Researchers at the University of South Florida have developed a method to produce live-attenuated RSV vaccine candidates with improved immunogenicity and stability.

Respiratory syncytial virus (RSV) is the most common viral agent responsible for pediatric bronchiolitis, resulting in approximately 200,000 hospitalizations per year in the US. It has been almost 60 years since the discovery of RSV and despite decades of research, no RSV vaccine has been licensed. Numerous clinical trials with live-attenuated RSV viruses have shown the difficulty in balancing attenuation with immunogenicity for the vaccine candidates.

Current RSV vaccine candidates have focused on attenuated viruses that incorporate mutations specifying temperature sensitivity. While some of these vaccine candidates were found to be sufficiently attenuated in infants, they are only poorly immunogenic. In addition, these mutations are inherently unstable and revert, resulting in partial reversion of the temperature sensitivity phenotype. Thus, enhancing the immunogenicity of RSV vaccine candidates, while increasing their genotypic and phenotypic stability is important for the development of a successful RSV vaccine. An additional issue is the ability to produce clinical lots of attenuated vaccine virus due to reduced replication of the vaccine candidates in cell culture.

Our invention provides a method for producing live-attenuated RSV vaccine candidates with enhanced immunogenicity without compromising the ability of the virus to replicate to high titers in suitable cell substrates for vaccine production. This new method has the potential to provide the first license vaccine for RSV since its discovery and provide a much needed preventative treatment for pediatric bronchiolitis.

**ADVANTAGES:**

- Enhanced immunogenicity
- Increased genotypic and phenotypic stability
- Able to replicate to high titers in suitable cell substrates for vaccine production

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