Mechanistic profiling of flame retardants (FRs) in general systemic stress and endocrine disruption ESR10

At UA, this project will evaluate the stress-related and endocrine disruptive mechanisms of toxicity of FRs present in indoor air and dust. For this purpose, a battery of targeted in vitro systems is implemented (e.g. E. coli, MCF-7, HepG2, H295R). Both indoor air and dust samples as well as relevant pure compounds, will be tested. In this way, not only a fast screening of the stress-inducing and endocrine disruptive activity of the samples, but also a more in depth evaluation of the mode of action of relevant FRs is provided. A combination of proteomic and flow cytometric techniques will allow a comprehensive mechanistic and cell physiologic profiling of FRs that complements the genomics and metabolomics approach. Based on the mechanistic profiles obtained from air/dust samples as well as from pure compounds, interesting new biomarkers can be derived. Target FRs will be selected based on their relevance for human exposure. There will be close collaboration with ESRs 11 and 12.