



## AIDS virus decades older than thought

New study estimates date of origin at 1908; previous theory was 1930

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NEW YORK - The AIDS virus has been circulating among people for about 100 years, decades longer than scientists had thought, a new study suggests.

Genetic analysis pushes the estimated origin of HIV back to between 1884 and 1924, with a more focused estimate at 1908.

Previously, scientists had estimated the origin at around 1930. AIDS wasn't recognized formally until 1981 when it got the attention of public health officials in the United States.

The new result is "not a monumental shift, but it means the virus was circulating under our radar even longer than we knew," says Michael Worobey of the University of Arizona, an author of the new work.

The results appear in Thursday's issue of the journal *Nature*. Researchers note that the newly calculated dates fall during the rise of cities in Africa, and they suggest urban development may have promoted HIV's initial establishment and early spread.

### Chimpanzee virus

Scientists say HIV descended from a chimpanzee virus that jumped to humans in Africa, probably when people butchered chimps. Many individuals were probably infected that way, but so few other people caught the virus that it failed to get a lasting foothold, researchers say.

But the growth of African cities may have changed that by putting lots of people close together and promoting prostitution, Worobey suggested. "Cities are kind of ideal for a virus like HIV," providing more chances for infected people to pass the virus to others, he said.

Perhaps a person infected with the AIDS virus in a rural area went to what is now Kinshasa, Congo, "and now you've got the spark arriving in the tinderbox," Worobey said.

Key to the new work was the discovery of an HIV sample that had been taken from a woman in Kinshasa in 1960. It was only the second such sample to be found from before 1976; the other was from 1959, also from Kinshasa.

Researchers took advantage of the fact that HIV mutates rapidly. So two strains from a common ancestor quickly become less and less alike in their genetic material over time. That allows scientists to "run the clock backward" by calculating how long it would take for various strains to become as different as they are observed to be. That would indicate when they both sprang from their most recent common ancestor.

The new work used genetic data from the two old HIV samples plus more than 100 modern samples to create a family tree going back to these samples' last common ancestor. Researchers got various answers under various approaches for when that ancestor virus appeared, but the 1884-to-1924 bracket is probably the most reliable, Worobey said.

The new work is "clearly an improvement" over the previous estimate of around 1930, said Dr. Anthony Fauci, director of the National Institute of Allergy and Infectious Diseases in Bethesda, Md. His institute helped pay for the work.

Fauci described the advance as "a fine-tuning."

Experts say it's no surprise that HIV circulated in humans for about 70 years before being recognized. An infection usually takes years to produce obvious symptoms, a lag that can mask the role of the virus, and it would have infected relatively few Africans early in its spread, they said.

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