Compositions and Methods for Preventing and Treating Rhinovirus Infection

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Rhinovirus (RV)

- Rhinovirus (RV) infection accounts for 30-50% of all cases of common cold and is an important trigger of acute episodes of chronic respiratory disorders such as asthma attacks.
- The estimated cost to the U.S. economy due to common cold is $40 billion a year.

**Clinical Problem:**
- Challenge to vaccine development is that antibodies resulting from RV infection are serotype-specific and due to high degree of variability (~100 serotypes), cross-neutralization is very limited.
RV peptides for vaccine development

Solution: Researchers at the University of Virginia have identified peptide sequences that are conserved CD4+ T cell epitopes of RV capsid proteins, which could lead to peptide vaccines able to boost T cell immunity to multiple RV strains

- Potential use of peptide vaccine to prevent RV infection and common cold
- Overcomes the cross-reactivity limitation of antibody-based vaccine development

Increase in circulating epitope-specific memory CD4+ T cells

Change in numbers of tetramer+ T cells during infection with RV. Scatterplots show representative data gated on total CD4+ T cells.
Rapid mobilization and activation of epitope-specific T cells

Representative data showing the expression of CXCR3 and CCR4 on tetramer+ cells at 7 d postinoculation. CXCR3+CXCR4neg profile indicates Th1 signature that was conserved across all epitope specificities.
Relevant Publications


Intellectual Property

• UVA Tech ID: TURNER-RHINO
  – Title: Compositions and methods for preventing and treating rhinovirus infections