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MEETING ABSTRACTS

EVALUATION OF CYTOTOXIC EFFECTS OF FIVE BISPHENOL ANALOGS (A, AF, B, F, S) IN PROSTATE CELL LINES LNCaP AND PC3

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Bisphenol A (BPA), a widely used plastic additive with proven endocrine disrupting properties, has been previously linked to reproductive system disorders and tumors. Due to such harmful effects, its use has become restricted but other bisphenol (BP) analogs have been introduced as replacements for BPA usage in many applications. However, little is known about their biological actions or about similarities with the actions of the prototype BPA. The present study used the human prostate cell lines: androgen-unresponsive PC3 cells and androgen-responsive LNCaP cells, to examine effects of bisphenols AF, S, F and B, in comparison to BPA. We focused on BP effects on cell viability, proliferation, and oxidative stress (concentrations 10^{-10}–10^{-4}M) at several time points. We observed different sensitivity of both cell lines to toxic effects of the individual analogs. Although the highest concentration of each of the five BPs inhibited cell proliferation (BrdU incorporation) in both cell lines, this resulted in viability decrease only in LNCaP cells while in PC3 cells, the viability remained unaffected (MTS assay). The exception was observed in the presence of the BPAF analog with the profound cytotoxic effects, which seem to be caused by the early apopotic actions and increase in caspase activity (fluorescent assay). In addition, the highest concentration of each BP analog elevated reactive oxygen species production by the prostate cells. The results show that high concentrations of BPs can affect prostate cancer cell status and that androgen-responsive LNCaP cells are significantly more sensitive than the unresponsive PC3 cells, what indicates possible involvement of androgen receptors in the action of BP derivatives, and will be a subject of further elucidation.

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