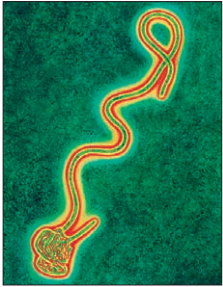


Zaire ebolavirus spreads across Africa



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By studying the genetic sequences of ebolaviruses that caused outbreaks in equatorial Africa over the past three decades, a team of German and US researchers has concluded that the Zaire strain of ebolavirus (ZEBOV) has been slowly spreading across these regions rather than popping up as sporadic outbreaks. "Our analyses suggest that ZEBOV has recently spread across the region rather than being long persistent at each outbreak locality", says lead author Peter Walsh (Max Planck Institute for Evolutionary Primatology, Leipzig, Germany).

The first ZEBOV outbreaks occurred between 1976 and 1979 in Sudan and Zaire, where 88% of the 318 infected individuals died. Over the past 10 years, separate outbreaks of ZEBOV have killed hundreds of human beings and tens of thousands of great apes in Gabon and the Democratic Republic of the Congo (former Zaire). Most human

outbreaks have been spread via contact with ape carcasses and it is thought that outbreaks have stemmed from multiple, independent introductions of the virus, which had remained dormant in certain places.

The researchers combined genetic data from human samples at the different outbreak sites with information on the timing and location of past ZEBOV outbreaks. Their findings indicate that the outbreaks were caused by a single strain of the virus that originated in the 1970s and has since spread across central Africa at a rate of nearly 50 km a year. The analysis also suggests that the viruses all originated from the 1976 Yambuku virus and changed gradually as they spread outwards. Thus, the further the outbreaks were from Yambuku, the more their genetic sequences differed. Taken together, the evidence supports the hypothesis that a "consistently moving wave of ZEBOV

infection" recently spread to outbreak sites in Gabon and the Congo.

"Now we know that there is some predictability in the spread of the Zaire strain of ebola", says co-author Leslie Real (Emory University, Atlanta, GA, USA). Walsh argues that the most effective defence against the virus would be a vaccination programme aimed at gorillas and chimpanzees in the predicted path.

"The analysis depends on a point in 1976 and then a relatively close cluster of points from 1994–2003 which weakens its statistical credibility", says C J Peters (University of Texas Medical Branch, Galveston, USA), adding that "[nonetheless], I am quite happy to see a new and fresh look at the problem and the community will be testing all hypotheses over the next few years".

Xavier Bosch

Drug giant to offer new, cut-price tuberculosis treatment

A series of studies around the globe will assess whether the antibiotic moxifloxacin can shorten the standard 6-month treatment of tuberculosis. If successful, the drug's manufacturer, Bayer Healthcare, have promised to make the treatment affordable and accessible to developing countries.

"This is huge news", says Richard Chaisson (Johns Hopkins University School of Medicine), who is running two of the trials. "There have been no new drugs for tuberculosis in the last 40 years."

The phase II clinical trials, coordinated by the non-profit Global Alliance for TB Drug Development, will involve around 2500 patients in eight different countries. It is hoped substituting moxifloxacin for one of the standard antituberculosis antibiotics will reduce treatment time by a couple of months. This means patients will be more likely to complete their treat-

ment and help keep the build up of multidrug-resistant tuberculosis bacteria at bay.

Current tuberculosis therapy relies on a cocktail of four antibiotics—isoniazid, ethambutol, rifampicin, and pyrazinamide—that patients take several times a day. 6–8 months of treatment cures 95% of those infected, but the regime is difficult to stick to and many patients fall by the wayside.

Mouse studies have shown that substituting moxifloxacin for isoniazid shortens treatment time by around a month. "We have high hopes that it will perform well in human trials", says Chaisson.

Preliminary data from one study, sponsored by the Centers for Disease Control and Prevention (CDC; Atlanta, GA, USA), looks promising. Around 250 tuberculosis patients in Canada, Uganda, South Africa, and the USA took moxifloxacin alongside isoniazid, rifam-

picin, and pyrazinamide for 2 months then switched to the standard treatment. Combined with the other drugs, moxifloxacin has a bacteriocidal effect, says Kenneth Castro, director of tuberculosis elimination at the CDC. But it is too early to say if the new drug combination can shorten treatment time.

At least seven other similar studies, some still in the development phase, will assess moxifloxacin's potential over the next few years. Bayer is donating the drug and will cover the approval process costs should the trials be successful. It will then offer cut-price moxifloxacin to developing countries for tuberculosis treatment.

"Many pharmaceutical companies shy away from drug trials where they perceive they are unlikely to make a profit", says Castro, "so Bayer is to be applauded for its decision".

Helen Pilcher