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## **Effects of prenatal exposures to persistent and non-persistent organic compounds on immune system development**

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PCBs and dioxins are immunotoxins. Thymic atrophy, altered lymphocyte distributions, decreased antigen-specific antibody responses, and other changes have been associated with PCB exposures in one or more species. In adult humans, immune effects have been transient, suggesting that a healthy mature immune system is able to adapt to insult.

The developing immune system in the fetus and infant may be more vulnerable. In populations spanning the Yucheng exposed cohort, Inuits, and both Japanese and Dutch environmental exposures, in utero or early life PCB exposures have been associated with bronchitis, otitis media, reduced monocytes, and altered distributions of lymphocyte phenotypes.

We report the first human data on thymic size from one of the world's most highly exposed populations, the Slovak PCB Exposure and Early Childhood Development (SPEECD) Study participants. Mothers were enrolled at delivery; maternal and cord blood were sampled and thymus size was measured by ultrasound. The children were seen again at 6 and 16 months.

Higher PCB levels in 982 maternal serum specimens were associated with a smaller thymic index at birth, after adjustment for district, child's sex, birth weight, gestational age at delivery, ethnicity, maternal alcohol consumption and respiratory illness during pregnancy. The decrease in thymic index for higher PCBs, comparing the 90th to 10th percentile, was 7%, for maternal smoking, 3%, and for girls as compared with boys, 11%. Data on lymphocyte distributions will be shown, as well as results on PBDEs and on non-persistent organic pollutants, such as PAHs.