

Immune system discovery could lead to EBV vaccine to prevent mono, some cancers

October 11 2013

Development of a vaccine against Epstein-Barr virus (EBV) has taken a step forward with the Canadian discovery of how EBV infection evades detection by the immune system.

EBV causes infectious mononucleosis and cancers such as Hodgkin's lymphoma and nasopharyngeal carcinoma, which is the most common cancer in China, as well as opportunistic cancers in people with weakened immune systems. A member of the herpes [virus](#) family that remains in the body for life, the virus infects epithelial [cells](#) in the throat and immune cells called B cells.

The researchers discovered that the virus triggers molecular events that turn off key proteins, making [infected cells](#) invisible to the natural killer T (NKT) [immune cells](#) that seek and destroy EBV-infected cells.

"If you can force these invisible proteins to be expressed, then you can render infected cells visible to NKT cells, and defeat the virus. This could be key to making a vaccine that would provide immunity from ever being infected with EBV," says Dr. Rusung Tan, the study's principal investigator. Dr. Tan is a scientist and director of the Immunity in Health & Disease research group at the Child & Family Research Institute at BC Children's Hospital, and a professor in the Department of Pathology at the University of British Columbia.

The findings were published this week in the print edition of the scientific journal *Blood*.

For this study, the researchers looked at cells from infected tonsils that had been removed from patients at BC Children's Hospital by Dr. Frederick Kozak. The researchers infected the tonsillar B cells with EBV, and then combined some of these cells with NKT cells. They found that more NKT cells led to fewer EBV-infected cells, while an absence of NKT cells was associated with an increase in EBV-infected cells.

More information: [bloodjournal.hematologylibrary ... ent/122/15/2600.full](#)

Provided by Child & Family Research Institute

Citation: Immune system discovery could lead to EBV vaccine to prevent mono, some cancers (2013, October 11) retrieved 5 May 2024 from <https://medicalxpress.com/news/2013-10-immune-discovery-ebv-vaccine-mono.html>

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