

DISEASE WATCH | IN THE NEWS

PVL packs a punch

In addition to causing superficial skin infections, *Staphylococcus aureus* can cause invasive infections, including necrotizing pneumonia. This can be fatal and is caused by *S. aureus* strains that produce a particular toxin, the Pantón–Valentine leukocidin (PVL). In a recent issue of *Science*, researchers used a new mouse model of acute pneumonia to investigate the role of PVL and found that, contrary to previous reports, the PVL toxin is a significant *S. aureus* virulence factor, and that the toxin alone is sufficient to cause pneumonia. Previous work had indicated that PVL-positive strains adhere tightly to damaged airway epithelial cells so further investigations focused on the expression of surface proteins. The researchers found that the expression of the virulence factor staphylococcal protein A (SpA), which has a pro-inflammatory effect, was increased in PVL-positive strains and there was evidence that PVL and SpA had synergistic effects.

Science



Claudin out the closet

A paper recently published in *Nature* has identified a new co-receptor that is required for the entry of hepatitis C virus into host cells. From previous work, CD81 was known to be one of the receptors involved, but viral entry can often require sequential interactions with multiple receptors. Matthew Evans and colleagues used an iterative expression cloning approach in which a cDNA library was screened for factors that rendered a non-permissive cell line permissive for infection, and pulled out claudin 1. Claudin 1 is one of the components found in tight junctions

and is highly expressed in the liver. Using an anti-claudin 1 monoclonal antibody at various times during infection, Evans *et al.* determined that claudin 1 acts at a late stage in the entry process, after the interaction with CD81. *Nature*

Pneumococcal pilot scheme

February saw the launch of the first pilot Advance Market Commitment scheme, a market-based financing system designed to facilitate the development, and increase the availability, of vaccines in developing countries. Under the terms of an Advance Market Commitment, sponsor countries or foundations (currently the Bill and Melinda Gates Foundation and five sponsor countries, Canada, Italy, Norway, Russia and the United Kingdom are involved) agree to subsidize the future purchase of a vaccine that is not yet available if the vaccine can be developed and is demanded by developing countries. The pilot scheme will focus on developing a vaccine for pneumococcal disease. *NY Times*

Suppressive effect

Epidemiological data have long suggested an association between herpes simplex virus 2 (HSV-2) and HIV-1, and HSV-2 co-infection is known to increase genital shedding of HIV-1 RNA. Now, the results of a randomized, double-blind, placebo-controlled trial recently published in the *New England Journal of Medicine* have revealed that the antiviral agent valacyclovir, which is a suppressive therapy for HSV-2, causes a significant reduction in the shedding of HIV-1 RNA and also in the genital and plasma levels of HIV-1 RNA. A total of 140 women dually infected with HIV-1 and HSV-2 were enrolled in the study in Burkina Faso, and the test group were given 500 mg of valacyclovir twice daily for 3 months. The authors suggest their results could be relevant for HIV-1 prevention and management programmes as they indicate that sustained HSV-2 control could reduce HIV-1 transmission. *NEJM*

Cross-clade protection?

The South African AIDS Vaccine Initiative and the HIV Vaccine Trials Network at NIH have announced that enrollment for the largest HIV vaccine trial to be conducted in Africa has opened in South Africa.



Researchers hope to enrol up to 3,000 HIV-negative men and women aged 18–35 at five sites in this proof-of-concept Phase IIb trial, which is evaluating Merck's MRKAΔ5 HIV-1 gag/pol/nef candidate vaccine. The vaccine is a trivalent adenovirus-5-based vaccine containing the HIV-1 *gag*, *pol* and *nef* genes. A Phase IIb trial of this vaccine is already underway in other sites around the world, however the South African trial will be the first test of whether it provides protection in a population in which the predominant circulating clade of HIV-1 is different from that in the vaccine — the HIV-1 epidemic in South Africa mainly involves clade C viruses, whereas the antigens in the vaccine are from a clade B virus. Organisers hope to be able to enrol equal numbers of men and women in the trial. *NIH*

Outbreak news

Dengue. Increased rainfall in Brazil, Paraguay and Bolivia is being blamed for the increased incidence of dengue fever in these countries in the first 2 months of 2007. By the end of February, more than 53,000 people had been infected in Brazil, with at least 5 deaths, and there have been 15,000 cases in Paraguay, with at least 10 deaths.

Avian influenza. The first human case of infection with the H5N1 avian influenza virus has been reported by the Ministry of Health in Laos. The cumulative number of human H5N1 infections worldwide on 1 March 2007 was 277, with 167 deaths.

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 ojcius.