MEETING PREVIEW

# AIDS Conference in Berlin Offers Plenty of Hidden Gems

If you are one of the 15,000 people planning to attend the 9th International Conference on AIDS in Berlin from 7 to 11 June, expect information overload: 800 oral presentations and 4500 posters. To navigate this forest of data and interpretations, the conference organizers will thoughtfully provide you with two guides the size of telephone directories filled with abstracts. Yet no matter how much time you spend poring over the program, you will no doubt miss something you were initially eager to see—as well as stumble on something intriguing you hadn't even flagged.

Perhaps that's how it should be. In scientific meetings, as in science itself, there should be room for chance. Still, planning is a virtue and in an effort to help attendees see some of the biggest trees in the forest, *Science* has obtained a copy of the conference program and highlighted a few promising sessions.

The conference days typically kick off with plenary sessions, and this year the organizers have had the good sense to break with tradition and not schedule parallel talks, so attendees can hear all the keynote addresses and not have to make agonizing choices. As usual, plenary speakers include big names grappling with big topics. Since nobody needs to be steered to those sessions, we've concentrated on a few attractions that ordinarily would be billed farther down the marquee.

Gene therapy for HIV infection is moving out of the realm of science fiction now. In Berlin, work will be presented by Michael Burkinsky of New York's Picower Institute for Medical Research that may eventually bring the technique one step closer to the clinic. Gene therapy techniques rely on mouse retroviruses as a vector to deliver the therapeutic gene. One large stumbling block has been that most retroviruses only replicate efficiently in dividing cells; this limits the vector's ability to spread to daughter cells and deliver the therapeutic gene. Because HIV is the one retrovirus that can replicate in nondividing cells, Burkinsky, with Mario Stevenson of the University of Nebraska, has been dissecting the AIDS virus to learn what makes it different. The hope is that HIV's special trait can be applied to other, safer retroviral vectors, as Burlinsky will explain in his planned talk.

Though it's well established that HIV can be found in seminal fluid, it has yet to be proven that it can actually infect the sperm cells that are in that fluid. So there should be ample curiosity in a presentation from Virginia Scofield of the University of California, Los Angeles about an in vitro model capable of artificially infecting sperm cells with HIV.

Look for more sessions than ever about "natural protection" in people and animals who have been infected with the AIDS virus but resist developing disease. One tantalizing report in this category will come from Reinhard Kurth of the Paul Ehrlich Institute in Langen, Germany, who has been studying African Green monkeys infected with SIV, a cousin of HIV-1. Though SIV readily kills Asian monkeys such as rhesus macaques, it fails to cause disease in African Green monkeys. Kurth will describe an unidentified soluble factor secreted by immune cells of African Greens that he thinks contributes strongly to their protection. Also look for a presentation from the National Cancer Institute's (NCI) Dean Mann about genetic cofactors that may have a role in delaying progression to disease in infected people.

Natural protection, which is rapidly moving to center stage in AIDS research, doesn't just cover those who never become ill. It also includes people and their animal counterparts who likely were exposed to the AIDS virus but never even became permanently infected. Among the gems in this category ought to be a report by Francis Plummer of the University of Manitoba on resistance to HIV in continuously exposed prostitutes in Nairobi, and one by NCI's Mario Clerici on immune responses of presumably exposed but antibody-negative monkeys.

In the vaccine realm, the hottest session may well turn out to be not about a preventive preparation but, instead, a vaccine aimed at treating infected people. For the first time, results of a 1-year trial of the Salk HIV immunogen, the vaccine developed by Jonas Salk, will be made public. This is the largest trial of its kind completed to date, and the data could have a strong impact on the fate of therapeutic AIDS vaccines. For preventive vaccines, two provocative talks are scheduled about the tests in animals and

**THE HEAVY HITTERS IN AIDS, 1988-1992**

| | Name | Papers | Name | Citations | Name (Number of Papers) | Cites/Paper |
|---|---|---|---|---|---|---|
| 1. | Robert C. Gallo<br>National Cancer Institute | 171 | Anthony S. Fauci<br>NIAID | 3735 | Bryan R. Cullen (35)<br>Howard Hughes Medical Institute, Duke | 48.57 |
| 2. | Jaap Goudsmit<br>University of Amsterdam | 121 | Samuel Broder<br>National Cancer Institute | 2352 | Martin S. Hirsch (36)<br>Harvard Medical School | 41.89 |
| 3. | Eric DeClercq<br>Rega Institute for Medical Research | 112 | Robert C. Gallo<br>National Cancer Institute | 2223 | Gerald Schochetman (30)<br>Centers for Disease Control and Prevention | 41.87 |
| 4. | Anthony S. Fauci<br>NIAID | 96 | Jaap Goudsmit<br>University of Amsterdam | 1923 | Jean-Paul Allain (31)<br>Cambridge University | 41.81 |
| 5. | Brian G. Gazzard<br>Westminister Hospital | 94 | Jay A. Levy<br>University of California, San Francisco | 1907 | Alphonse J. Langlois (40)<br>Center for AIDS Research | 39.85 |
| 6. | Douglas D. Richman<br>University of California, San Diego | 88 | Thomas J. Matthews<br>Center for AIDS Research, Duke | 1809 | Anthony S. Fauci (96)<br>NIAID | 38.91 |
| 7. | Samuel Broder<br>National Cancer Institute | 87 | Douglas D. Richman<br>University of California, San Diego | 1797 | Scott Putney (35)<br>Repligen | 38.86 |
| 8. | Flossie Wong-Staal<br>University of California, San Diego | 78 | Hiroaki Mitsuya<br>National Cancer Institute | 1791 | Thomas J. Matthews (52)<br>Center for AIDS Research, Duke | 34.79 |
| 9. | Helmut Wachter<br>University of Innsbruck | 72 | Robert Yarchoan<br>National Cancer Institute | 1726 | Robin A. Weiss (49)<br>Chester Beatty Laboratories | 33.73 |
| 10. | Anthony J. Pinching<br>St. Mary's Hospital | 67 | Bryan R. Cullen<br>Howard Hughes Medical Institute, Duke | 1700 | Jan M. Orenstein (35)<br>George Washington University | 31.57 |

**Heads up.** This data, culled from more than 3000 journals by the Institute for Scientific Information, may help as a Berlin guide.

humans of a preparation that uses canary pox as a vector to deliver HIV proteins. Presenting the animal data will be NCI's Genoveffa Franchini, while the human work will be discussed by Gilles Pialoux from the Hospital of the Pasteur Institute.

A vaccine topic that has finally hit the big time this year is the cat model. Cats develop AIDS when infected with FIV, another HIV relative, and four sessions in Berlin will be devoted to discussing the model's merits. The cat model offers the advantage of being cheaper than primates, and thus more animals can be used in an experiment, increasing the likelihood of statistically significant results.

One of the conference's most intriguing sessions is sure to be the report on the results from the large-scale French-British AZT trial known as the "Concorde." The results conflict with the practice in the United States and elsewhere of treating healthy but infected people with AZT, and they will be carefully scrutinized.

News of preliminary data from the Concorde study attracted lots of media attention last April, but it paled next to the storm surrounding a *Nature* article 2 months earlier by Harvard's Yung-Kang Chow describing a way to possibly beat HIV drug resistance that Chow and his colleagues are calling "convergent combination therapy" (see p. 1258). Chow had a poster about this very idea at last year's international conference in Amsterdam, but his *two* oral presentations this year are sure to make a bigger splash.

The international AIDS conferences tend to have a surprising epidemiology story and this year's may well come from India. Both HIV-1 and HIV-2 have now been found in that country, as well as sample strains from nearly every known family of HIV-1. Shiv Lal from the National AIDS Control Organization in New Delhi, India, will be making the presentation.

That's much too short a summary to do justice to a week boasting 800 oral talks and 4500 posters. Then again, it would be a pity if the summary were exhaustive, since so much of the pleasure from a conference like the one in Berlin comes from the delicious feeling of finding a fascinating presentation in a session everyone else overlooked.

–J. C.

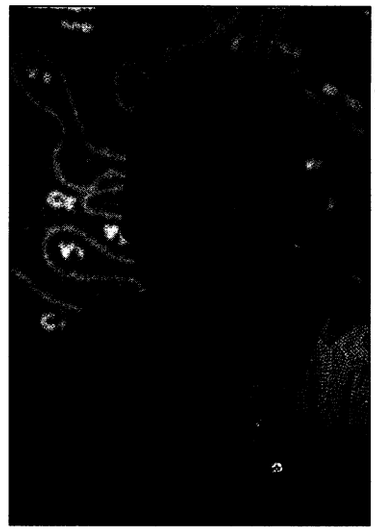
# Flying Dutchman: Jaap Goudsmit

When you think of the centers of AIDS research, Paris may come to mind, or Bethesda, or San Francisco. One city that might not immediately suggest itself is Amsterdam. Yet, as the international AIDS conference in that city last year revealed, Amsterdam is packed with top-ranked scientists working on HIV. Our AIDS survey asked respondents to name significant European AIDS researchers and three of the 10 scientists mentioned most frequently hailed from that city. Atop the list, cited by nearly half the respondents, was Jaap Goudsmit.

A spirited 41-year-old virologist, Goudsmit represents the second wave of AIDS researchers, since he's spent his entire postdoctoral career working on HIV. A professor at the University of Amsterdam, where he earned his M.D. and Ph.D., Goudsmit is best known for elucidating the structure and function of the V3 loop, part of the protein that studs HIV's outer envelope. Many people think V3 is the key to HIV's effect on the immune system and to an AIDS vaccine. Important as it may be, V3 is far from exhausting Goudsmit's interests: His research has focused on everything from how HIV spreads through a community to how it spreads through an individual. "The red thread through it all is I'm studying in vivo," Goudsmit says.

Goudsmit, currently on sabbatical at New York's Aaron Diamond AIDS Research Center, spends more than one-third of his time attending conferences, where he's easy to spot. He's the one bounding from group to group, pulling slides from his pocket to make a point, picking brains, cajoling, debating. "I consider science a social event, a cultural event," says Goudsmit. "If that was not the way these meetings were, they'd be horrible." Says one of Goudsmit's closest collaborators and friends, Peter Nara of the National Cancer Institute, who is equally hard to keep in one place: "We both have a lot of energy and when we get together, it tires out our groups. We synergize."

In spite of his current zeal for AIDS research, Goudsmit had only a passing interest in viruses when he began work on his Ph.D. in 1978. Because he was interested in neurology, his adviser sent him to work under Carleton Gajdusek at the National Institutes of Health. Gajdusek had won the Nobel Prize 2 years earlier for work on kuru, a disease of the central nervous system that may be caused by a virus or by mysterious particles called prions. By the time Goudsmit left Gajdusek's lab in 1980, his passing interest in viruses had become a passion. And that wasn't the only thing the Nobel laureate had passed along to the young Dutchman. "Gajdusek taught me to look for exceptional things in your field," says Goudsmit. "AIDS is exceptional in its field."



MICHAEL GLUCK

In 1984, after completing his Ph.D., Goudsmit made a return visit to Gajdusek's lab specifically to work on HIV. When he returned to Amsterdam the next year, he began studies on a cohort of homosexual men that was assembled for research on a hepatitis B vaccine before the first case of AIDS even surfaced. Goudsmit's subsequent work—and that of all the other AIDS researchers in Amsterdam—has been closely linked to this unusual resource. Using blood samples from the cohort, Goudsmit began investigating antibody responses to HIV and how changes in antibody levels can track disease progression. He also began epidemiological studies of how the virus moved through this population.

The finding that Goudsmit is usually associated with, though—the one on the V3 loop—didn't come from that cohort. In fact, it was based on blood from a chimp that he infected during his days in Gajdusek's lab. From these blood samples, he discovered (as a few other labs did at the same time) that the V3 loop could stimulate production of antibodies that would latch onto HIV and "neutralize" it, preventing it from infecting cells. This finding powerfully influenced the field for several years—as vaccine makers concentrated on making the V3 loop the basis of their vaccines (see p. 1259).

For the last year, the eclectic Goudsmit has been focusing on another hot question in AIDS research, one that was first highlighted by his Amsterdam colleagues: the differences between strains of HIV that can cause the formation of syncytia (clumps of nonfunctional cells) and those that don't. This distinction could have implications for everything from disease progression to vaccine design (see p. 1260).

In the remaining months of his sabbatical, Goudsmit plans to write a book for lay audiences on the origin of HIV, focusing on the differences between primate and human AIDS viruses. After that he'll return to his lab in Amsterdam, which is rapidly becoming one of the capitals of AIDS research.

–J.C.