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Gene Expression in Rats Brain by Gsm900 Mhz

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Objective: To examine the gene expression in rat's brain, treated by non-ionizing electromagnetic radiation from 900MHz-GSM mobile phone. **Background:** As studies supported electromagnetic radiation may cause membrane leakage due to loss of calcium. Membrane leakage of lysosomes release. Damage to DNA is a fundamental mechanism for developing tumors and cancer when DNA damage exceeds the rate of DNA repair. DNA damage in brain cells can affect neurological functions. **Methods:** We investigated whether an exposure of GSM-900 MHz irradiation from the Mobile Phone (3hours/day up to 28 days) could lead to the modulation of gene expression pattern in the rat brain. All rats were habituated for one week prior to start the experiment in well designed circular mobile phone exposure (CCPE) cage. In the cage, mobile phone was placed in the center and rats were allowed to move around the device within 10 cm. radius. After 28 days, mRNA from the brain of control, sham and GSM-900 MHz exposed rats were isolated and subjected to qRT-PCR array analysis. Gene expression was measured and expressed in fold change. The qRT-PCR was performed by using Sybr green chemistry on ABI 7900HT platform. **Results:** There was no significant change in expressions of genes involved in DNA damage and repair pathways such as chromatin assembly (CHAF1A), DNA damage checkpoints (Chk1), DNA synthesis (POLD1), post-transcriptional processes (RBM4), translation synthesis (POLI) and stress signaling (Hsp90) as compared with controls. **Conclusions:** Mobile phone's acute exposure does not support for genes expression involved in DNA damage and repair pathways.