

O-10*Endocrine disruptors***IN VITRO ESTROGEN DISRUPTION OF CURRENTLY-USED FLAME RETARDANTS**

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Flame retardants (FRs) are ubiquitously-used chemicals that are added to nearly all manufactured materials. Accordingly, FRs have been detected in human serum and urine, soil, aquatic environments, and biota. Additionally, there has been a steady increase in diseases resulting from endocrine-disruption with an aligned increase in use of chemicals. Given the persistence, potential bioaccumulation, limited toxicological understanding, and vast use of FRs, there is a need to investigate potential endocrine-disruptive activity associated with these compounds in an effort for better risk assessment. We therefore used the MCF-7 flow-cytometric proliferation assay in an effort to establish potential estrogen-disrupting effects of twelve currently-used flame retardants. The assay is an adaption of the classical E-Screen assay which relies on the proliferation of estrogen receptor α -positive MCF-7 cells in response to xenoestrogens. The assay allows for the rapid screening of potential xenoestrogens while also maintaining comparable performance to other *in vitro* estrogen assays. Five FRs showed statistically significant estrogenic activity while seven FRs harboured anti-estrogenic activity when co-treating with 17β -estradiol. However, potencies were many orders of magnitude lower than those for control compounds (17β -estradiol and the estrogen receptor antagonist fulvestrant for estrogen and anti-estrogen activity respectively). Interestingly, some compounds showed both estrogenic and anti-estrogenic effects, indicating both receptor-dependant and –independent mechanisms attributed to some of these compounds, in line with other studies. Multiple currently-used flame retardants may therefore act as xenoestrogens and anti-estrogens, or alter estrogen homeostasis, which could affect endocrine function.