

Is UK HIV Strain Really LAV?

A virus strain that formed the basis of one of the first diagnostic tests for human immunodeficiency virus (HIV) in blood—and the most widely used such test in Britain—may be the product of laboratory cross contamination. Robin Weiss, scientific director of the Chester Beattie Laboratories of the Institute of Cancer Research in London, pointed out in a letter to *Nature* last week that he “cannot exclude the possibility” that the virus, isolated in his lab and named CBL-1, is actually either a strain called LAV isolated by Luc Montagnier at the Pasteur Institute or an almost identical strain called HTLV-IIIB grown by Robert C. Gallo at the U.S. National Cancer Institute.

Any suggestion that this apparent contamination in Weiss’ lab would have any commercial impact was discounted by all concerned. But it does add a new twist to the tangled story of LAV and IIIB. When these viruses were sequenced in 1984, they turned out to be so close genetically that most researchers now believe they are the same virus. Allegations quickly began flying that Gallo had misappropriated a sample of LAV he had received from Montagnier in 1983, and the National Institutes of Health launched an investigation last year. This investigation has established that Gallo had a variety of isolates growing in his own lab, leaving contamination as the likeliest explanation—if LAV and IIIB do turn out to be the same. Now comes evidence from Weiss’ lab that contamination may have occurred there.

Weiss had pointed out in 1987 that antibodies to CBL-1 proteins do not distinguish between CBL-1, LAV, and HTLV-IIIB. Now, new sequence information from three different genes indicates that CBL-1 is 98.0% identical to LAV and 97.8% identical to HTLV-IIIB. LAV and HTLV-IIIB are 98.3% identical in the same regions.

Weiss has provided information suggesting that indeed, both the resemblance of CBL-1 and that of LAV to IIIB is due to contamination. Weiss told *Science* that LAV and HTLV-IIIB were both being grown in his lab at the time he was growing CBL-1. If they were distinct strains, and one had contaminated his cultures, Weiss says, he would expect to be able to say which was the contaminant, but he cannot—indicating that those two may be the same virus, and that that virus somehow infiltrated his own cultures.

“It most likely is contamination,” said Montagnier, “but no one can be sure, and if it is, it is definitely accidental.” Montagnier went on to offer one suggestion why HIV seems to be peculiarly prone to cross con-

tamination. Most laboratories keep the cell cultures in which they grow the virus in incubators that recycle air enriched with carbon dioxide, which is needed to keep the culture medium in good condition. “So the flask containing the culture is not completely closed, and the virus could move from flask to flask.” Montagnier says that he has always used stoppered flasks, and so has not suffered cross contamination.

“It’s a new one to me,” said Weiss. On reflection, however, he said that Montagnier’s theory “doesn’t fit with certain things we know about contamination generally.” It implies that contamination would depend on what goes on within the incubator, whereas Weiss says, in fact, that it generally seems to depend more on who is handling the viral

cultures in the lab.

Weiss regards the episode as unfortunate but typical and not restricted to HIV. “I have been working with viruses and cells in culture for 27 or 28 years now,” he said, “and there have been innumerable cross contaminations in laboratories in the past.”

Contamination of CBL-1 might have had commercial implications, since the Institute of Cancer Research patented that isolate and granted a license to the Wellcome Foundation. Wellcome used CBL-1 to create one of the first effective tests for HIV in blood products, which is rumored to have made millions of dollars. Both sides, however, doubt that there are any grounds for seeking repayment. Said Nadine Peyrolo, press officer for the Pasteur Institute, “In the opinion of our director, as far as it [cross contamination] cannot be totally proved, we will not move.”

■ JEREMY CHERFAS

Pinning Down Gallo’s Virus

An investigation into the early AIDS work of Robert C. Gallo is apparently trying to nail down the source of the viral isolate Gallo put into a cell line in 1983 and subsequently showed was the cause of AIDS. According to an article by John Crewdson in *The Chicago Tribune*, NIH investigators have awarded a \$50,000 contract to an independent laboratory to analyze leftover cells from several AIDS patients whose blood Gallo has said was used as the source of his virus. The lab will try to extract viruses from the cells and see whether any of them match the strain grown in the cell line.

This is the latest step in an investigation launched by NIH last year into allegations that Gallo may have misappropriated a virus sample sent to him by Pasteur Institute virologist Luc Montagnier in September 1983. The allegations stem from the fact that the virus grown in Gallo’s lab, which he named HTLV-IIIB, is so similar genetically to the strain isolated earlier by Montagnier, called LAV, that most researchers believe they are the same.

NIH reported last year that Gallo had no apparent motive for stealing the French virus because he had several isolates of his own growing in his lab when he received the LAV sample. That would seem to leave contamination as the most plausible explanation for the striking similarity between the two strains.

Now investigators are apparently trying to find out whether there was a contamination or whether (a long-shot possibility) HTLV-IIIB and LAV are, in fact, different viruses that were independently isolated. These two possibilities could be examined by testing all the blood samples from which Gallo said IIIB was derived—pooled blood of ten separate AIDS patients.

According to *The Chicago Tribune* article, cells or other biological material from these ten patients stored in Gallo’s freezer have been turned over for analysis. If IIIB was a contaminant, however, the investigation is unlikely to come up with a conclusive answer. The reason is that if the virus were a contaminant, it would not have come from any of the ten Gallo samples. To prove that negative conclusion, virus would have to be extracted from all ten samples—an unlikely outcome given the age and quantity of the samples.

In a curious further development, the NIH investigators are also hoping to check the provenance of LAV itself, Crewdson reported. Acting NIH director William Raub recently asked the Pasteur Institute for a sample of any tissue remaining from the patient from whom LAV was originally isolated, Crewdson said, apparently to check the virus from that sample against later isolates Montagnier distributed as LAV. Some at NIH, the *Tribune* article said, believe contamination may actually have happened in the opposite direction—with LAV cultures being contaminated with Gallo’s IIIB samples that had been sent to Paris.

■ C.N.