

Effects of the Commercial Flame Retardant Mixture DE-71 on Cytokine Production by Human Immune Cells - DTU Orbit (09/11/2017)

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Introduction Although production of polybrominated diphenyl ethers (PBDEs) is now banned, release from existing products will continue for many years. The PBDEs are assumed to be neurotoxic and toxic to endocrine organs at low concentrations. Their effect on the immune system has not been investigated thoroughly. We aimed to investigate the influence of DE-71 on cytokine production by peripheral blood mononuclear cells (PBMCs) stimulated with *Escherichia Coli* lipopolysaccharide (LPS) or phytohaemagglutinin-L (PHA-L). **Material and Methods** PBMCs isolated from healthy donors were pre-incubated with DE-71 at various concentrations and subsequently incubated with the monocyte stimulator LPS, or the T-cell activator PHA-L. Interferon (IFN)- γ , interleukin (IL)-1 β , IL-2, IL-4, IL-6, IL-8, IL-10, tumor necrosis factor (TNF)- α , IL-17A, and IL-17F were quantified in the supernatants by Luminex kits. **Results** At non-cytotoxic concentrations (0.01–10 $\mu\text{g/mL}$), DE-71 significantly enhanced secretion of IL-1 β , IL-6, CXCL8, IL-10, and TNF- α ($p < 0.001$ – 0.019 ; $n = 6$) from LPS-stimulated PBMCs. IFN- γ , TNF- α , IL-17A, and IL-17F ($p = < 0.001$ – 0.043 ; $n = 6$) secretion were enhanced from PHA-L-stimulated PBMCs as well. Secretion of IL-1 β , IL-2, IL-10, IL-8 and IL-6 was not significantly affected by DE-71. **Conclusions** We demonstrate an enhancing effect of DE-71 on cytokine production by normal human PBMCs stimulated with LPS or PHA-L *ex vivo*.

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Authors: Mynster Kronborg, T. (Ekstern), Frohnert Hansen, J. (Ekstern), Nielsen, C. H. (Ekstern), Ramhøj, L. (Intern), Frederiksen, M. (Ekstern), Vorkamp, K. (Ekstern), Feldt-Rasmussen, U. (Ekstern), Tansey, M. G. (ed.) (Ekstern)

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