OMICS Group Conferences
Accelerating Scientific Discovery

3rd World Congress on
Cancer Science & Therapy

October 21-23, 2013 DoubleTree by Hilton Hotel San Francisco Airport, CA, USA

Effect of the induced expression of human sprouty protein-1 (spry1) on SKOV-3 human ovarian cancer cells' proliferation, migration, invasion and survival *in vitro*

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Introduction: We have already shown that the expression of Spry1, a MAPK/ERK regulator, is significantly reduced in human ovarian cancer cell line SKOV-3. In this study, we investigated how Spry1 transfection could affect SKOV-3 cells' behaviour.

Methods: SKOV-3 cells were transiently transfected with the Spry1 plasmid or pcDNA3.1. The effect of the induced expression of Spry1 was investigated using proliferation, MTT, scratch-wound, migration and invasion assays. Stably-transfected clones were also selected to evaluate the effect of transfection on the cell survival.

Results: On day 3 post-transfection, the transfected cell proliferation was significantly lower than control evaluated by growth (p-value:0.0003) and MTT (p-value:0.0042) assays. In the migration assay, the number of migrated cells in the transfection group was significantly lower than control examined at hour 6 (p-value:0.0090) and 12 (p-value:0.0002). Similarly, our invasion assay showed a decreased number of invading cells in the Spry1 group assayed at hours 6 (p value:0.0159) and 12 (p-value:0.0005). Taken together, the invasion percentage of Spry1-transfected cells was significantly reduced at hours 6 and 12 (p-values of 0.0191 and 0.0021, respectively). Also, a significantly-decreased percentage of the scratch closure was observed in the Spry1 group viewed at hours 20 and 24 (p-values of 0.0232 and 0.0046, respectively). In our stable transfection setting, the Spry1-transfected selected clones were almost undetectable after day 14 post selection.

Conclusion: Here, we report that Spry1-transfected SKOV-3 cells proliferate, migrate, and invade significantly less than do the negative control cells, and that their stably-selected clones do not survive beyond 14 days of the selection.

Biography

Samar Masoumi Moghaddam completed her medical degree in General Practice in 2005. Being interested in cancer research, she has received a competitive international postgraduate scholarship from the University of New South Wales, Sydney, Australia. As a member of Professor Morris's research team at St George Hospital, she is currently involved in some key projects aimed to develop novel approaches to cancer therapy.

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