Medical Xpress

Novel method to create personalized immunotherapy treatments

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Argos Therapeutics and Université de Montréal today announced the presentation of new information on Argos' process for developing dendritic cell-based immunotherapies for HIV. Results from the study demonstrate that loading monocyte-derived dendritic cells with combinations of HIV antigen RNA stimulates the expansion of HIV-specific T cells, which attack and kill HIV-infected cells.

Argos' immunotherapies are generated by the Company's Arcelis™ technology, which is a platform for creating autologous, RNA-loaded dendritic cell-based therapies perfectly matched to each patient's unique virus. These data were presented in an oral poster discussion August 5, 2008 at the XVII International AIDS Conference in Mexico City.

"A key step in the durable control of HIV infection requires enhancing the development of memory immune responses and the stimulation of potent cytotoxic T cells through therapeutic vaccination," said Charles Nicolette, Ph.D., Chief Scientific Officer of Argos. "Working with our colleagues at the Université de Montréal, we have shown that Argos' approach of transfecting dendritic cells with autologous, HIV-specific antigens effectively activates dendritic cells and enhances the HIV-specific T cell response. We believe that these results support our methods of developing potent immunotherapies that help patients' immune systems more effectively fight HIV infection."

The inability of the immune system to effectively mount a response against HIV may be caused by a defect in the maturation of T cell

memory. To explore this hypothesis, researchers from Dr. Rafick-Pierre Sékaly's laboratory at the Université de Montréal and Argos tested whether modified dendritic cells, derived from monocytes of HIV-infected individuals, could correct the defective maturation of HIV-specific CD8 T-cells responsible for virus eradication. To potentially improve the magnitude and quality of the anti-HIV T-cell response, maturing dendritic cells were transfected with mRNA-encoding autologous HIV sequences combined with mRNA encoding immune modulatory molecules. These modified dendritic cells were then tested for their ability to expand and mature T cell responses in vitro.

The results of these recent assessments, presented for the first time at the International AIDS Conference in Mexico, show that this novel product induces greater proliferation, maturation and differentiation of HIV-specific CD8 cells in vitro. These properties, especially expanding memory cells, required for long term protection against pathogens, may represent an improvement worthy of future of clinical development.

"We believe that this improvement may represent a significant step forward," said Dr. Sékaly, professor of immunology at the Université de Montréal. "The fact that we can stimulate a specific, long-term immune response gives us great hope that, with additional development, we will be able to give people infected with HIV a new option to battle the virus."

Source: University of Montreal