

# A Genome-Wide Analysis of mRNA Expression in Human Tooth Germ Stem Cells Treated with Pluronic P85

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## Abstract

© 2016, Springer Science+Business Media New York. Human tooth germ stem cells (hTGSCs) originate from the neural crest and have a great potential to be used in stem cell therapies. Our group has previously shown that Pluronics interact with stem cells and affect their biological function. Pluronics block copolymer (P85), a potential drug delivery agent in the micelle form, which was shown to improve stem cell expansion. However, it is not known how P85 treatment affects the transcription profile of hTGSCs. In the present study, we found substantial changes in the expression of 252 genes in response to P85 treatment by using Illumina microarray. The gene enrichment was carried out using database for annotation, visualization, and integrated discovery (DAVID) and the results classified in several biologically meaningful clusters. Using bioinformatics tools, we constructed a global regulatory network of P85-modulated genes associated with stem cell differentiation pathways and multi-drug resistance (MDR) processes. In conclusion, our results were compatible with many of the P85-mediated biological processes and may help us to gain a better molecular understanding of P85 biological function.

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## Keywords

Dental stem cells, Differentiation, Human tooth germ stem cells, Microarray, Multi-drug resistance, Pluronic P85