

Compositions and Methods for Preventing and Treating Rhinovirus Infection

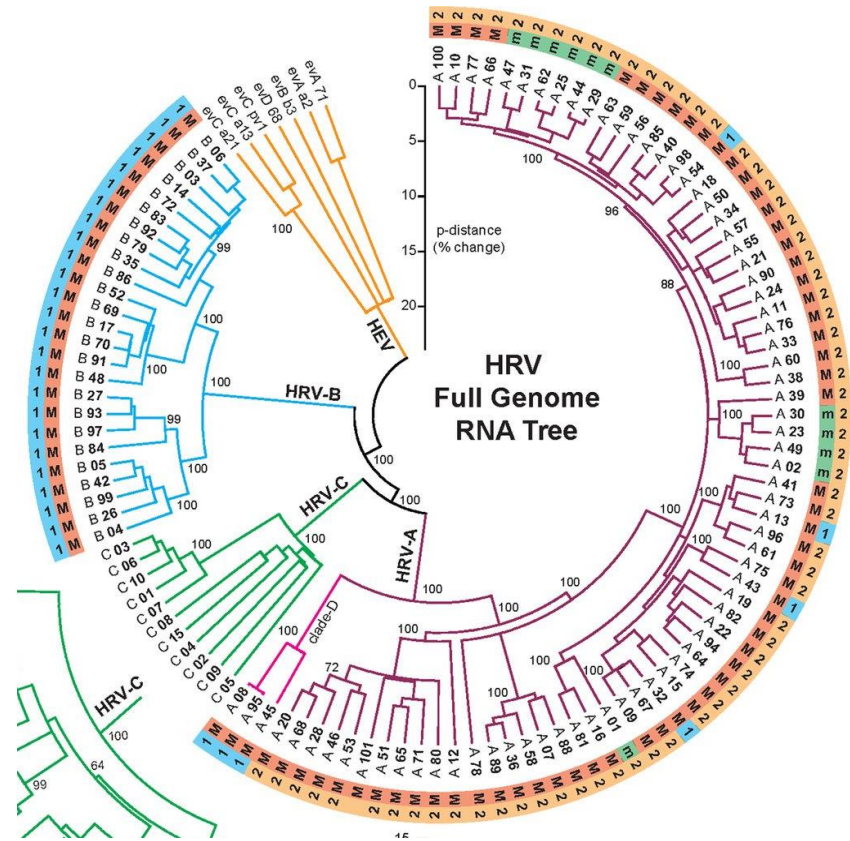
Inventor: Judith A. Woodfolk, Lyndsey M. Muehling, and William Kwok
.....



LICENSING & VENTURES GROUP

Rhinovirus (RV)

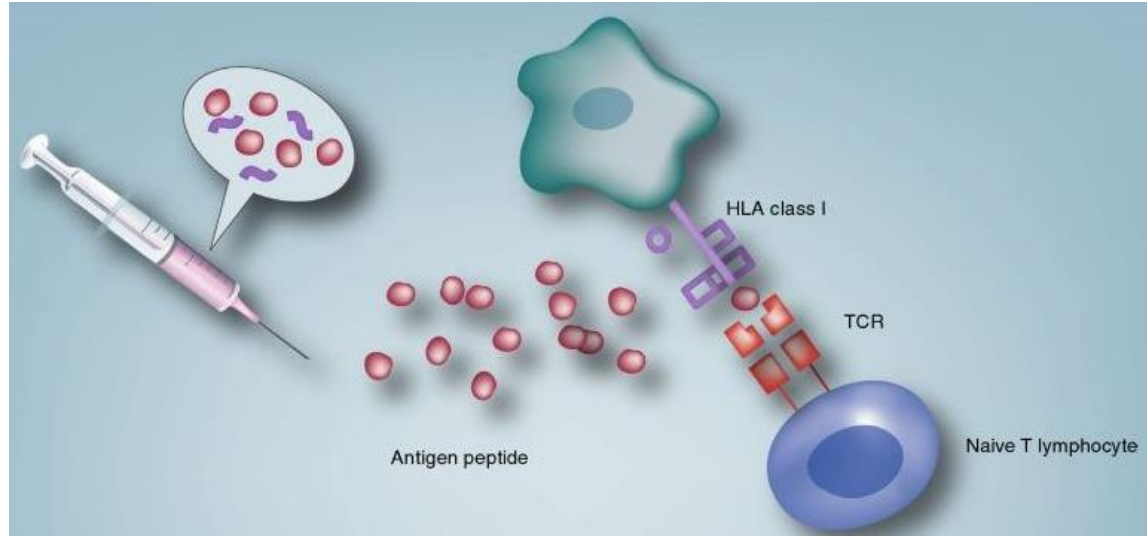
- Rhinovirus (RV) infection accounts for 30-50% of all cases of common cold and is an important trigger of acute episodes of chronic respiratory disorders such as asthma attacks
- The estimated cost to the U.S. economy due to common cold is \$40 billion a year
- Clinical Problem:
 - Challenge to vaccine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

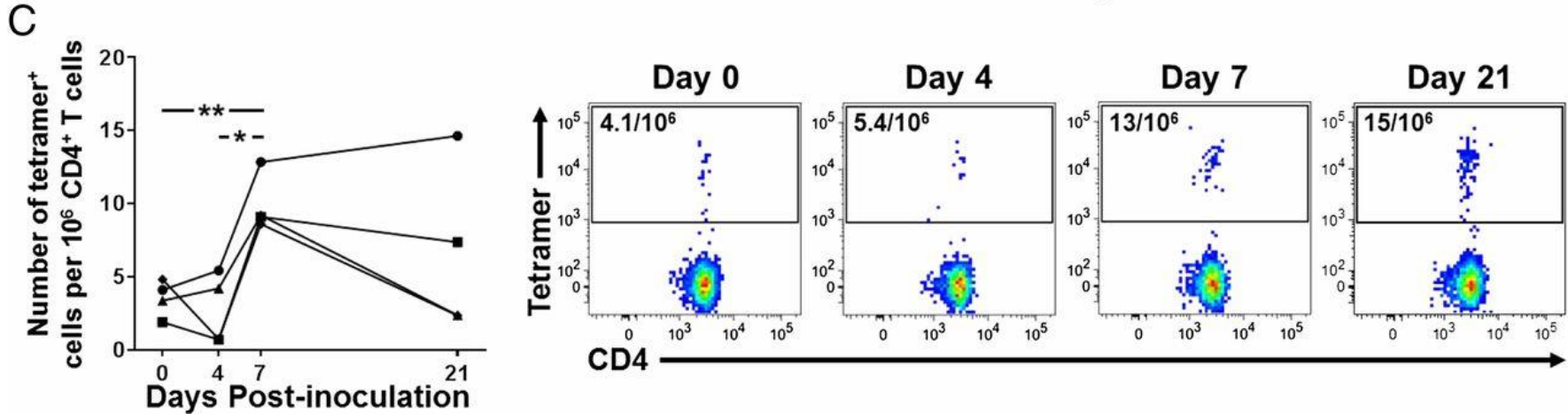
Solution: Researchers at the University of Virginia have identified peptide sequences that are conserved CD4+ T cell epitopes of RV capsid proteins, which could lead to peptide vaccines able to boost T cell immunity to multiple RV strains

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



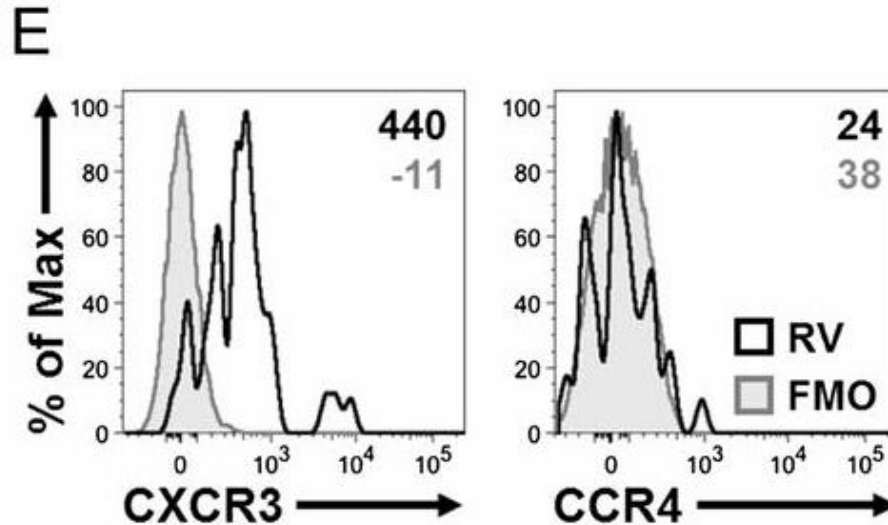
Schmitt, et al. Expert Rev Vaccines 2009.

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+CCR4neg profile indicates Th1 signature that was conserved across all epitope specificities

Relevant Publications

- J Infectious Diseases. 2018; 217: 381-92. **Muehling**, et. al.
- J Immunology. 2016 Oct 15;197(8): 3214-3224. **Muehling**, et. al.

Intellectual Property

- UVA Tech ID: TURNER-RHINO
 - Title: Compositions and methods for preventing and treating rhinovirus infections
 - U.S. Patent Application: 15/551,315 filed Aug. 16, 2017