

Researchers find link between pulmonary inflammation, diesel exhaust, house dust

December 14 2011

A study conducted by researchers at Boston University School of Medicine (BUSM) has found that diesel exhaust particulates (DEP) and house dust extract (HDE) causes pulmonary inflammation that aggravates asthma. The study led by principle investigator Jiyoun Kim, PhD, professor of pathology, was published in the December issue of *The American Journal of Pathology* and was selected by the editorial board as the only article for an in-depth discussion in the journal's commentary section.

Numerous exposures such as viral infections, indoor as well as outdoor allergens and ambient pollution contribute to the development of asthma in childhood and the persistence of asthma in adulthood. Environmental influences weigh heavily on early lung growth, particularly traffic-related pollution. Children develop asthma and related pulmonary infections at an increased rate when exposed to these pollutants.

Exposure to both HDE and DEP demonstrated increased mucus production and higher airway resistance compared to exposure to only HDE. Pulmonary inflammation was measured by oxidative stress, respiratory physiological features, inflammatory cell recruitment and local CXC chemokine production, or soluble mediators of inflammation.

"The highlight of our study is that you can remove some of the allergen exposure by cleaning, but DEP's are especially hard to avoid in [urban environments](#)," explained Kim.

According to Kim, this research also shows a direct link between air pollution and exacerbation of pre-existing pulmonary diseases, like asthma. "We haven't reached a medicinal solution yet, but this study reveals that there could be a tangible [therapeutic target](#) and that anti-oxidative treatment could be beneficial to asthmatic patients, especially those with increased exposure to [air pollutants](#)."

Provided by Boston University Medical Center

Citation: Researchers find link between pulmonary inflammation, diesel exhaust, house dust (2011, December 14) retrieved 5 May 2024 from <https://medicalxpress.com/news/2011-12-link-pulmonary-inflammation-diesel-exhaust.html>

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