DNA Hypomethylation at ALOX12 Is Associated With Persistent Wheezing in Childhood

PURPOSE OF THE STUDY. To determine if epigenetic changes play a role in asthma phenotypes.

STUDY POPULATION. There were 2 groups studied, both involved children enrolled from pregnancy cohorts. The first group (Menorca cohort) was 122 children with available data available through age 6 years. The second group (Sabadell cohort) was 236 children with available DNA extracted from whole cord blood.

METHODS. Children were assigned wheezing phenotypes at age 4 to 6 years based on validated questionnaires (never, transient, late-onset, or persistent wheezing). Prenatal exposure data were collected through questionnaire and by measuring for presence of a specific pollutant, dichlorodiphenyldichloroethene, in cord blood.

RESULTS. DNA hypomethylation was associated with increased risk for persistent wheezing in both studies, although only 1 of the 2 was statistically significant (Menorca: odds ratio 1.13, 95% confidence interval 0.99–1.29, \(P = .077\); Sabadell: odds ratio 1.16, 95% confidence interval 1.03–1.37, \(P = .017\)). Higher levels of dichlorodiphenyldichloroethene were associated with hypomethylation of ALOX12 in the Menorca study \(P = .033\), but not the Sabadell study \(P = .377\). Level of methylation at ALOX12 was strongly influenced by polymorphisms in the gene.

CONCLUSIONS. DNA hypomethylation at ALOX12 was associated with a higher risk of persistent wheezing. This may be an epigenetic biomarker that predicts increased likelihood of persistent wheezing in childhood.
DNA Hypomethylation at ALOX12 Is Associated With Persistent Wheezing in Childhood

Justin M. Skripak

Pediatrics 2012;130;S26
DOI: 10.1542/peds.2012-21830

Updated Information & Services
including high resolution figures, can be found at:
/content/130/Supplement_1/S26.1.full.html

Permissions & Licensing
Information about reproducing this article in parts (figures, tables) or in its entirety can be found online at:
/site/misc/Permissions.xhtml

Reprints
Information about ordering reprints can be found online:
/site/misc/reprints.xhtml
DNA Hypomethylation at ALOX12 Is Associated With Persistent Wheezing in Childhood
Justin M. Skripak
Pediatrics 2012;130;S26
DOI: 10.1542/peds.2012-2183OO

The online version of this article, along with updated information and services, is located on the World Wide Web at:
/content/130/Supplement_1/S26.1.full.html