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Diethylstilbestrol-induced oxidative DNA damage in spermatogonial stem cells in vitro

The spermatogonial stem cells (SSCs) are responsible for the transmission of genetic information from an individual to the next generation. SSCs play a very important role in the maintenance of normal tissue and provide an understanding of the rudimentary reproductive biology of gametes and a strategy for diagnosis and treatment of infertility and male reproductive toxicology. The balance between hormonal androgens/oestrogens is very important for the suitable maintenance of male germ cells, because there is evidence confirming the damaging effects of oestrogen-like compounds on male reproductive health. We investigated the effects *in vitro*, of diethylstilbestrol (DES) on mouse spermatogonial stem cells isolated using Staput unit-gravity velocity sedimentation, evaluating any DNA damage using the Comet assay and apoptotic cells with the TUNEL assay. Immunocytochemistry assays showed that the purity of isolated spermatogonial cells was 90% and the viability over 96%. Intracellular superoxide anion production in SSCs was detected by the p-Nitro Blue Tetrazolium (NBT) assay. The results showed DES-induced DNA damage, increased apoptotic cells, and increased production of intracellular superoxide anions. Investigating the mechanisms and biology of SSCs in this way helps to provide a better understanding of spermatogonial stem cell regulation.

Biography

Diana Anderson (H index 54) holds the Established Chair in Biomedical Sciences at the University of Bradford. She obtained her first degree in the University of Wales and second degrees in the Faculty of Medicine, University of Manchester. She has 450+ peer-reviewed papers, 9 books, and has successfully supervised 28 PhDs. She is an Editorial Board Member of 10 international journals. She is Editor in Chief of a book series on Toxicology for the Royal Society of Chemistry. She gives key note addresses at various international meetings. She is a consultant for many international organisations, including WHO, EU, NATO, TWAS, UNIDO, OECD.

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