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## Promising immunotherapeutic strategies for RSV infection

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The respiratory syncytial virus (RSV) is highly prevalent in children and manifests itself in the form of bronchiolitis and pneumonia. Due to the failure of several vaccination trials using the inactivated form of the virus there is a need for a safe and effective vaccine. One of the major proteins present in the virus, is the fusion protein F, which can be integrated into a virus-like particle (VLP), yielding a highly immunogenic F-VLP antigen. Novel adjuvants that contain immunoenhancer molecules are now co-administered with human vaccines either licensed or in clinical trials. Adjuvants approved for human use were tested along with the microparticulate vaccine to improve the magnitude and longevity of the adaptive immune response. In this study, the F-VLP antigen was incorporated into a biodegradable polymer matrix and its *in vitro* immunogenicity was evaluated in a mechanistic study to evaluate surface co-stimulatory expression, wherein antigen presenting cells were stimulated with the vaccine-adjuvant combinations. Particulate vaccines with or without adjuvants significantly increase expression of immune markers such as nitric oxide and resulted in enhanced cell-surface expression of CD80/86, CD40, MHC II and CD54/ICAM-I on dendritic cells. *In vivo* studies using the non-invasive transdermal route demonstrated elevated humoral and cell-mediated immune responses in a mouse model. These preliminary studies prove the efficacy of the RSV F-VLP microparticulate vaccine as a novel immunotherapeutic strategy in the future development of a vaccine against RSV.

### Biography

Sucheta D'Sa is currently a Research Scientist I in the Analytical Chemistry Department at Charles River Laboratories, Ashland, Ohio and serves as a Scientist in the conduct of assigned non-clinical research studies and study management. She has completed her PhD in Pharmaceutical Sciences from Mercer University, Atlanta, where her primary area of research was focused on development of microparticulate vaccines against cancer and infectious disease, to activate the immune system against specific antigens.

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