knows whether antibodies (which latch onto free-floating virus), killer cells (which clear infected cells), or a mixture of the two can stop HIV. Against this background of ignorance, there are a few signs that fetal and infant immune systems can fight off infection stemming from the mother: 70% of the children born to HIV-infected mothers remain virus-free. "If there's any immunologic component," says Katz, there is a "great hope" that a strategy based on the one that succeeded with hepatitis B could do the job.

A successful vaccine to prevent maternal-fetal transmission might work in several ways. A vaccine could lead the immune system to reduce the mother's "viral load"—the total amount of virus in her system—thereby reducing the amount of virus that crosses the placenta. Alternatively, if antibodies from the mother can reach the fetus, vaccinating her could expand the fetus' antibody repertoire. New data from Gene Shearer of the National Cancer Institute also suggest that uninfected newborns may mount effective killer cell responses.

To be of general significance, of course, vaccines tested in pregnant women would have to be able to protect not just fetuses but those living outside the womb. And that's a possibility. Art Ammann, director of the Pediatric AIDS Foundation, says if vaccines lower maternal transmission rates, "it might turn out that we learn what actual protection is." Says Ammann: "If immunologic studies correlated an increase in neutralizing antibodies or [killer cells] with protection, then you'd expect the same thing might work in adults."

The trials aimed at infants and children have two slightly different strategies, depending on the age of the offspring. One study involves vaccinating newborns within 3 days of birth. "This assumes that a significant proportion of transmission occurs perinatally [during or shortly prior to birth]," says Diane Wara of the University of California, San Francisco, who chairs the ACTG pediatric committee for NIAID. Researchers hope the vaccine can prevent infection by stimulating the immune system to mop up HIV before a reservoir of virus can build up. Failing that, the vaccine might "kick start" the immune system so soon after infection that the disease would be less virulent. Another strategy is contemplated for therapy in children with established infections; there the idea is to expand the immune response and keep the virus in check, delaying or even preventing the onset of disease.

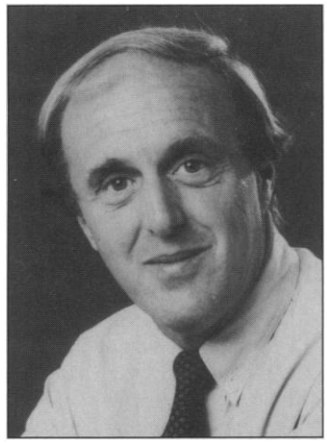
NIAID's Patricia Fast, a pediatrician at the Division of AIDS who helped design the mother-and-child trials, thinks they could validate the merit of vaccine therapy, which some researchers regard skeptically. "If it works in babies, I'd be extremely optimistic that the approach would work in adults," says Fast. Whether the upcoming trials in pregnant women and children offer a workable vaccine or not, however, they promise to speed the race for answers to scientifically crucial questions. And that alone provides reason for hope.

–Jon Cohen

BIOTECHNOLOGY

Scripps Signs a Deal With Sandoz

Thirteen years ago, the Scripps Research Institute raised eyebrows when it signed what was then an unusual agreement with Johnson & Johnson (J&J), giving the drug company first rights to license the results from Scripps' research in return for about $120 million. It wasn't long before other nonprofit research institutes and universities rushed to follow suit—or risk being left behind in the high-stakes world of biomedical research. Now, Scripps is about to up the ante again: This week, Scripps president Richard Lerner was expected to announce that he has signed what he calls a "landmark" deal with the Swiss firm Sandoz Pharma—by far the largest research agreement ever struck between a U.S. research institute and an industrial partner.



New security. Richard Lerner.

The deal involves cash payments of several hundred million dollars and exchange of researchers over 16 years starting in 1997, when the J&J agreement expires. In return, Sandoz will get the first right of refusal to license any research from Scripps. "This is our underpinning, our endowment," says Lerner. "This money goes to underwrite partial salaries, to recruit young scientists, to do some risky problems that no one wants to pay for. It gives us security." And Lerner isn't the only one who is jubilant: "This billion-dollar project will create jobs for Californians," says California governor Pete Wilson. "If we are to ensure California's economic health, it will be as a result of such partnerships."

This high-profile partnership was a match made in Wall Street. Lerner says investor William J. Gedale, president and chief executive officer of General American Investors, acted as the "match maker," introducing Lerner to Max Link, chairman of Sandoz Pharma. In the months that followed, Sandoz sent over a team of its top scientists to Scripps and the two groups checked out each other's scientific capabilities.

They found a remarkable compatibility: "We have more than 70% overlap in research," says Stephan Guttmann, a chemist who is head of worldwide research and development at Sandoz Pharma. Sandoz, the world's seventh largest drug company, is known for its "academic" style of research in immunology—including the development of the drug Sandimmun, or cyclosporin, which is used to prevent organ transplant rejection. It also has strong research programs in autoimmune diseases, the central nervous system, neuroendocrinology, and cardiovascular and respiratory disorders—and a newer interest in gene therapy and retroviruses. Sandoz was attracted to Scripps because "we like their extremely high quality people," says Guttmann, noting that Scripps has the largest concentration of people in the world working in the fertile area at the boundary of chemistry and molecular biology.

So Sandoz made an offer that Scripps' board of trustees couldn't refuse: In return for licensing rights, the company will give Scripps $300 million between 1997 and 2007, with a built-in mechanism to offset inflation. It has promised to renew the contract at a higher, to-be-negotiated rate for another 6 years. In addition, Sandoz will pick up the tab for developing teams of scientists to work with Scripps researchers, bringing the value of the whole package to about $1 billion.

Guttmann says the agreement is part of Sandoz's "Go West strategy" to "strengthen our presence in the United States." The company already has about 1000 R&D associates at its New Jersey subsidiary and a dozen U.S. ties, including a $100 million licensing agreement in oncology research with Harvard's Dana-Farber Cancer Institute.

Scripps senior vice president William H. Beers says Scripps scientists have reacted "positively" to the deal, but with one caveat: "They don't want people to think we're so rich, we don't need NIH money." For that reason, Lerner is quick to put the sum into perspective: "The amount of money (coming from Sandoz) is really no more than the state would put into an academic department or an endowment from Stanford University, for example, to pay people's salaries." And, like the earlier agreement with J&J, Lerner expects this agreement will be copied by other academic research institutes. "You can be sure there will be dozens of these," he says.

–Ann Gibbons