

Antibodies to cockroach and mouse proteins associated with asthma and allergies risk

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A study released by researchers at the Columbia Center for Children's Environmental Health (CCCEH) at Columbia University's Mailman School of Public Health shows that developing antibodies to cockroach and mouse proteins is associated with a greater risk for wheeze, hay fever, and eczema in preschool urban children as young as three years of age. The study, published in the November 2008 issue of the Journal of Allergy and Clinical Immunology, is the first to focus on the links between antibody responses to cockroach and mouse proteins and respiratory and allergic symptoms in such a young age group.

"These findings increase our understanding of the relationship between immune responses to indoor allergens and the development of asthma and allergies in very young children," said lead author of the study, Kathleen Donohue, MD, fellow in Allergy and Immunology at Columbia University College of Physicians and Surgeons. The study found evidence that the likelihood of developing wheeze, hay fever, and eczema in preschool urban children was significantly increased among the children who were exposed to antibodies of both cockroach and mouse allergens.

This study is part of a broader multi-year research project launched in 1998 by CCCEH that examines the health effects of exposure of pregnant women and babies to indoor and outdoor air pollutants, pesticides, and allergens. The Center's prior research findings have shown that exposure to multiple environmental pollutants is associated with an increase in risk for asthma symptoms among children. These



latest findings contribute to a further understanding of how the environment impacts child health.

"Our findings have significant public health implications," said Rachel L. Miller, MD, Irving Assistant Professor of Medicine and Environmental Health at NewYork –Presbyterian Hospital/Columbia University Medical Center; director, Asthma Project; associate director and lead physician scientist, DISCOVER Initiative, Mailman School of Public Health's CCCEH; and senior investigator on the study. "These are valuable findings given the high prevalence of asthma in New York City and elsewhere. They highlight the importance of reducing exposure to cockroach and mouse allergens at a very early age for susceptible children."

The researchers suggest that interventions directed towards cockroach and mouse allergen reduction may also have long-term benefit to inner city children who are susceptible to these exposures.

The study was co-authored by researchers from the Division of Pulmonary, Allergy and Critical Care Medicine at Columbia University College of Physicians and Surgeons and the Columbia Center for Children's Environmental Health. Other investigators on the study include Umaima Al-alem, PhD, Matthew Perzanowski, PhD, Ginger Chew, ScD, Alina Johnson, Adnan Divjan, Elizabeth Kelvin, PhD, Lori Hoepner, MPH, and Frederica Perera, DrPH, director of CCCEH.

The investigators controlled for exposure to tobacco smoke and maternal history of asthma, both of which may influence the likelihood of developing asthma or allergies. A prospective follow-up of this birth cohort will help determine whether the development of anti-cockroach, anti-mouse immunoglobulin (Ig) E by age three is associated with impaired lung function and/or persistent asthma, according to the researchers.



Source: Columbia University's Mailman School of Public Health

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