

MEETING ABSTRACTS

PILOT STEPS TO DEVELOPMENT OF IN VITRO MODEL FOR STUDYING EFFECTS OF BISPHENOLS ON CARDIAC CELLS

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Bisphenols (e.g. bisphenol A, BPA), are chemical compounds used in manufacturing of plastics and polluting the environment worldwide in nanomolar concentrations. Although the direct toxic effects of "environmentally relevant" concentrations are controversial, concerns are associated with their action as chemical disruptors because their structure is similar to estrogens. Several studies reported that BPA may cause adverse effects in humans and animals (1), including an interference with cardiac differentiation (2). Based on these concerns, BPA was gradually replaced during last decade with "next generation" bisphenols. However, little is known about safety of these BPA derivatives. Traditional *in vitro* models used in cardiovascular research are unable to reliably study the toxicological potential of bisphenols. Therefore, our aim is to develop a reproducible protocol for differentiation of H9c2 cells, a myoblast cell line derived embryonic rat heart tissue, to cardiac muscle phenotype based on previously published protocols (3). We have started a comparison of several protocols based on varying concentration of fetal bovine serum, glucose and *all-trans* retinoic acid in cultivation media, and the duration of cultivation in differentiating media, with following morphology and expression of tissue-specific markers to describe resulting phenotype. The toxicity of bisphenols is compared between parent and differentiated phenotype, and finally the possible influence of bisphenols on the cardiac differentiation process or cellular stress markers is assessed.

Keywords: bisphenols; H9c2; cardiac cells; differentiation; model development

References

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