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Induced oxidative DNA damage in spermatogonial stem cells by diethylstilbestrol *in vitro*

The spermatogonial stem cells (SSCs) are the only adult stem cells that 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. Androgens / oestrogens are very important for the suitable maintenance of male germ cells. There is also evidence confirming the damaging effects of oestrogen-like compounds on male reproductive health. We investigated the effects *in vitro*, of DES on mouse spermatogonial stem cells separated using staput unit-gravity velocity sedimentation, evaluating any DNA damage using the comet assay and apoptotic cells detected by the TUNEL assay. Immunocytochemistry assays showed that the purity of isolated mouse spermatogonial cells were 90%, and the viability of this isolated cell was over 96%. The intracellular superoxide anion production in SSCs was detected using the p-Nitro Blue Tetrazolium (NBT) assay. The viability of cells after DES treatment was examined by CCK8 (cell counting kit-8) assay. The results showed DES-induced DNA damage causes an increase in the intracellular superoxide anion. Investigating the mechanism and biology of SSCs not only delivers a better understanding of spermatogonial stem cell regulation but ultimately would also be a new target for male infertility and testicular cancers.

Speaker Biography

Diana Anderson 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, has successfully supervised 32 PhDs, 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 plenary and key note addresses at various international meetings. She is a consultant for many international organizations, including WHO, EU, NATO, TWAS, UNIDO, OECD.

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