

SOUTHWESTERN NEWS

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GRANTS FROM NEW FEDERAL PROGRAM TO INTENSIFY AIDS VACCINE RESEARCH

DALLAS – November 10, 1997 – Scientists at UT Southwestern Medical Center at Dallas have received grants from a new federal program created to speed the discovery and development of AIDS vaccines.

Dr. Richard Koup and Dr. Stephen Johnston are among 49 U.S. researchers selected this fall to receive special grants from the National Institute of Allergy and Infectious Diseases (NIAID), a component of the National Institutes of Health.

Dr. Ruth Berggren, who will join the UT Southwestern faculty, also received one of the special NIAID grants.

The UT Southwestern scientists each received \$300,000 grants as part of NIAID's INNOVATION Grant Program for Approaches in HIV Vaccine Research, established this year to encourage novel ideas and approaches, especially from scientists who had not been involved in studying human immunodeficiency virus. One hundred applications were reviewed before the final projects were selected to share in the \$11.8 million in grants.

Koup's grant will help support his ongoing research into how HIV enters healthy cells. Johnston's grant will allow him to expand his genomic vaccine research to include HIV. Berggren's grant will be used to build on her previous work developing a live *Salmonella*-based vaccine for delivery of HIV antigens.

"No one can predict when we'll have an AIDS vaccine, but this special grant project illustrates that the NIH has made vaccine research a real priority," said Koup, chief of infectious disease at UT Southwestern. "Several UT Southwestern scientists are involved in HIV research, both in the laboratories and in the clinic."

Koup, the Jay P. Sanford Professor in Infectious Diseases, focuses his research on understanding how HIV interacts with the CCR5 receptor on the cell surface to get inside.

"HIV has to go through several locked doors to get inside the cell and infect it," he said. "We

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know CCR5 is one of those doors. We're trying to look at how complicated its lock is in order to see if we can create antibodies that would block all the HIV strains from getting inside the cell."

For Johnston, the new grant will be used to expand on the vaccine method he pioneered, called "expression library immunization." Johnston uses the gene gun he developed to shoot all the genomic bits of a pathogen, rather than a live, weakened virus, into an organism, thus eliminating the risk of infection.

Traditional vaccines, such as those for measles and small pox, use a weakened version of a live virus, but because HIV can quickly mutate into different strains and elude a vaccine, using a live virus might risk infection.

"We hope to develop a safe HIV vaccine that has all the benefits of the live attenuated virus without the risks," said Johnston, professor of biochemistry and internal medicine and holder of the Dr. Eugene Tragus Chair in Molecular Cardiology.

The grant also will allow Johnston to explore methods to produce an effective and fast-acting HIV vaccine by manipulating dendritic cells, which have been recognized as the key cells that drive the immune system.

Berggren will bring the NIAID grant with her when she joins UT Southwestern's Division of Infectious Disease after six years at the University of Colorado Health Sciences Center. She is working to develop attenuated *Salmonella* as a HIV vaccine vector, which would be an advantageous way to deliver the vaccine to large populations because it could be administered orally and wouldn't have to be refrigerated. "*Salmonella* is an attractive vaccine vector because it can act like a Trojan horse to carry gene products of HIV directly into lymphoid tissue of the gut," she said. "That elicits a potent local mucosal immune response as well as a systemic immune response. The next phase of my research will focus on augmenting that response in the mouse model."

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