IN BRIEF

METABOLIC DISEASE

Novel decretin hormone identified

The mechanisms that suppress insulin secretion during starvation are incompletely understood, but it has been postulated that enteroendocrine 'decretin' hormones may be involved. Here, Alfa *et al.* identify the decretin hormone limostatin (Lst) in *Drosophila melanogaster*. They show that Lst is secreted by gut-associated endocrine cells following nutrient restriction, and suppresses insulin release from insulin-producing cells through interaction with a conserved G protein-coupled receptor encoded by *CG9918*. The most similar mammalian orthologue to *CG9918* is the neuromedin U (NMU) receptor, which is expressed in islet beta cells. NMU suppressed insulin secretion in purified human islets and is a candidate mammalian decretin.

ORIGINAL RESEARCH PAPER Alfa, R. *et al.* Suppression of insulin production and secretion by a decretin hormone. *Cell Metab.* **21**, 323–333 (2015)

INFECTIOUS DISEASE

Towards an effective HIV vaccine

HIV infection is initiated when the virus envelope glycoprotein (Env) binds to CD4 and CCR5 molecules on the surface of host T cells. However, attempts to use CD4-Ig constructs to prevent virus-cell binding have so far proved unsuccessful. Now, Gardner *et al.* describe the development of eCD4-Ig, a fusion of CD4-Ig with a sulfopeptide mimetic of the amino terminus of CCR5. eCD4-Ig bound avidly and cooperatively to Env, efficiently neutralizing 100% of a diverse panel of previously neutralization-resistant HIV1, HIV2 and simian immunodeficiency virus (SIV) isolates. Rhesus macaques inoculated with an adeno-associated virus–eCD4-Ig construct stably expressed eCD4-Ig for more than 40 weeks and were protected from several SIV challenges.

ORIGINAL RESEARCH PAPER Gardner, M. *et al.* AAV-expressed eCD4-Ig provides durable protection from multiple SHIV challenges. *Nature* http://dx.doi.org/10.1038/nature14264 (2015)

TUBERCULOSIS

Improving drug delivery

Current treatment regimens for tuberculosis (TB) are typically lengthy, involve multiple agents and are not always successful. These difficulties are partly due to poor penetration of drugs into the pulmonary granulomas that are characteristic of TB. Here, Datta *et al.* show in humans and rabbits that TB pulmonary granulomas exhibit a functionally abnormal vasculature. In TB-infected rabbits, the VEGF-specific antibody bevacizumab significantly decreased the total number of vessels while normalizing the structure and function of remaining vessels, improving delivery of a small-molecule tracer into granulomas.

ORIGINAL RESEARCH PAPER Datta, M. *et al.* Anti-vascular endothelial growth factor treatment normalizes tuberculosis granuloma vasculature and improves small molecule delivery. *Proc. Natl Acad. Sci. USA* **112**, 1827–1832 (2015)

PAIN

Predicting clinical efficacy

Functional MRI (fMRI) can characterize the effects of drugs on brain activity. Here, Duff *et al.* describe an fMRI-based assessment protocol that incorporates machine-learning methods and data from multiple published studies to identify associations between drug efficacy and drug-related changes in brain activity that could be used to assess new data. The authors present proof-of-concept implementation of the protocol using eight clinical fMRI data sets from studies of six different analgesic drugs, identifying signatures of responses to pain and drug modulations.

ORIGINAL RESEARCH PAPER Duff, E. *et al.* Learning to identify CNS drug action and efficacy using multistudy fMRI data. *Sci. Transl. Med.* **7**, 274ra16 (2015)