, nine new human polyomaviruses have been discovered, including Merkel cell polyomavirus, which has been linked to Merkel cell carcinoma, a lethal skin cell cancer. DeCaprio and Garcea compare and contrast these new human viruses and discuss how they might interact with their human host.

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Charles J. Dorman

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

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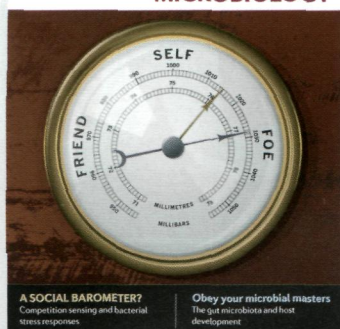


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ISSN 1744-1004 (print) | ISSN 1744-1005 (online) | www.nature.com/reviews

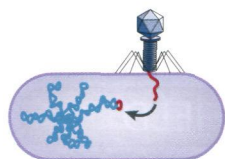
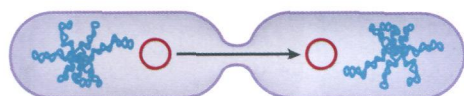
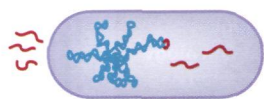
MICROBIOLOGY



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► **COVER:** 'A social barometer' by Philip Patenall, inspired by the Review on p285.



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OPINION

277 'Blooming' in the gut: how dysbiosis might contribute to pathogen evolution

Bärbel Stecher, Lisa Maier and Wolf-Dietrich Hardt

Perturbations in the gut microbiota can lead to a state of dysbiosis, which may involve 'blooming' of potentially harmful bacteria. Here, Hardt and colleagues propose that such bacteria blooms promote horizontal gene transfer between members of the gut ecosystem, thereby facilitating pathogen evolution.

OPINION

285 Competition sensing: the social side of bacterial stress responses

Daniel M. Cornforth and Kevin R. Foster

In this Opinion article, Cornforth and Foster argue that several of the major bacterial stress responses detect ecological competition directly through competition sensing, a physiological response that detects harm caused by other cells and that evolved, at least in part, for that purpose. In support of this argument, they show that bacteriocins and antibiotics are frequently upregulated by stress responses to nutrient limitation and cell damage, but not by responses to abiotic stress.

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