

New tests for spotting AIDS

Berkeley

A FAR more sensitive test for the human immunodeficiency virus (HIV), the virus that causes AIDS, than any now available has been developed by Cetus Corporation, of Emeryville, California. The test should be available within a month through licensed reference laboratories in California.

The principle of the test is based on DNA hybridization to detect proviral DNA. The polymerase chain reaction (PCR), developed at Cetus, amplifies the hybridization signal and allows detection of as little as one molecule of DNA. The test should receive Food and Drug Administration approval and be available in kit form in about two years.

PCR-based diagnostic tests promise to improve the safety of the blood supply, by enabling blood banks to detect HIV in blood during the weeks immediately following infection, before antibodies are present. The tests will also be useful as clinical tools, for studying the progress of viral infection and monitoring the effectiveness of experimental drugs. The sensitivity of the test, combined with internal controls, give it a very low rate of either false positives or negatives.

Cetus was awarded a broad patent on PCR in July 1987, and has filed some 20 further patent applications on refinements and automation of the process. John Sninsky, of the company's department of diagnostics research, says the first clinical kits will cost about \$300, making them cost-competitive with the current viral-culture means of detecting the virus. Further simplifications will be necessary before the test can be made simple and inexpensive enough for use by blood banks, he said.

Researchers at the City of Hope National Medical Center in Duarte, California, recently threw their hat into the HIV diagnostics ring, but will be hard pressed to catch up with Cetus. City of Hope's PCR test, developed by John Rossi, differs from the Cetus test in that it detects RNA rather than DNA. But the RNA test has so far been tried only on the blood of AIDS and AIDS-related complex (ARC) patients, and it is a matter of debate whether it will be more sensitive during the early, latent stages of the disease, when the DNA provirus, incorporated into a cell's genome, is not highly transcribed.

Rossi has been looking for pharmaceutical companies interested in developing and marketing his test, but says the response so far has been lukewarm, because it would require licensing by Cetus.

Marcia Barinaga

Attendance low puts future of ANZAAS in grave danger

Sydney

THE much-vaunted centenary of the Australian and New Zealand Association for the Advancement of Science (ANZAAS), marked by its 58th congress here last week, managed to attract the smallest number of participants (1,000 in round numbers) since figures were first kept in 1932.

Since attendance fees are a major source of funds for the association's continuing activities, its future must now be seriously in doubt after failing to attract a large paying audience in Australia's largest city.

The programme followed the standard mix at recent meetings — symposia on matters of current science and social science, plenty of media coverage and a sprinkling of overseas speakers. What has gone wrong?

There are many explanations but no solution. But the sad decline over the past century was wryly illustrated by the proud history of the association told in Professor Roy Macleod's new book *The Commonwealth of Science* released during this year's congress.

Part of the trouble of the congress must be the high cost, a registration fee of A\$60 a day, plus interstate travel where appropriate. To further complicate matters, the organizers were able to produce a detailed programme of events only the day before the congress opened.

The congress failed again to be a forum for a national debate on science policy, but there was demonstrable enthusiasm for new projects announced at ANZAAS for promoting the public understanding of science. This was the message delivered by this year's president of the corresponding British association, Sir Walter Bodmer. Dr Robert Crompton of the Australian Academy of Science announced a plan for a science and technology information service to assist the media.

One of the few exceptions, this year, to the rule that almost no original scientific work is announced at ANZAAS was the announcement by Professor Graham Johnston, the University of Sydney pharmacologist, with his colleagues David Kerr and Jennifer Ong, that steroids such as cortisol are able to modify the function of the most important inhibitory neurotransmitter γ -aminobutyric acid. It seems that adrenal steroids in very small doses (10^{-12} g) can have significant effects, pointing to the design of drugs for dealing with the problems of anxiety and stress.

Peter Pockley

Peter Pockley has covered ANZAAS congresses for Nature since 1965.

Kangaroo aid

ORTHOPAEDIC surgeons in Australia are looking to the kangaroo for help. Dr Klaus Schindhelm, assistant director of the Centre for Biomedical Engineering at the University of New South Wales in Sydney, told participants at ANZAAS that kangaroo-tail collagen is a promising new material for tendon and ligament prostheses.

Kangaroo-tail collagen has advantages over synthetic polymers used in xenografts. It is resorbed at almost the same rate as the endogenous tissue regenerates. It is also pure and of the appropriate molecular structure.

The kangaroo tail is a rich source of the collagen. A single tail from a fully grown red kangaroo may provide material for 100 tendon or 15 ligament reconstructions. The material is at present undergoing animal trials.

Rejection is not the chief problem, for collagen is highly conserved across animal species. The problem is promoting the attachment of the prosthesis to the living tissue. Schindhelm is exploring chemical modifications to do this.

Tania Ewing

Dengue fever threat

AN Australian federal government decision to cut the National Diseases Control Programme next month could result in an outbreak of a mosquito-borne disease, dengue fever, in North Queensland.

That possibility was raised by Dr Brian Kay, an entomologist from the Queensland Institute of Medical Research, speaking at ANZAAS.

The mosquito, *Aedes aegypti*, carrying the dengue fever virus, is a common inhabitant of Australian backyards. Dengue fever last broke out 26 years ago but Kay says that preventive measures have been declining since the last outbreak.

Dengue is also known as the "three-day hangover", and the typical symptoms are similar to those of a severe influenza attack. But a fatal strain of the disease, haemorrhagic dengue fever, could enter Australia from Asia. The current theory regarding virility of the disease is that antibodies raised to the classical form of dengue fever enhance the second infection by the haemorrhagic form of the virus.

"*Aedes aegypti* is easy to control and has cost the government only A\$5.5 million in the past five years", says Kay. "The rise in mosquito numbers coupled with the risk of introduction of the disease from Asia means that North Queensland is sitting on a powder keg."

Tania Ewing