AIDS research

New human retroviruses: One causes AIDS . . .

ACQUIRED immune deficiency syndrome (AIDS) can be caused by a second virus, at least 30 per cent different in sequence from the virus particle, termed HTLV-III in the United States and LAV in France, that is currently implicated in the disease. So claimed Luc Montagnier, head of the French group that discovered LAV at the Institut Pasteur in Paris, at a meeting in Lisbon, Portugal, last week. (HTLV, or human T-lymphotropic virus, was isolated by Robert Gallo and his colleagues at the US National Institutes of Health and Montagnier and his group isolated what they called LAV, or lymphadenopathy virus.)

Montagnier is sending his paper on the discovery to the *Comptes Rendues* of the French Academy of Sciences, and to *Science*, but was prepared last week to outline what he had said in his Lisbon address. According to Montagnier, the new virus, which he calls LAV-II, was discovered in two patients with AIDS symptoms in a Lisbon hospital. The patients' sera showed no antibodies against LAV (now called LAV-I). There were, however, viruses present that looked just like LAV-I in the electron microscope, and which had the same T-lymphotropic and cytopathic properties.

Nevertheless, DNA probes derived from LAV-I did not hybridize with the DNA from the new virus "in stringent conditions". Sera from LAV-I patients contained no antibodies for the envelope part of the new virus, although sera from patients infected by the new virus showed a small reactivity with LAV-I core proteins. These data suggested that the new LAV-II virus diverged at least 30 per cent in sequence from LAV-I, Montagnier said.

LAV-II patients also showed some antibodies against the green monkey virus considered similar to LAV-I, "and the interesting question now will be how similar LAV-II is to the simian virus", Montagnier said. **Robert Walgate**

AIDS research

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Washington

ANOTHER dispute over scientific primacy has erupted between the United States and France about a human retrovirus. Max Essex and Phyllis Kanki of the Harvard School of Public Health in Boston, together with colleagues at Harvard and in France and Senegal, have found a virus related to Simian T-lymphotropic virus type III found in African Green Monkey ($STLV\text{-}III_{AGM}$) that can be detected in healthy humans. Essex announced the discovery last week to coincide with an announcement by Luc Montagnier of the Institut Pasteur about another human retrovirus (see above). A paper describing Essex's virus will appear in the 11 April issue of *Science*.

Like human T-lymphotropic virus type-III/lymphadenopathy virus (HTLV-III/LAV), the new virus, termed HTLV-IV, infects helper T-cells. But unlike HTLV-III, it is not cytopathic for T-cells.

Last year, Essex and his colleagues reported finding healthy individuals from West Africa who displayed strong antibody reactivity to all $STLV\text{-}III_{AGM}$ viral proteins, but reacted weakly with viral proteins from HTLV-III/LAV. They concluded that there was in Africa a human virus more closely related to STLV-III than HTLV-III that either shared a common genetic ancestor or derived directly from the monkey virus.

The Harvard team successfully grew HTLV-IV from serum of three seropositive individuals. Analysis of the new virus shows that it shares many proteins with $STLV\text{-}III_{AGM}$, more so than with HTLV-III/LAV, notably a 32,000 dalton protein suspected to be a transmembrane envelope protein. The analogous protein in HTLV-III/LAV weighs 42,000 daltons. Electron micrograph morphology of HTLV-IV likewise shows greater similarities to the monkey virus than to HTLV-III/LAV.

At a press conference at the American Society of Microbiologists' annual meeting in Washington, DC, Essex said the new virus described by Montagnier "appears to be related" to HTLV-IV. Unlike LAV-II, HTLV-IV does not appear to cause illness, but Essex would not rule out the possibility that infected individuals might develop disease later in life. Essex believes there is a continuum of retroviruses from those closely related to STLV-III to those closer to HTLV-III/LAV, and it may be that LAV-II lies on that continuum.

Essex was prompted to release details of his discovery in advance of its formal publication because of intense pressure from the media both on him and his collaborator Francis Barin in Tours, France, to comment on Montagnier's discovery. Essex maintains he learned of Montagnier's work only on 22 March, and then only at second hand. Essex worried that he would be "raked over the coals" by the press for refusing to comment on his own work at a time of intense public interest in human retroviruses.

US journalists were alerted to the Institut Pasteur discovery by a press release from a New York public relations company. **Joseph Palca**

NSF tests mini-supercomputer

Washington

THE National Science Foundation's San Diego Supercomputing Center (SDSC) is gearing up for tests of a mini-supercomputer that could save time and money for thousands of Cray users. The SCS-40 or "Crayette" hardware contains the instruction set of a Cray X-MP and can write or run programs compatible with the mammoth number crunchers. When the machine arrives in July, computer scientists will judge whether the $600,000 crayette can fill the gap between its $10 million parent and the average patron.

Scientific Computing Systems in California built the SCS-40 in less than two years to provide an intermediate for local Cray programming and debugging, saving Cray time for the largest calculations. With a quarter of a Cray's capacity, the SCS-40 could also expand the computing power of smaller facilities.

John Connolly, head of the supercomputer project at NSF, says that if the SCS-40 makes the grade it could be added to hundreds of remote facilities for the Crays at Carnegie–Mellon University in Pittsburgh and the University of Illinois at Urbana–Champaign, in addition to the San Diego site. Nearly half of the advanced scientific computing budget is eaten away by the leasing of the Crays installed in these centres. Connelly thinks the auxiliary crayettes would prove to be cost-neutral compared to direct Cray use for programming. The SCS-40s might realize their greatest savings in reduced time spent in labour-intensive programming.

Software simulations of Cray architecture have been devised, but are orders of magnitude slower than the Crays themselves and overwhelm lesser machines. Cray's own attempt to build a mini version was shelved in the prototype stage because the market differed from Cray's established clientele. Several other start-up companies that attempted the project could not rally sufficient support. By 1987, the verdict on the SCS-40 should be in. Karen Wright