

## THE RELATIONSHIP BETWEEN PAH/AROMATIC DNA ADDUCTS IN CORD BLOOD AND CHILD BEHAVIOR

**Frederica P. Perera**, Columbia Center for Children's Environmental Health and Departments of EHS, Biostatistics, Population and Family Health, Mailman School of Public Health, Columbia University New York, USA

**Shuang Wang**, Columbia Center for Children's Environmental Health and Departments of EHS, Biostatistics, Population and Family Health, Mailman School of Public Health, Columbia University New York, US

**Julia Vishnevetsky**, Columbia Center for Children's Environmental Health and Departments of EHS, Biostatistics, Population and Family Health, Mailman School of Public Health, Columbia University New York, USA

**Bingzhi Zhang**, Columbia Center for Children's Environmental Health and Departments of EHS, Biostatistics, Population and Family Health, Mailman School of Public Health, Columbia University New York, USA

**Kathleen J. Cole**, Institute of Cancer Research, London, UK

**Deliang Tang**, Columbia Center for Children's Environmental Health and Departments of EHS, Biostatistics, Population and Family Health, Mailman School of Public Health, Columbia University New York, USA

**Virginia Rauh**, Columbia Center for Children's Environmental Health and Departments of EHS, Biostatistics, Population and Family Health, Mailman School of Public Health, Columbia University New York, USA

**David H. Phillips**, Institute of Cancer Research, London, UK

**Background.** Airborne polycyclic aromatic hydrocarbons (PAH) are widespread urban pollutants from fossil fuel burning and other combustion sources that can bind to DNA to form PAH-DNA adducts. Prenatal PAH exposure measured by personal monitoring has been linked to cognitive deficits in childhood in a prospective study conducted by the Columbia Center for Children's Environmental Health (CCCEH).

**Aims.** We measured PAH-DNA and other bulky aromatic adducts in umbilical cord white blood cells using the <sup>32</sup>P-postlabeling assay to determine the association between this molecular dosimeter and behavioral/attention problems in childhood.

**Methods.** Children born to nonsmoking African-American and Dominican women residing in New York City (NYC) were followed from *in utero* to 7-8 years of age. At two time points prior to age 8 (mean ages 4.8 years and 7 years), child behavior was assessed using the Child Behavior Checklist (CBCL). To estimate and test the association between adducts and behavioral outcomes, both CBCL continuous raw scores and dichotomized T-scores were analyzed. Potential confounders were included as covariates in the models.

**Results.** Higher cord adducts were associated with higher symptom scores of Anxious/Depressed at 4.8 years and Attention Problems at 4.8 and 7 years, and with *Diagnostic and Statistical Manual of Mental Disorders (DSM)* oriented Anxiety Problems at 4.8 years.

**Conclusions.** These results are generally consistent with those using prenatally monitored levels of airborne PAH and suggest that PAH exposure, measured by DNA adducts, may adversely affect child behavior, potentially affecting school performance.

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