



National Institute of Allergy and Infectious Diseases

Update

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SCIENTISTS DISCUSS CELL-MEDIATED IMMUNE RESPONSES TO HIV INFECTION

Cell-mediated immune responses to infection with human immunodeficiency virus (HIV), the cause of AIDS, were the topic of a workshop at the Fourth International Conference on AIDS in Stockholm, Monday, June 13. The session, which included presentations by scientists conducting state-of-the-art research in this area, was chaired by Anthony S. Fauci, M.D., Director of the National Institute of Allergy and Infectious Diseases (NIAID), Bethesda, Md., and David Klatzman, M.D., of the Pasteur Institute, Paris.

Protective responses to viral infections are generated by the two main components of the immune system--the humoral system, involving production of protective proteins called antibodies, and the cell-mediated response. Cells involved in this response include T lymphocytes and T cell subsets such as cytotoxic (cell-killing) T cells, as well as macrophages and natural killer cells. Intense research efforts are being directed toward understanding the specific cellular immune response to HIV and what determines the success or failure of that response.

"Cell-mediated immunity plays an crucial part in the body's natural defenses against HIV infection," said Dr. Fauci, "and has extremely important implications in the design and evaluation of AIDS vaccines. We know that the virus can be transmitted not only as cell-free virus but also from cell to cell. Immune cells that kill virus-infected cells must

therefore play a critical role in protection."

A number of laboratory models for studying cell-mediated immune responses to HIV have been established. Reports of recent findings were presented at the workshop by scientists from NIAID, Helsinki University, the National Bacteriological Laboratory in Stockholm, the University of California at San Francisco, the Centers for Disease Control in Atlanta, Massachusetts General Hospital/Harvard University, Institut Pasteur, and Duke University in Durham, N.C.

Among the topics discussed were lymphocyte proliferative responses to specific antigens of HIV and regulation of these responses. Of special importance were presentations on HIV specific cytotoxic T cell and natural killer cell responses against a variety of HIV proteins. The major histocompatibility complex (MHC) restriction, or lack thereof, of these responses was also discussed.

The scientists examined possible correlations between the demonstration of cell-mediated cytotoxic T cell responses and the stage of clinical disease. They addressed the questions of whether or not cell-mediated cytotoxicity plays an important protective role against disease progression in HIV infection, and whether individuals who never develop cell-mediated cytotoxicity are the persons who rapidly develop progressive disease.

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