

Chimps were the big news during opening day of the sixth Conference on Retroviruses and Opportunistic Infections, held Jan. 31 through Feb. 4 in Chicago.

University of Alabama at Birmingham researcher Dr. Beatrice Hahn believes she has found the animal in which HIV first developed before it was passed to humans.

The identification could be very important because chimpanzees are the animals that are genetically most similar to humans. Humans share 98 percent of the same genome, or DNA blueprint.

The virus does not appear to be harmful to the chimpanzees, thus, studying how their immune systems are able to suppress the virus—as well as the genetic differences between chimps and humans—may offer clues about how to control the virus in humans.

"Chimpanzees are naturally infected and do not get sick," says Hahn, who ran the study with an international team of scientists. "That gives us an opportunity to find out how the chimpanzee handles its infection compared to how we don't handle ours."

Hahn and her colleagues analyzed the mitochondrial DNA of HIV-1 and the virus in monkeys and chimps. They found the chimp version to be the equivalent of a missing link between the other two better-known forms of the virus. They concluded the virus had crossed from chimps to humans on at least three separate occasions, resulting in the three subgroups of HIV-1 known as M, N, and O.

She offered no suggestion as to when this might have occurred, but it must have been prior to the 1940s because the virus has been detected in stored human blood samples dating back that far.

Until now, the origins of the HIV-1 virus have been a mystery, though scientists have long suspected simians as the source.

The immune system was, not surprisingly, a major focus of conference participants.

Dr. Bruce Walker is a leading theorist of immune system reconstitution. The Boston researcher believes that if HIV is caught early enough—before too much virus is "archived" in

## CHIMP CHANGE

Discoveries about the simian source of HIV could alter doctors' approach to treating the virus by Bob Roehr

body tissue and too much damage is done to the immune system—then the immune system can be reconstituted in whole or in part.

Walker was the first to try catching patients immediately after exposure, even before seroconversion, when the immune system produces antibodies in the blood that are detected by the standard HIV test.

Walker's colleague at Massachusetts General Hospital, Dr. Eric Rosenberg, insists: "There may be a window of opportunity to treat people before T-helper cells are lost."

Walker hypothesizes the window extends from the point of infection to seroconversion, then seems to close over the next 90 days.

French doctor Brigitte Autran reviewed the growing body of knowledge about the impact of immune reconstitution on opportunistic infections. She says there is recovery in virtually all individuals except those with severe thymus damage, which generally occurs in the very late stage of disease.

However, reconstitution "requires long-term suppression of viral load," she warns.

The tentative results of a small human experiment offer a glimmer of possibility that the body's own defense system can be trained to suppress HIV.

The approach attempts to repeat the success of the "Berlin patient," a German man who stopped and started AIDS therapy and eventu-



*"Chimpanzees are naturally infected and do not get sick. That gives us an opportunity to find out how the chimpanzee handles its infection compared to how we don't handle ours."* —Dr. Beatrice Hahn

ally quit it entirely, only to discover that his virus had inexplicably disappeared. He has remained free of HIV for two years.

"I don't see why others cannot become the Berlin patient," says Dr. Franco Lori, head of the Research Institute for Genetic and Human Therapy at Georgetown University in Washington, D.C.

Lori's team is exploring the idea that it may be possible to wean people away from the demanding regimen of AIDS medicines without actually curing them.

At first glance, Lori's theory that therapy must be stopped in order for the patient to get better appears to be counterintuitive. But a

number of standard childhood vaccinations adhere to the same principle that the immune system needs more than one exposure to a pathogen in order to develop an effective response. Thus there are two-stage vaccination programs, as is the case with polio vaccine, or periodic "booster" shots of tetanus.

Still, Lori cautions this may work only in some circumstances. "Randomized controlled studies need to be done in order to determine the relative contribution of each of the key factors," he says.

Robert Schooley, a University of Colorado researcher who helped organize the conference, told reporters: "My concern is that this will be overplayed. It sounds good to patients. Who wouldn't want to stop treatment? But the real question is whether you can change the immune response. I worry patients will stop therapy. Whenever that happens, in my experience, the virus comes roaring back."

Thus far, Lori has tried the approach on three patients. While it's still too soon to know whether it will work, Lori finds the first few weeks' results promising because the interval before the virus returns is lengthening. He also reports that, in more aggressive experiments with other primates, the approach seems to keep the virus at bay for good.

Conference chairman Dr. Douglas Richman, a senior researcher at the University of California at San Diego, says of this year's gathering: "The quality of the material is really first class."

Of the 1,600 abstracts submitted for consideration this year, only 100 were granted time for oral presentation.

Richman points to revolutionary new methods of testing that are giving researchers a better understanding of how the immune system works and how it can reconstitute itself under powerful therapies such as protease inhibitors, which hold the virus in check. This has important implications for developing both new therapies and preventive vaccines.

Richman calls these "most exciting times, in that more seems to be getting accomplished in more areas. Things are sort of fitting together, integrating.... It's not Madame Curie discovers radium."

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