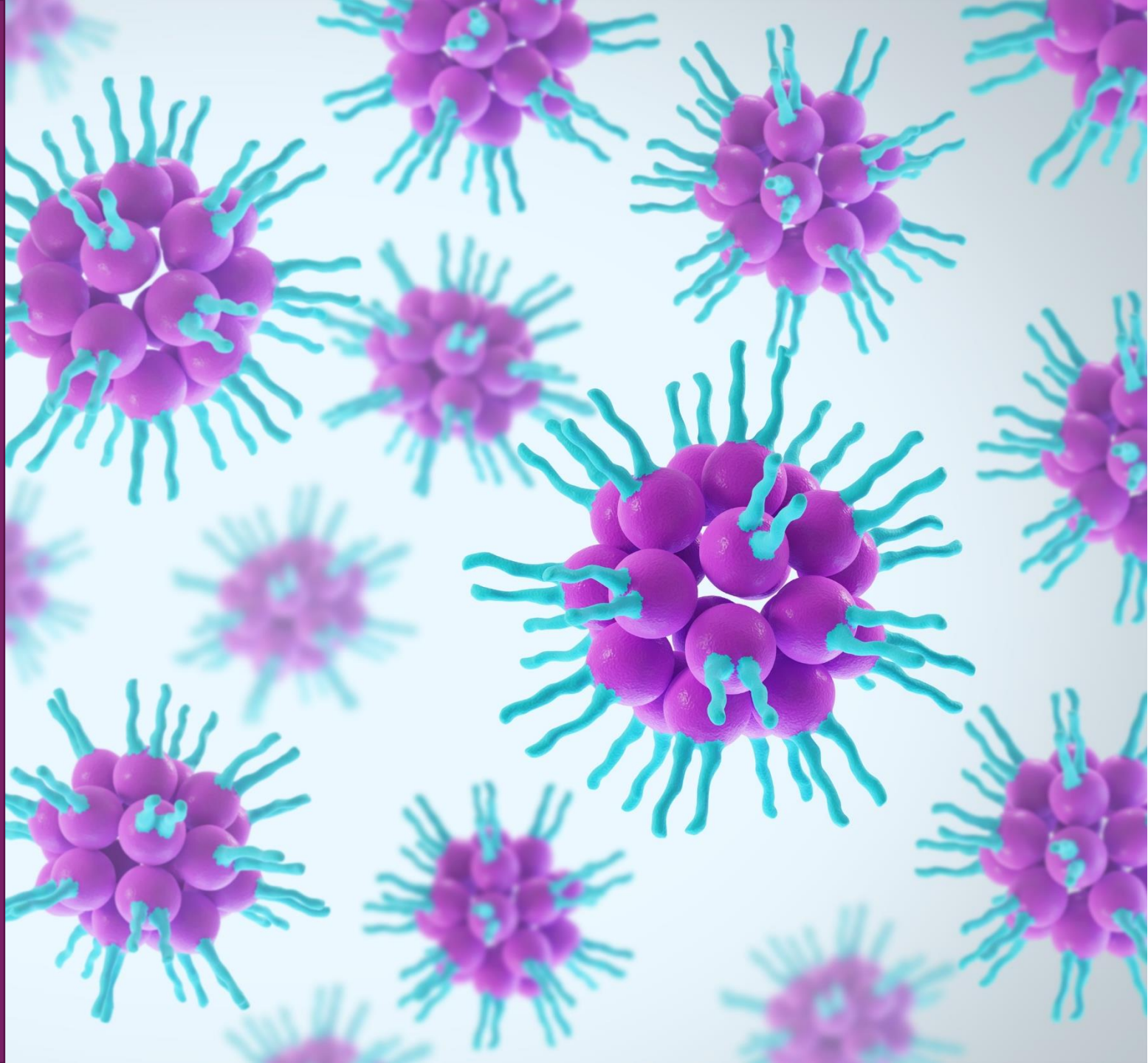


Evaluation of the  
therapeutic potential  
of antibody and T cell  
targeted immune  
responses towards  
RSV small  
hydrophobic protein

*Dr. Genevieve Weir*

RespiDART

November 29-30, 2018



# Disclosures – Genevieve Weir

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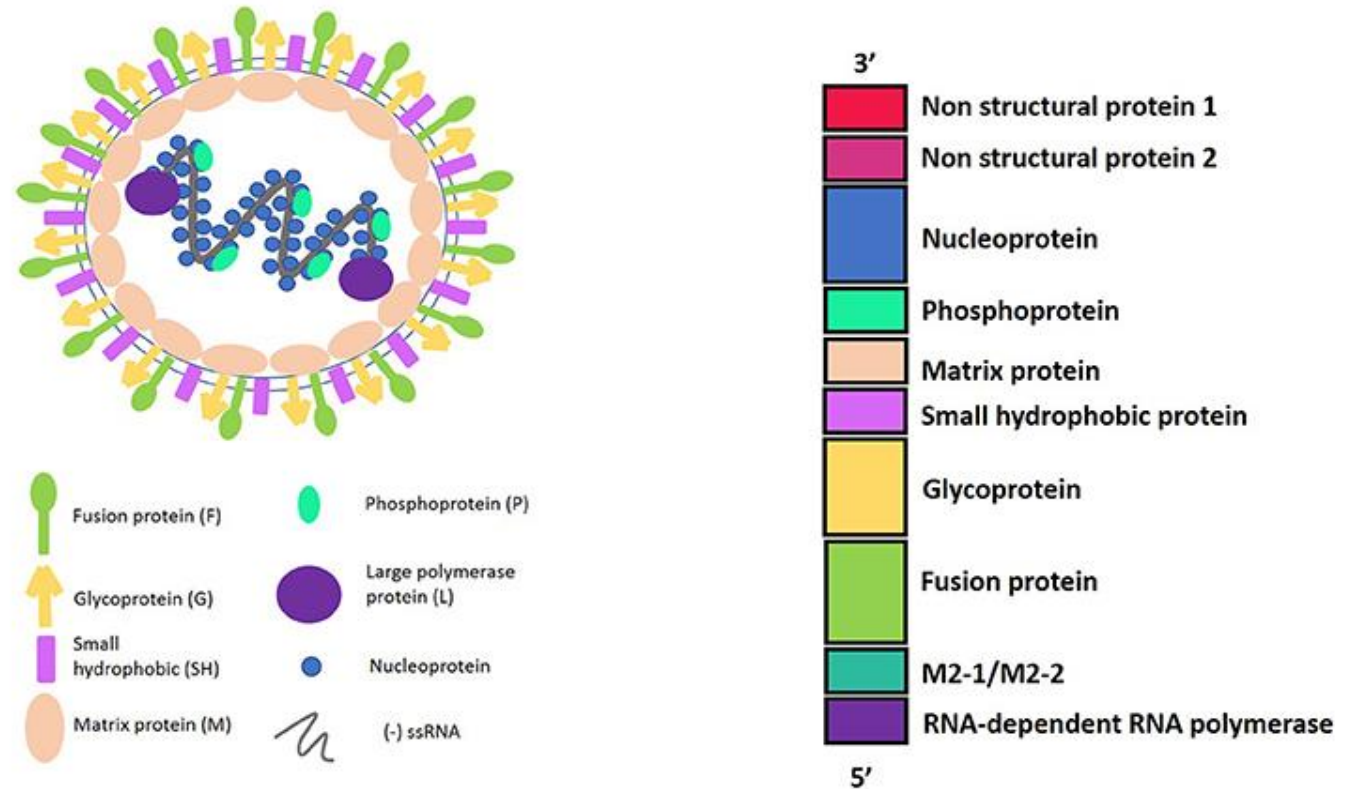
- Employee and stock shareholder of IMV Inc.

# Forward-looking Statements

- Except for historical information, this presentation contains forward-looking statements, which reflect IMV's current expectations regarding future events. These forward-looking statements involve known and unknown risks and uncertainties that could cause IMV's actual results to differ materially from those statements. Those risks and uncertainties include, but are not limited to, our ability to access capital, the successful and timely completion of clinical trials, the receipt of all regulatory approvals and other risks detailed from time to time in our ongoing quarterly filings and annual information form. The forward-looking statements in this presentation are also based on a number of assumptions which may prove to be incorrect.
- Forward-looking statements contained in this presentation represent views only as of the date of this presentation and are presented for the purpose of assisting potential investors in understanding IMV's business, and may not be appropriate for other purposes. IMV does not undertake to update forward-looking statements, whether written or oral, that may be made from time to time by or on its behalf, except as required under applicable securities legislation.
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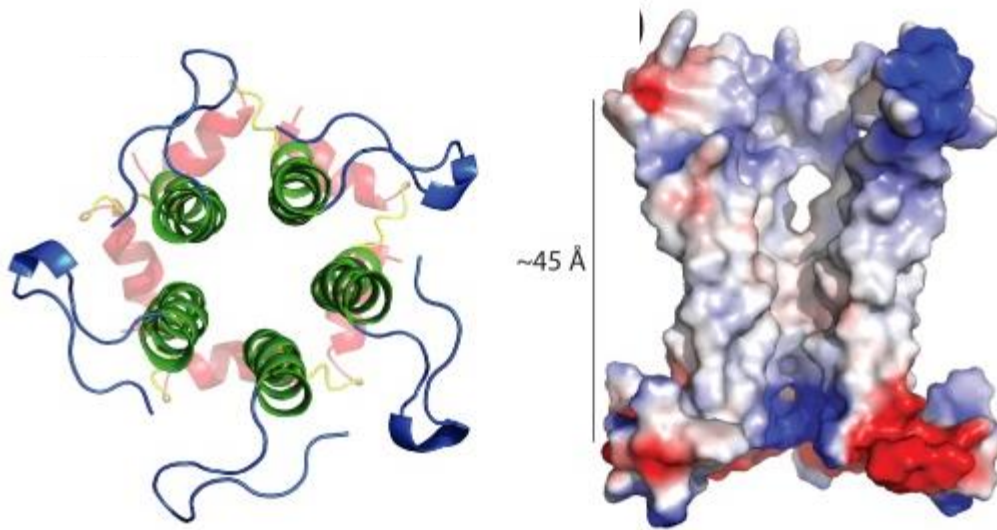
# RSV Vaccination in the Elderly

- Highly prevalent disease of lower respiratory tract
- Ubiquitous pathogen that can re-infect throughout life
  - Several immune evasion mechanisms prevent development of immune memory
  - Significant cause of hospitalizations in the elderly
- Subunit vaccine approaches target F or G protein to neutralize virus

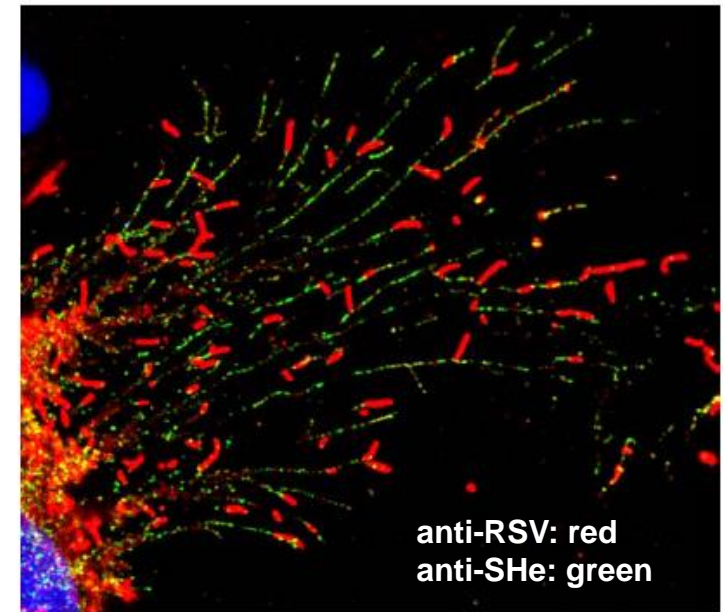


Canedo-Marroquin *et al*, *Front Cell Infect Microbiol*, 2017

# Small Hydrophobic Protein Ectodomain (SHe)

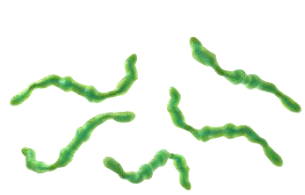


Gan *et al.*, *JBC*, 2012

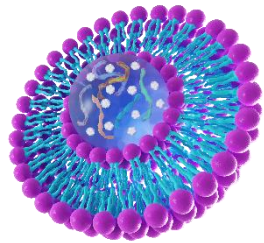


Schepens *et al.*, *EMBO Mol Med*, 2014

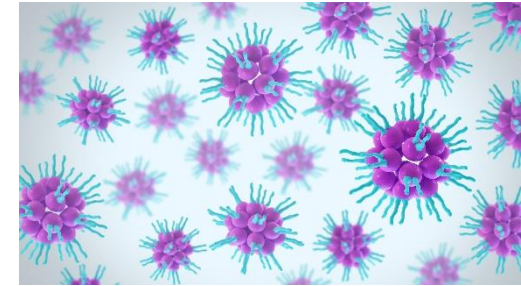
# DPX Technology



*Active Ingredients*

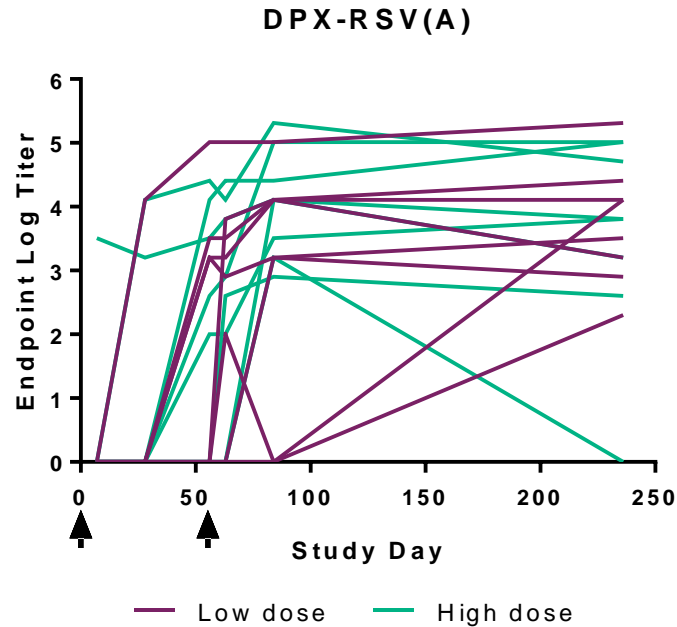


*Lipid Nanoparticle*



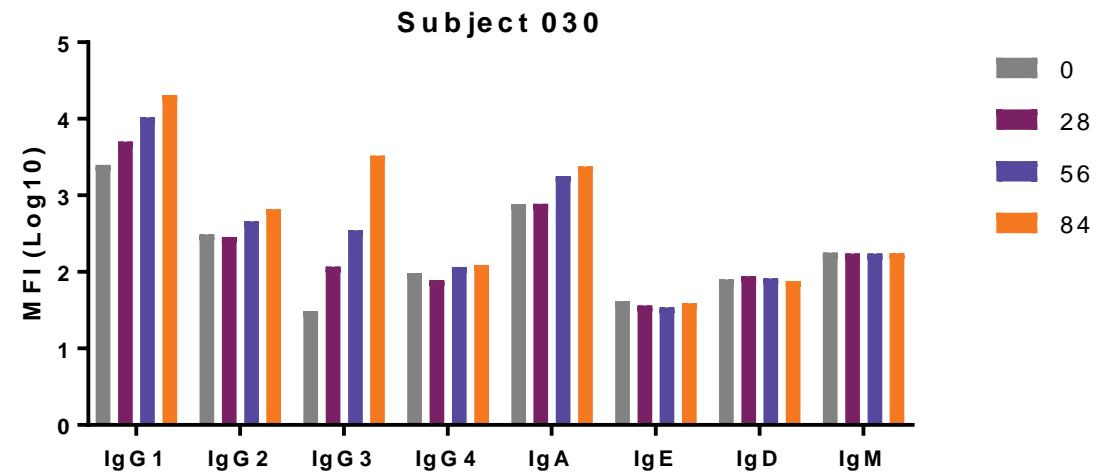
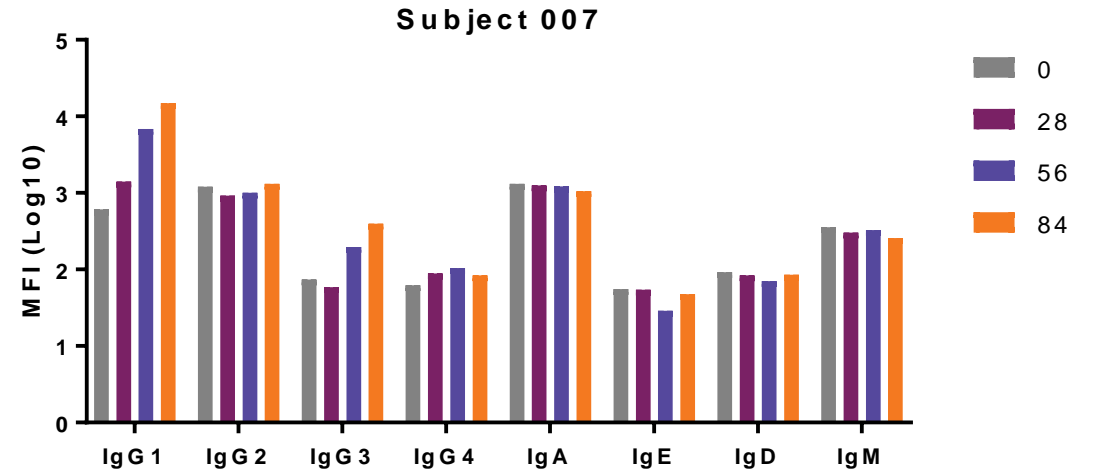
- Lipid nanoparticle delivery platform with new “No release” mechanism of action (DPX)
- Forcing an active uptake and in vivo delivery of active ingredients into immune cells
- MOA can be leveraged to program and generate new types of T and B cell therapeutic capabilities bypassing conventional immune responses and their inherent limitations
  
- Multiple manufacturing advantages; fully synthetic; hydrophilic and hydrophobic compounds, wide-range of applications (peptides, small-molecules, RNA/DNA, antibodies...), long term stability & low cost of goods
- > 200 patents and patents filed to cover technology and multiple applications

# Clinical Evaluation of DPX-RSV(A)

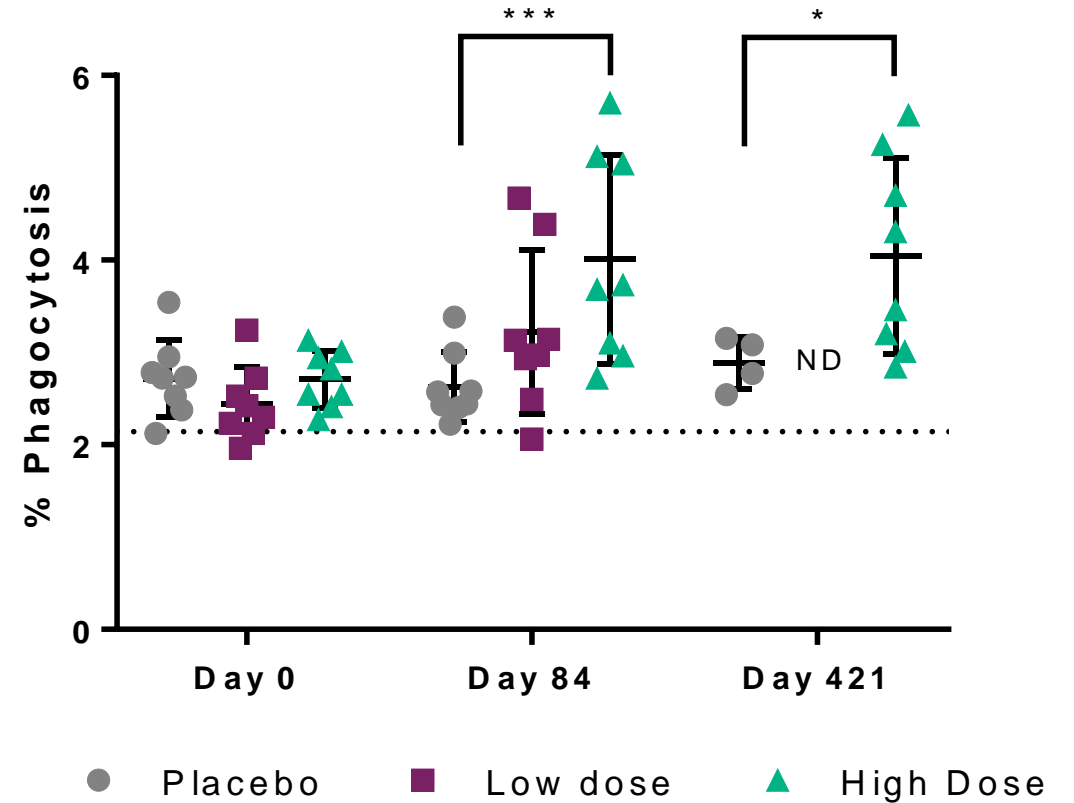
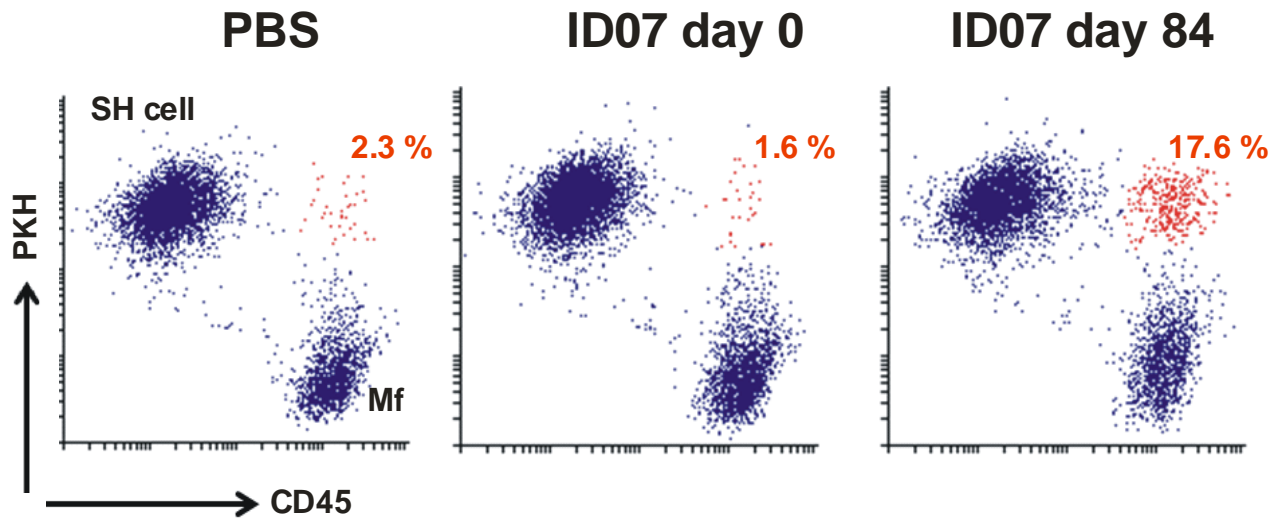


- Healthy adults 50-64 years of age
- DPX-RSV(A) administered at 2 SHe dose levels:
  - Low dose: 10  $\mu$ g
  - High dose: 25  $\mu$ g
- Day 0 and 56

Langley et al, J Infect Dis 2018

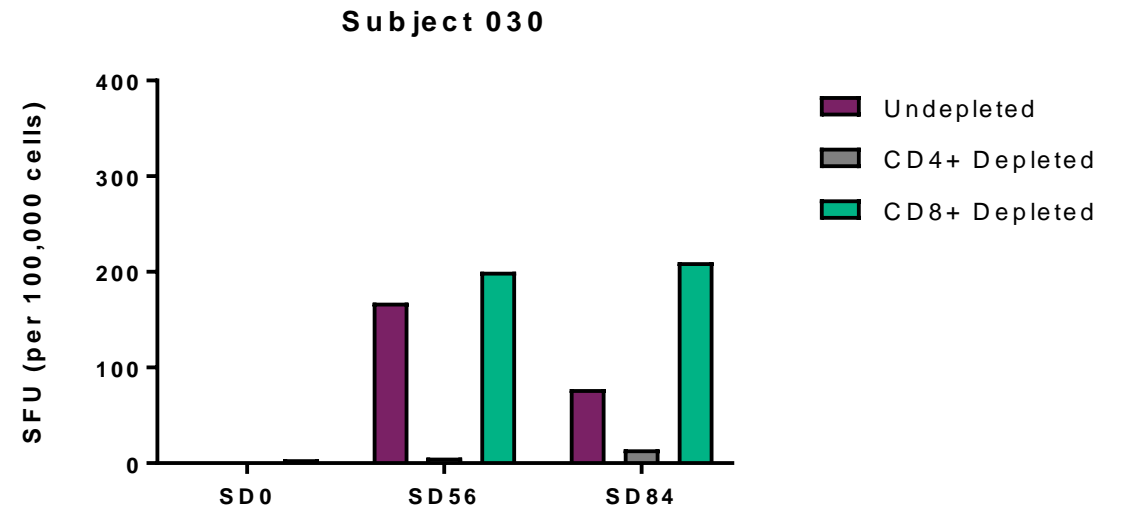
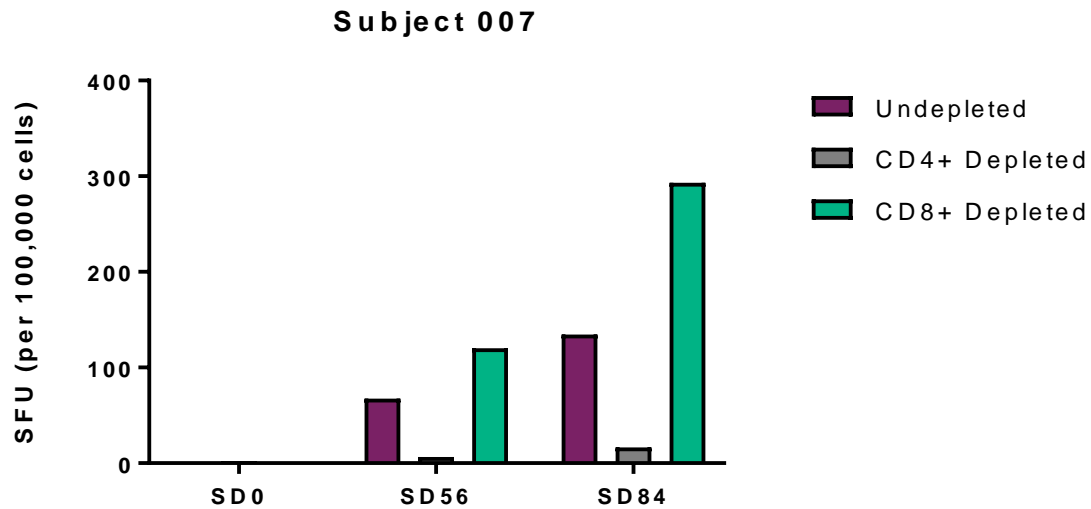


# Vaccine induced RSV SHe-specific serum IgG promotes Ab-dependent phagocytosis





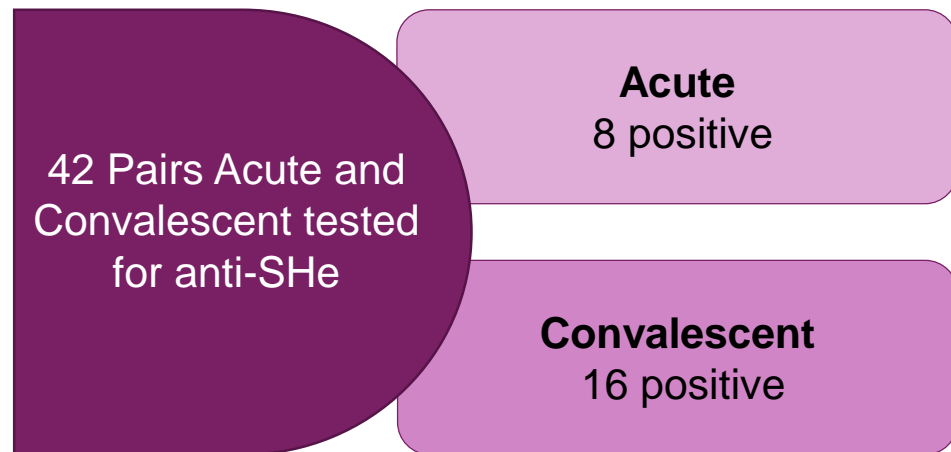
# DPX-RSV(A) induces CD4<sup>+</sup> T cell response



- Using PBMCs collected prior to day 0 and 56 injections of DPX-RSV(A) and 84
- IFN- $\gamma$  ELISPOT with whole PBMCs or CD4<sup>+</sup>/CD8<sup>+</sup> depleted
- Stimulation with SHe antigen

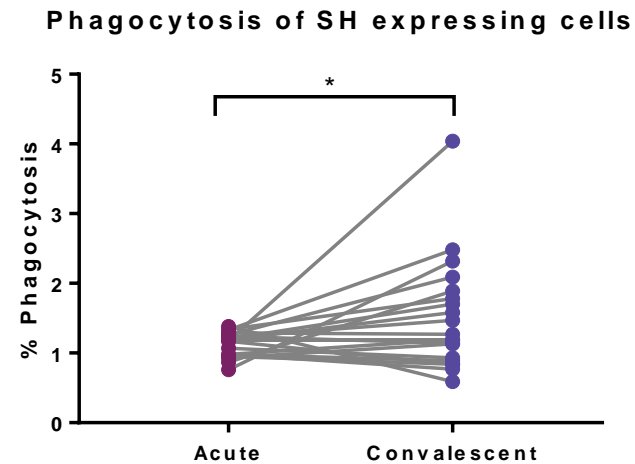
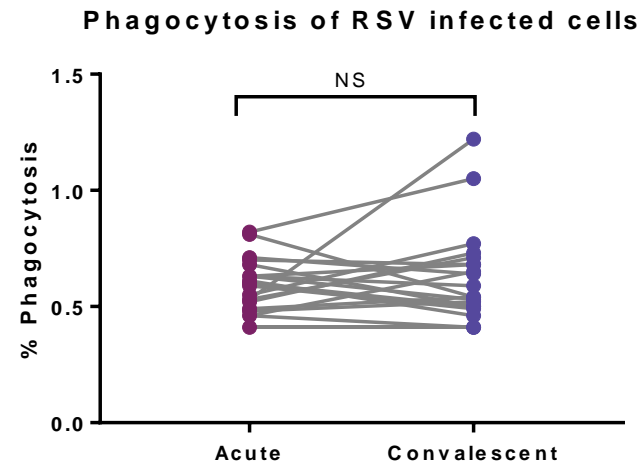
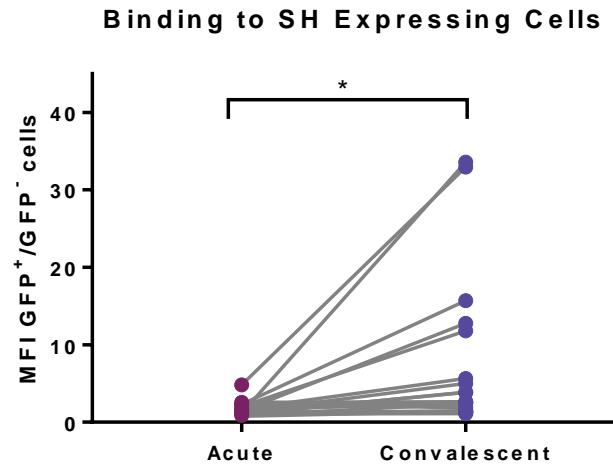
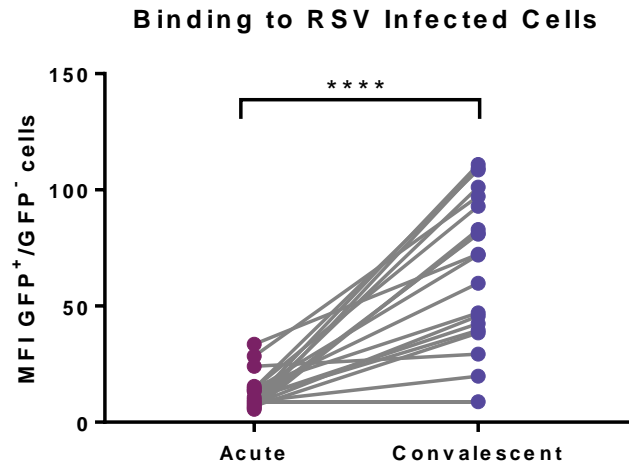
# Anti-SHe titres induced by natural infection

- 42 subjects with confirmed RSV infection
- Serum collected at time of illness (acute) and 4-6 weeks later (convalescent)
- No apparent correlation with clinical presentation
- Rise in anti-SHe at convalescent phase was most likely to occur in subjects with anti-SHe detected in acute phase ( $p < 0.013$ )



<b>Age</b>	Average 76 (58-91)
<b>Sex</b>	24 male, 18 female
<b>COPD</b>	18
<b>Diabetes</b>	13
<b>Congestive heart failure</b>	11

# Anti-SHe IgG developed during infection are functional



# Summary

- DPX-RSV(A) induces potent antibody and CD4<sup>+</sup> T cell mediated immune response directed towards SH antigen
  - Anti-SHe antibodies can bind RSV infected cells and mediate phagocytosis
- Anti-SHe antibodies can also be induced by natural infection and may play a role in disease resolution

**Abstract # 105**

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Thank You

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