IN BRIEF

VIRAL INFECTION

AAV receptor identified

Adeno-associated virus (AAV) infection begins with the virus binding to heparan sulfate proteoglycan at the surface of the target cell, but additional receptors are thought to be necessary for viral entry. Now, using a haploid genetic screen, Pillay *et al.* identify the type I transmembrane protein KIAA0319L as an essential receptor that mediates AAV entry and rename this protein the AAV receptor (AAVR). The function of AAVR was confirmed by using CRISPR–Cas9 to knock out the receptor and by using anti-AAVR blocking antibodies; both treatments rendered cells highly resistant to AAV infection with several serotypes, including AAV2, which is the most commonly used serotype for gene therapy in clinical trials. Finally, *Aavr* knockout mice were more resistant to AAV-mediated gene therapy than mice that expressed AAVR.

ORIGINAL ARTICLE Pillay, S., Meyer, N. L. *et al.* An essential receptor for adeno-associated virus infection. *Nature* http://dx.doi.org/10.1038/nature16465 (2016)

MICROBIOME

Add the microbiota to your birth plan

Infants who are delivered by cesarean section (C-section) have a microbiota that resembles the skin microbiota from their mothers, which contrasts to vaginally delivered infants, who harbour microbial communities that resemble those from the maternal vagina. As delivery by C-section has been associated with an increased risk of immune and metabolic disorders, which are thought to arise owing to changes in the microbiota, Dominguez-Bello *et al.* tested whether exposure of C-section-delivered newborns to the maternal vaginal fluid at birth could restore the microbiota. The authors analysed four infants who were swabbed with vaginal fluid from their mothers within the first two minutes after birth and observed that their microbiome composition resembled the microbiome of vaginally delivered infants throughout the first month of life.

ORIGINAL ARTICLE Dominguez-Bello, M. G. *et al.* Partial restoration of the microbiota of cesarean-born infants via vaginal microbial transfer. *Nat. Med.* http://dx.doi.org/10.1038/nm.4039 (2016)

PUBLIC HEALTH

Ebola update

The latest Ebola virus (EBOV) epidemic was declared to be over on 14 January 2016, but a new case was confirmed in Sierra Leone just a few hours after that announcement, which highlights the continuing risk posed by EBOV. Now, two studies report advances in surveillance and therapeutics that may aid in controlling future outbreaks. Quick *et al.* describe a genome sequencing system based on nanopore DNA sequencing technology that was transported in standard airline luggage and used in West Africa to monitor the latest outbreak of EBOV in real-time. The system was used to sequence and analyse 142 samples and enabled data generation in 24–48 hours, in a resource-limited setting. Flyak *et al.* isolated human monoclonal antibodies against viral glycoproteins from survivors of a previous outbreak of Bundibugyo virus, which belongs to the Ebolavirus genus. Notably, a large fraction of the isolated antibodies were broadly neutralizing and cross-reactive against several Ebolavirus species, including EBOV. Furthermore, one of these antibodies protected both mice and guinea pigs from lethal challenge with EBOV.

ORIGINAL ARTICLES Quick, J. *et al.* Real-time, portable genome sequencing for Ebola surveillance. *Nature* http://dx.doi.org/10.1038/nature16996 (2016) | Flyak, A. I. *et al.* Cross-reactive and potent neutralizing antibody responses in human survivors of natural Ebolavirus infection. *Cell* **164**, 392–405 (2016)