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# REVIEWS

november 2014 volume 12 no. 11  
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## MICROBIOLOGY

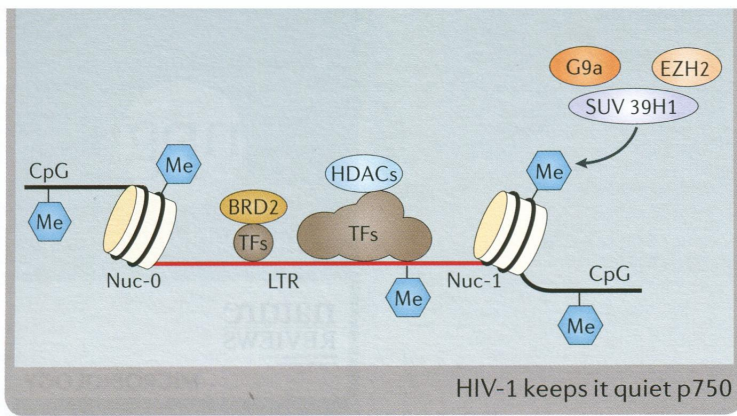


### **VIRUS IN A SWEET SHOP**

Principles of virus–glycan binding

### **Achieving HIV-1 eradication**

Tackling a formidable and persistent challenge



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November 2014  
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## REVIEWS

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### The sweet spot: defining virus–sialic acid interactions

*Jennifer E. Stencel-Baerenwald, Kerstin Reiss, Dirk M. Reiter, Thilo Stehle and Terence S. Dermody*  
Viral infection is induced by binding of the virus to host sialylated glycans on the cell surface. Glycan array studies and structure determination provide new insights into the virus–sialic acid interaction and its functional role in viral disease. This Review highlights principles of glycan binding that are used by influenza virus, reovirus, adenovirus and rotavirus.

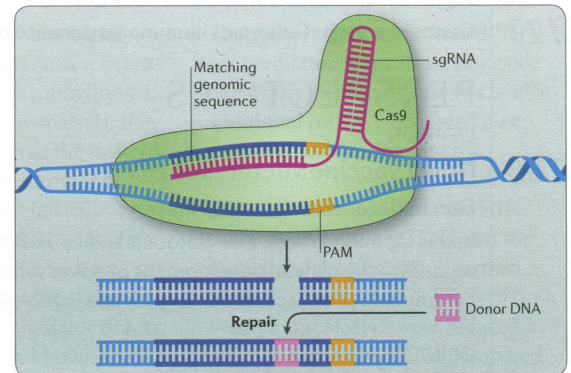
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### Eradicating HIV-1 infection: seeking to clear a persistent pathogen

*Nancie M. Archin, Julia Marsh Sung, Carolina Garrido, Natalia Soriano-Sarabia and David M. Margolis*  
Recent efforts have focused on the development of therapies that could eradicate HIV-1 infection or achieve a durable remission of viraemia in the absence of antiretroviral therapy; however, targeting viral quiescence within specific cellular reservoirs so that residual infection can be cleared remains a challenge. In this Review, Margolis and colleagues explore new approaches to eradicate established HIV-1 infection.

## POSTER

### CRISPR-CAS: EXTRAORDINARY EDITING



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## PROGRESS

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### Nitrogen metabolism in *Mycobacterium tuberculosis* physiology and virulence

*Alexandre Gouzy, Yannick Poquet and Olivier Neyrolles*

The crosstalk between the metabolic pathways of intracellular pathogens and host cells can have important consequences for infection. In this Progress article, Neyrolles and colleagues describe recent insights into nitrogen acquisition and assimilation in *Mycobacterium tuberculosis* and highlight potential links to bacterial virulence.

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### Advance online publication

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Autotrophy at the thermodynamic limit of life: a model for energy conservation in acetogenic bacteria

*Kai Schuchmann and Volker Müller*

Reductive genome evolution at both ends of the bacterial population size spectrum

*Bérénice Batut, Carole Knibbe, Gabriel Marais and Vincent Daubin*

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

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*Dan H. Barouch and Louis J. Picker*

In this Opinion article, Dan Barouch and Louis Picker discuss recent data regarding the clinical development of novel serotype adenovirus and cytomegalovirus vaccine vectors for use in HIV-1 vaccines.

OPINION

772 **A mechanistic theory to explain the efficacy of antiretroviral therapy**

*Sarah B. Laskey and Robert F. Siliciano*

Combination antiretroviral therapy (cART) has revolutionized the treatment of HIV-1 infection, but the mechanistic basis of successful treatment is poorly understood. In this Opinion article, Siliciano and Laskey present a model to assess the efficacy of antiretroviral drugs and argue that this is a more accurate metric to predict the success of cART than current metrics.

ESSAY

781 **Revealing a world of biofilms — the pioneering research of Bill Costerton**

*Hilary Lappin-Scott, Sara Burton and Paul Stoodley*

In this Essay in our Microbiology Pioneers series, Hilary Lappin-Scott, Sara Burton and Paul Stoodley pay tribute to Bill Costerton, who was the founding father of biofilm research, and trace his development of the biofilm concept.

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FEATURED  
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► **COVER:** 'The sweet spot' by Philip Patenall,  
inspired by the Review on p739.

