

# ASP-AMERICAN ACADEMY OF ALLERGY, ASTHMA, AND IMMUNOLOGY GERIATRICS DEVELOPMENT INITIATIVE JUNIOR FACULTY DEVELOPMENT AWARD



## AWARD RECIPIENT

RITU S. PABBY, MD

*Allegheny General Hospital*

## PROJECT

"ASSOCIATION BETWEEN CYTOKINE GENOTYPE POLYMORPHISMS AND SEVERITY OF RSV-INDUCED ILLNESS IN THE ELDERLY"

## MENTORSHIP TEAM

JAMES BOYLE, MD

DAVID SKONER, MD

DEBORAH GENTILE, MD

Infection with respiratory syncytial virus (RSV) is extremely common in infants and young children and has been associated with severe morbidity and mortality. On the other hand, young adults infected with RSV usually have a mild self-limited illness. To date, there is limited understanding of the impact of RSV in older adults.

Recent data has suggested that RSV infection in the elderly is quite prevalent and can cause severe lower respiratory disease and serious complications in this cohort. Reported complications include asthma and chronic obstructive pulmonary disease exacerbations, pneumonia, congestive heart failure, and even death. Reasons for high susceptibility to RSV illness in the elderly are not well understood.

Several studies have suggested that the severity of RSV-induced illness may be directly related to the sequential elaboration of various pro-inflammatory cytokines. A recent study by our group demonstrated that certain cytokine gene polymorphisms modulate inflammatory cytokines thereby contributing to illness severity and complications from RSV infection in infants. Specifically, we found associations between cytokine genotypes associated with high production of interferon gamma (IFN-g) and increased illness severity, as assessed by objective findings on physical examination and increased length of stay in an intensive care unit setting. Additionally, we found that the cytokine genotype associated with low production of interleukin 10 (IL-10) was associated with an increased incidence of pneumonia. It is likely that similar polymorphisms modulate immune responses to RSV infection in the elderly.

The aim of this study is to determine if specific cytokine gene polymorphisms are associated with increased severity of RSV-induced respiratory illness in the elderly. These gene polymorphisms can then be used to identify elderly individuals at increased risk for RSV-related complications. Once identified, these individuals can be targeted for preventative and early intervention treatments that would decrease the morbidity and mortality from RSV infection in this cohort.

The ASP- American Academy of Allergy, Asthma, and Immunology Geriatrics Development Initiative Junior Faculty Development Award will help me to further develop my research skills and provide a strong foundation for becoming a productive, independent clinical investigator. Through the support of this award, I will gain valuable practical and didactic experience with: (1) designing and implementing clinical trials, (2) learning data management and statistical analysis, and (3) a better understanding of biomedical regulatory issues. I will gain laboratory experience in cytokine genotyping, which will enhance my long term ability to engage in translational research.

As part of this experience, I will develop an outpatient clinic exclusively devoted to the care of geriatric patients suffering from allergic/immunologic disorders. This forum will allow me to educate medical students and residents about these conditions.

With the support of this award and my mentors, I am excited about the opportunity to contribute scientifically to our understanding of issues related to geriatric allergy and immunology.