

Internship Proposition
(one page max)
Master 2 GP Immunology & ImmunIntervention (I³)
2024-2025



Lab: R. Powell Lab

Team: <https://labs.icaohn.mssm.edu/rebecca-powell-lab/>

Name and position of the PI:

Rebecca L.R. Powell, Ph.D., CLC (she/her)

Assistant Professor

Department of Medicine/Division of Infectious Diseases

Department of Immunology and Immunotherapy

Icahn School of Medicine at Mount Sinai

Email of the PI: Rebecca.Powell@mssm.edu

Candidate (if internship filled):

Title of the internship: *Analysis of the human milk antibody response to maternal RSV Vaccine*

Summary of the internship proposal:

Pfizer's RSVpreF vaccine (ABRYSVO), a bivalent RSVpreF vaccine, was approved by the US FDA on 21 August 2023 for the prevention of RSV LRTD and severe RSV LRTD in infants from birth through age 6 months, via maternal immunization. Maternal immunization provides protection to the infant primarily via transplacentally-transferred maternal antibodies. Additional immunologic benefits may be conferred to human milk-fed infants via maternal antibodies present in the milk of vaccinated individuals, however, human milk specimens from lactating individuals were not collected during any of Pfizer's clinical studies of ABRYSVO. Post licensure, it is important to demonstrate the presence of vaccine-induced anti-RSV antibodies in human milk from lactating, vaccinated individuals over time, as well as describe the antibody repertoire and potential functional activities, including any impact on disease prevention.

The intern will participate in experiments/analyses towards the following project objectives:

- A. Characterize RSVpreF vaccine-induced anti-RSV antibodies in the milk of lactating individuals who did or did not receive ABRYSVO during pregnancy, using their first available milk sample in a Luminex-based multiplex milk immunoassay
- B. Describe kinetics and persistence of ABRYSVO vaccine-induced anti-RSV antibodies in the milk of lactating individuals who received ABRYSVO during pregnancy over time, for as long as participants are willing and able to remain in the study.
- C. Describe the relationship between serum and milk RSV-specific titers over time in individuals who received ABRYSVO during pregnancy.
- D. Determine the longitudinal function of anti-RSV antibodies over time in the milk of lactating individuals who received ABRYSVO during pregnancy
- E. Describe the relationship between milk antibody titer and function over time

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Option(s) linked to the project:

- Clinical Research Profile
- Data Analyst Profile
- Experimental Biology Profile