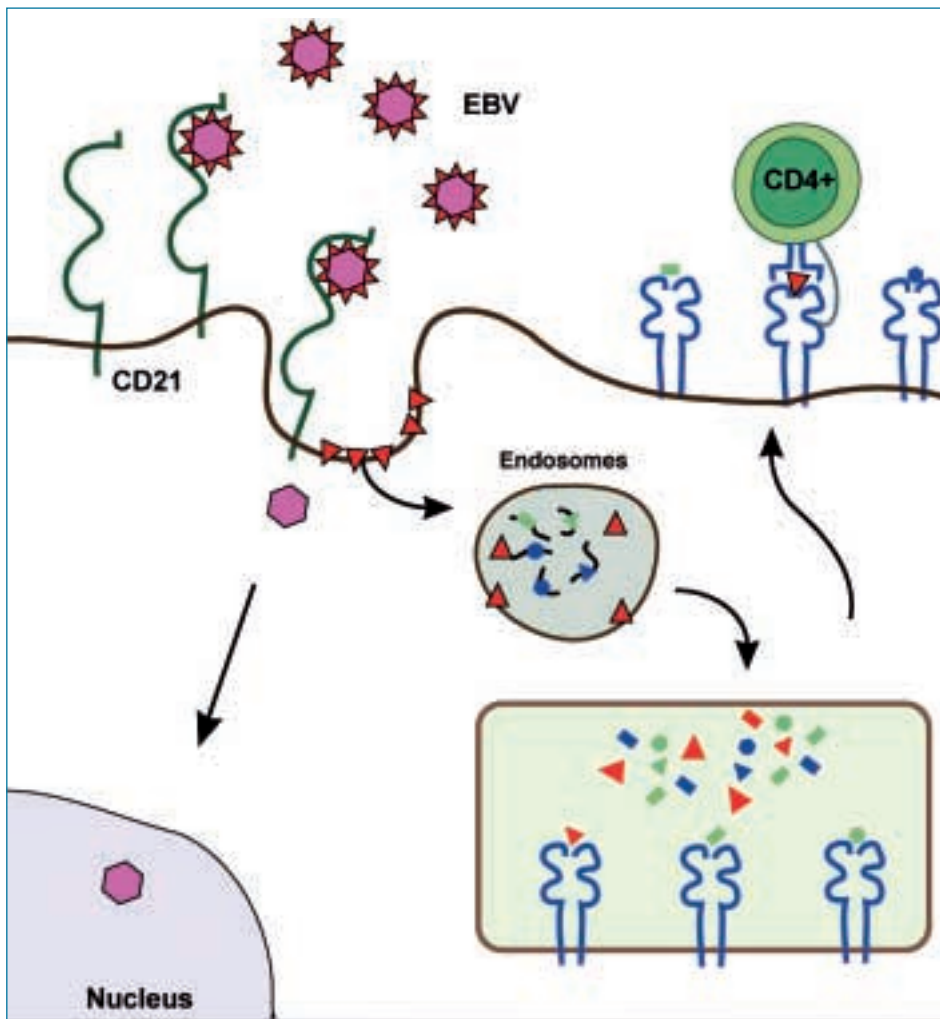


Groundbreaking Strategy for the Development of Cancer Vaccines

In order to be able to develop specific vaccines for malignant diseases, suitable target antigens must be identified. Thanks to a new method the Clinical Cooperation Group "Pediatric Tumor Immunology" recently achieved a strategic breakthrough in the search for T-helper cell antigens of cancer cells. Some first antigens which were identified by this method provided very promising input for the immunotherapy of virus-associated tumors. The group expects this method to make a decisive contribution to the immunotherapy of cancer in adults and children.

It is estimated that viruses are involved as cofactors in approx. 15 per cent of all human tumors. Thus, the Epstein-Barr virus (EBV), a herpes virus discovered in 1964, was of significance to various cancers including EBV-associated lymphomas of immunosup-

pressed patients. It has long been known that EBV remains in the infected individual for life, and that the immune system is of decisive significance for overcoming the active infection. The contribution that T-helper cells make to controlling the viral infection had



The KKG "Pediatric Tumor Immunology" discovered that T-helper cells can detect EBV-infected cells, before the virus reproduces in these cells: they recognize proteins of the viral envelope and lyse cells which present these coat antigens ineffective. Thus, EBV spread and possibly the EBV-associated development of lymphomas can be prevented.

hardly been studied at all up to this day. With her Clinical Cooperation Group "Pediatric Tumor Immunology" its head, Dr. Uta Behrends, took a closer look at the EBV immune detection by T-helper cells. Her goal was to identify antigens of the EBV, which are detected by the T-helper cells. Behrends and her colleagues could show that T-helper cells detect EBV-infected cells, before the virus reproduces in these cells. The T-helper cells recognize proteins of the viral envelope and lyse cells presenting these coat antigens. These results point at a central significance of the T-helper cells both to the control of the primary virus spread and to the elimination of cells in which the active viral infection flares up again at a later point in time. Apart from healthy B-lymphocytes, these include the EBV-positive tumor cells. Thus, T-helper cells with a specificity for EBV coat proteins provide important new starting points for the immunotherapy of life-threatening EBV-associ-

ated diseases. Meanwhile Uta Behrends's Clinical Cooperation Group has been able to develop a method to very quickly and reliably identify T-helper cell antigens not only for EBV, but basically also for other viruses, bacteria and, e.g., tumor cells. A patent application for this so-called DANI method, which has been recognized as groundbreaking for an application in medicine, was filed recently. Uta Behrends and her working group hope that they will be able to identify various target antigens for vaccines against infectious pathogens and tumors with this method in the near future and to contribute to better treatment of the patients concerned.



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