

Effect of brominated flame retardant on the immune response in the developing postnatal rats

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Brominated flame retardants (BFRs) have routinely been added to consumer products for several decades in a successful effort to reduce fire-related injury and property damage. Previous studies have revealed that certain flame retardants might act on the developing thyroid system, suggesting that they may modulate the balance of these thyroid function-related developing immune networks. Three dosages of each BFR (DBDE(decabromodiphenyl ether), HBCD (hexabromocyclodecane), TBBPA(tetrabromobisphenol A)) were exposed to maternal SD rat during the period from gestational day 10 to postnatal day (PND) 21. On PND 21 and 77, lymphocytes in the spleen, thymus, and peripheral blood of male pups were subjected to flow cytometric analyses for their cell surface markers. The serum thyroid-related hormone levels, the hematological components and the antibody production to KLH in the offspring were also determined. On day 21, developmental exposure to the highest dose of DBDE and HBCD decreased the population of activated T cells and NK cells and the production of antibody to KLH. Most of the immunomodulatory effect has recovered to normal levels on PND 77. As for TBBPA, immunomodulatory effect was very little. These results suggest some BFRs have weak and recoverable developing immunomodulatory effects at higher doses.