

# Protein explains increased asthma severity in children exposed to diesel exhaust from traffic

September 23 2013

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A new study shows that exposure to diesel exhaust particles from traffic pollution leads to increased asthma severity in children. Moreover, the study finds that this is due to increased blood levels of IL-17A, a protein associated with several chronic inflammatory diseases, in children with high diesel exposure.

The study by researchers at Cincinnati Children's Hospital Medical Center is published online in the *Journal of Allergy and Clinical Immunology*.

The research, conducted in mice and in humans, showed that neutralizing IL-17A prevented [airway inflammation](#). Neutralization of IL-17A "may be a useful potential therapeutic strategy to counteract the asthma-promoting effects of traffic-related air pollution, especially in highly exposed, severe allergic asthmatics," says Gurjit Khurana Hershey, MD, PhD, director of asthma research at Cincinnati Children's and senior author of the study.

Dr. Hershey and her colleagues studied 235 children and teens with asthma. The researchers plotted each person's primary address and estimated their diesel exposure attributable to traffic based on where they lived. The researchers also studied mice exposed to diesel particles and dust mites, a common household allergen.

In children with asthma, diesel exposure was associated with more frequent [asthma symptoms](#) and increased IL-17A blood levels. Similarly, exposure to both diesel and [dust mites](#) resulted in more severe asthma in mice compared to dust mite exposure alone. When IL-17A was neutralized in mice, it alleviated airway inflammation induced by diesel exposure.

"Blocking IL-17A may be a useful strategy to counteract the effects of traffic-related air pollution, especially in highly exposed allergic asthmatic children," says Dr. Hershey.

Provided by Cincinnati Children's Hospital Medical Center

Citation: Protein explains increased asthma severity in children exposed to diesel exhaust from traffic (2013, September 23) retrieved 30 March 2023 from <https://medicalxpress.com/news/2013-09-protein-asthma-severity-children-exposed.html>

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