IJAE
Vol. 119, n. 1 (Supplement): 70, 2014
ITALIAN JOURNAL OF ANATOMY AND EMBRYOLOGY

Glutamate signaling in human melanoma cell line SK-MEL-28

Anna Di Vito*, Stefania Bulotta#, Nadia Lobello*, Maria Franca Panebianco*, Ilenia Aversa*, Francesco Costanzo*, Tullio Barni*

* Laboratory of Molecular Oncology, Department of Experimental and Clinical Medicine, University of Catanzaro Magna Græcia, 88100 Catanzaro
# Laboratory of Biology and Biochemistry, Department of Health Sciences, University of Catanzaro Magna Græcia, 88100 Catanzaro

Glutamate, recognized as the major excitatory neurotransmitter in the mammalian central nervous system, has been shown to regulate proliferation, migration and survival of immature and mature neurons. In addition, glutamate exerts regulatory roles in the physiology of non-neuronal cells, as confirmed by its expression in peripheral tissues [1]. Recently, the involvement of both ionotropic and metabotropic glutamate receptors in the pathophysiology of various human malignancies such as melanoma has been proposed [2]. In this study, we investigate the role of ionotropic NMDA and AMPA receptors in human melanoma cell line SK-MEL-28, via the evaluation of gene expression profile of markers for neural crest (Slug, Snail, Twist), mesenchymal stem cell (Vimentin) and embryonic stem cell (Nanog and Oct4). We reported significant alterations in neural crest and embryonic stem cell markers expression in SK-MEL-28 following stimulation with 10 or 100 mM AMPA or NMDA. In addition, modulatory actions of glutamate receptors on cell proliferation and migration were also demonstrated via *in vitro* proliferation assay and wound healing assay. Overall, our results enhance the knowledge of glutamate signaling in human melanoma.

References

[1] Fischer et al. (2004) N-methyl-D-aspartate receptors influence the intracellular calcium concentration of keratinocytes. Exp Dermatol 13:512-519.
[2] Song et al. (2012) Blocking glutamate-mediated signaling inhibits human melanoma growth and migration. Exp Dermatol 21(12): 926-31.

Keywords
Glutamate, ionotropic receptors, melanoma cell line.