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## Engineering enhanced vaccine cell lines for vaccine preventable viral diseases

One of the greatest hurdles to eliminating vaccine-preventable disease is manufacturing cost. RNA interference provides a strategy to create affordable vaccines where high throughput assay platforms can be used to identify gene knockdown events that increase vaccine virus replication. The results generated can then be exploited to create stable knockout vaccine cell lines capable of sustained virus production at increased titers. This presentation will discuss the findings of genome-wide small interfering RNA (siRNA) screens that targeted all individual genes in the vaccine cell line genome to identify gene knockdown events that increase production of viral progeny by >2 logs for poliovirus measles virus, influenza virus and rotavirus. The studies will focus on our proof-of-principle studies with poliovirus which identified over a dozen genes that could be modulated to increase poliovirus production between 5 and 60 fold thereby demonstrating that these goals are achievable. We believe that replacing the older historic vaccine cell lines with a new genetically engineered construct has the potential to fundamentally change vaccine development and supply by dramatically increasing available stocks for vaccine preventable viral diseases. In addition, these studies increase our understanding of the biology of virus replication; innate host defense mechanisms, host-pathogen interactions, and viral pathogenesis thereby further facilitating drug and vaccine discovery and development.

### Biography

Ralph A Tripp is a Professor and Georgia Research Alliance Eminent Scholar and Chair in Vaccine and Therapeutic Studies in the Department of Infectious Diseases at the University of Georgia (UGA). He is an Associate Director of the Regional Center of Excellence for Influenza Virus Research and Surveillance, of the Center of Molecular Medicine, and of Biomedical Health Sciences Institute. Dr. Tripp is an Adjunct Professor in the Virus Research Group at the University of Canberra, and at the School of Infection & Host Defense at the University of Liverpool, and the Molecular & Medical Research Centre, Deakin University AUS.

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