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Gene expression profiles of MCF-7 cells treated with oxyresveratrol

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Oxyresveratrol (OXY) is a naturally occurring polyphenol belonging to the group of stilbenoids [1]. The aim of this study was to elucidate, using micro-array analysis, the biological pathways altered in the breast cancer cell line MCF-7, following treatment with OXY. The gene-level expression of more than 20,000 human well-annotated genes was determined using Clariom Affymetrix microarray under two different OXY treatments (50 μ M (IC₅₀) and 100 μ M) for 24 h. A total of 686 genes were found to have altered mRNA expression levels of two-fold or more in the 50 μ M OXY-treated group (262 upregulated and 424 downregulated genes). Total 2,338 genes were differentially expressed in the 100 μ M-treated group (907 upregulated and 1,431 downregulated genes). The relevant visualise global expression patterns of genes and pathways were generated; genes involved in cell cycle control, DNA repair, and apoptosis, as well autophagy, showed the greatest differences in expression relative to controls. Gene expression was validated by quantitative PCR. Protein-level expression was investigated using western blot and flow cytometry analysis. We continue to elucidate the cellular consequences of OXY treatment.

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Reference

[1] Mongolsuk S et al. *Journal of the Chemical Society (Resumed)*. 1957; 0:2231-2233.