DISEASE WATCH | IN THE NEWS

Antiviral panacea?

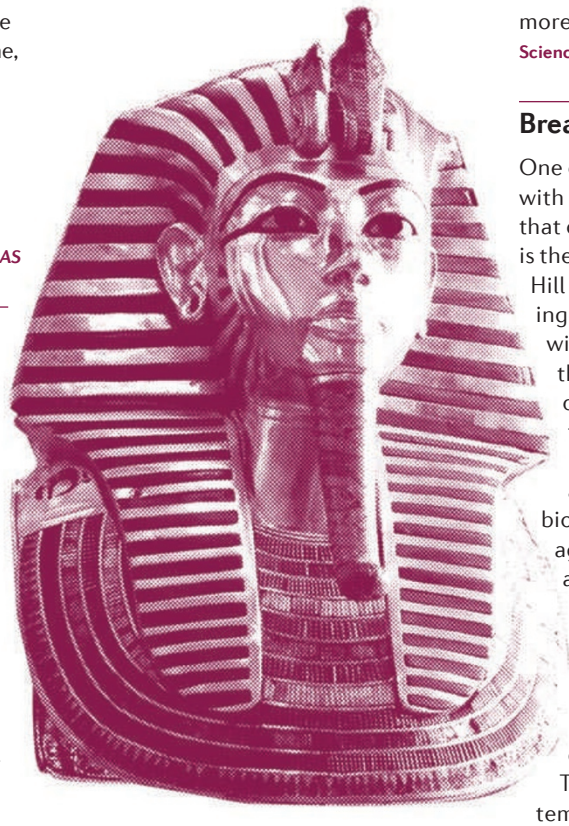
There are two broad-spectrum antivirals available (ribavirin and interferon-α), but both can have severe side effects. Benhur Lee and colleagues now report the development of a new broad-spectrum antiviral with activity against all enveloped viruses tested, which included influenza A virus, HIV, hepatitis C virus, Nipah virus, Marburg virus, yellow fever virus and West Nile virus. The small molecule, LJ100, was discovered during a high-throughput screen for inhibitors of Nipah virus entry. Characterization of the inhibition mechanism revealed that LJ100 intercalates into lipid membranes; the viral membrane is irreversibly damaged, but there is no lasting effect on the host cell membrane, as it can repair itself. Entry of the virus into host cells is inhibited at some point after attachment and before virus–cell fusion. Initial studies on LJ100 using Vero cells and mice showed no evidence for cytotoxicity, suggesting that the side effects associated with existing antivirals might be avoided. ***PNAS***

New vaccine gets approval

The US Food and Drug Administration has approved the new pneumococcal vaccine from Pfizer for use in the United States. Prevnar 13 protects against 13 pneumococcal serotypes, an expansion on the 7 serotypes targeted by the heptavalent vaccine that was licensed in 2000. The new vaccine is approved for use in young children aged 6 months to 5 years and targets the pneumococcal serotypes that cause invasive pneumococcal diseases such as meningitis and pneumonia and non-invasive diseases such as otitis media. Prevnar 13 was originally developed by Wyeth Pharmaceuticals, which was taken over by Pfizer last year; analysts have suggested that in 5 years' time sales of the new vaccine could be worth almost US$6 billion. ***Wall Street Journal***

King Tut killed by ancient scourge?

A new examination of the mummified remains of the Egyptian pharaoh Tutankhamen has revealed that malaria may have been a contributory factor in his death, according to a report in the *Journal of the American Medical Association*. Egyptian archaeologist Zahi Hawass and colleagues undertook a detailed radiological and genetic examination of the 3,300-year-old remains of Tutankhamen and 10 of his relatives. The study revealed evidence that the 'boy king', who came to the throne aged 11 years old and died just 8 years later, had a club foot and curvature of the spine as well as the bone disorders Kohler disease and avascular necrosis. Genetic testing for the *Plasmodium falciparum stevor*, *ama1* (apical membrane antigen 1) and *msp1* (merozoite surface protein 1) genes indicated that he suffered from malaria, and the authors propose that a bout of malaria, combined with his general ill health and the failure of a broken leg to heal properly, led to his death. **BBC/NY Times**



XMRV fatigue link tiring?

Doubts have now been cast on the link between xenotropic murine leukaemia virus-related virus (XMRV) and chronic fatigue syndrome (CFS) by three separate studies. In October 2009, a paper was published in *Science* describing the detection of XMRV sequences in peripheral blood mononuclear cells from 68 out of 101 CFS patients in the United States. In January 2010, a paper from a UK group, published in *PLoS ONE*, found no evidence of XMRV DNA in a cohort of 186 CFS patients, and in a separate study published in *Retrovirology* another UK team failed to detect viral DNA in 170 CFS patients. Now, reporting in the *British Medical Journal*, a third group, this time from The Netherlands, also report a failure to detect any evidence of XMRV infection. The results may be explained by differences between the cohorts; little patient information was provided in the original paper, but the cohort has been separately reported to comprise individuals from Incline Village in Nevada, USA, which was the site of a large cluster of CFS cases in the 1980s. The Dutch group conclude that it is possible that XMRV was the cause of this outbreak but it is highly unlikely to be the cause of the more common sporadic cases of CFS. **Science Insider/Nature News**

Breaking the cold chain

One of the main obstacles associated with the development of new vaccines that can be used in developing countries is the need for their refrigeration. Adrian Hill and colleagues now describe an ingenious solution to this problem, with the development of a new thermostabilization technique that can be used for vaccine vectors that are based on live viruses. The non-reducing sugars trehalose and sucrose are routinely used in biological products as stabilization agents. The authors found that when adenovirus and poxvirus recombinant vaccine vectors were suspended in a mixture of these sugars and then slowly dried at ambient temperature onto a polypropylene or glass fibre membrane, the sugars formed a glass that immobilized the virus. The membranes were left at high temperatures (up to 45 °C) for 6 months, and full bioactivity (as measured by viral titre and immunogenicity) was recovered on rehydration. Moreover, in conjunction with Novo Bio-Pharma, the authors have developed a simple vaccine delivery system that would allow the membrane bearing the vaccine-containing glass to be attached to a syringe, thus dispensing with the need for fragile vaccine vials. ***Sci. Transl. Med.***

In the News was compiled with the assistance of David Ojcius, University of California, Merced, USA. David's links to infectious disease news stories can be accessed on Connotea (http://www.connotea.org), under the username NatureRevMicrobiol.