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Expression of Genes for Steroidogenesis, Transcriptional Regulation, Nuclear Remodeling in Mouse Testes Following Bisphenol A Exposure

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Industrial alkylphenols in the environment may act as xenoestrogens to disrupt testicular development and decrease male fertility. Bisphenol A (BPA), an alkylphenol derivative, has estrogenic activity and exerts deleterious effect on spermatogenesis in a number of animals. In an effort to elucidate toxic mechanism for BPA-induced testicular insult, the effects of BPA on the expression of genes for testicular steroidogenesis in male mice were evaluated. Adult male mice were given IP injection of BPA (1, 10, 100 mg/ kg) dissolved in sesame oil 3 times with 3 days interval. Following exposure to BPA expression of 3B-HSD1, 3B-HSD6 and 17B-HSD3 showed remarkable increase compared with vehicle control. However, no significant changes in protamine2, TP2, StAR, CREM expression was found in BPA treated animals. Parallel analysis of ATF4 revealed significant induction of ATF4 mRNA following BPA exposure. In conclusion, it is suggested that endocrine disrupting effect of BPA in male may attribute to the alteration in steroid metabolism in testis and that transcription factor ATF4 may be involved in BPA induced transcription regulation of steroidogenic enzyme in mouse testis.

Keywords: *Endocrine disruptor, Bisphenol A, Steroidogenic enzyme, Testis, Mouse*