

Model demonstrates infectious cause of asthma

May 24 2010

Scientists from the University of Massachusetts have developed an animal model that shows how an early childhood lung infection can cause asthma later in life. They present their data today at the 110th General Meeting of the American Society for Microbiology in San Diego.

Asthma is the most common chronic respiratory disease affecting young children all over the world and the number of new pediatric [asthma](#) cases has dramatically increased over the last 20 years. [Chlamydia](#) infection of the respiratory tract has been identified as a risk factor in asthma development.

"Even with this knowledge, we currently do not understand how this pathogen causes asthma symptoms and if it really initiates the disease," says Katir Patel, one of the researchers on the study. "In our mouse model we are able to demonstrate that when mice are infected very early in life with respiratory chlamydia, asthma was induced."

The key appears to be an altered immune response in neonatal mice. Patel and colleagues began the study by inducing chlamydial [lung infection](#) in newborn neonatal as well as in adult mice and compared the immune response and outcomes. The immune response in the newborns was significantly different from adults and the newborns never cleared the infection, while the adults did.

"When allergic airway disease was induced in this [mouse model](#),

infected neonatal mice significantly increased their production of allergic type chemical messengers characteristic of asthma, compared to uninfected neonatal controls and infected adult groups," says Patel.

"Our data indicate that early-life infections with chlamydia may drive aberrant immune responses ultimately causing chronic infection and inducing asthma disease," says Patel. "Early life respiratory colonization with chlamydia elicits pathogen-specific IgE antibody production, which for the first time provides evidence of an infectious asthma phenotype."

Provided by American Society for Microbiology

Citation: Model demonstrates infectious cause of asthma (2010, May 24) retrieved 3 May 2024 from <https://medicalxpress.com/news/2010-05-infectious-asthma.html>

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