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Tributyltin Induces Orphan Nuclear Receptor Nur77 Gene Expression and Cell Death in Testicular cell line (TM3)

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A clear association between occupational tributyltin (TBT) exposure and testicular cell line, TM3 has been observed in mouse. In the present study, we have investigated cytotoxic effects of TBT on Significant cytolethality was observed in TM3 cells in a time- and concentration-dependent manner when measured by MTT assays. To find differentially expressed genes between control and TBT-exposed TM3 cells, the polymerase chain reaction (PCR)-based subtraction method was used. So far, we have identified different genes of which expression was significantly enhanced by TBT treatment. One of those genes, nur77 was further studied since the products of nur77 are known to be involved in the apoptotic process of TM3 cells. Fallowing TBT treatment, nur77 gene expression was increased in TM3 cells when assayed using RT-PCR and Immunoblot analysis. Consistently, the reporter containing nur77 binding sequence was activated by 2.5-fold after exposure to TBT. These results suggest that nur77 gene expression in exposure to TBT leads apoptosis of TM3 cells which may cause pathological changes in the tissues.

Keyword : TM3 , tributyltin(TBT), Nur77