Elena Shinderman, J Cell Sci Ther 2014, 5:4
http://dx.doi.org/10.4172/2157-7013.S1.029

OMICS Group Conferences
Accelerating Scientific Discovery

4th World Congress on
Cell Science & Stem Cell Research
June 24-26, 2014 Valencia Conference Centre, Valencia, Spain

Thyroid hormones growth factor effect in ovarian cancer: Old players, new game

Elena Shinderman
Tel Aviv University, Israel

Introduction: Ovarian carcinoma is the fifth most common cancer in women. As this disease remains challenging and highly resistant, novel treatments are urgently needed. αvβ3 integrin is a plasma membrane receptor which is over-expressed on many cancer cells, including ovarian cancer. This receptor recognizes RGD motifs on extra cellular proteins and takes part in adhesion and signaling processes. Recently, a novel non-RGD site has been described, binding mainly thyroid hormones (T3 and T4) and activating the MAPK pathway. It was aimed to study the mitogenic effects of the thyroid-αvβ3 axis, for the first time in ovarian cancer models.

Methods: Ovarian cancer cell lines (OVCAR-3, SKOV-3 and A2780) were grown with/without T3/T4 (0.1nM-1μM) in the presence/absence of integrin antagonists and analyzed by: cell counts (FACS, CyQuant), viability (WST-1), proliferation (BrdU), cell cycle (FACS,PI), cell death (Annexin-PI, FACS), αvβ3 expression (FACS, IF) and MAPK signaling (Westerns/IF).

Results: It is shown that supra-physiological T3 (1nM) and physiological T4 (100nM) concentrations increase cell viability and proliferation in ovarian cancer cells. This increase was accompanied by a reduction in cell death. Following T3/T4 treatments, a quick and long lasting MAPK pathway activation was observed. These effects were efficiently reversed by several integrin blockers, in a dose dependent manner, indicating involvement of this integrin in the growth promoting action of thyroid hormones.

Conclusions: Thyroid hormones exhibit growth-factor qualities in ovarian cancer cells which appear to be αvβ3 mediated. Therefore, the study proposes that blocking this axis is a novel treatment paradigm which is yet to be explored.

Biography

Fatemeh Ganji completed her M.Sc. in Development of Biology University of science and culture and Royan Institute in Tehran. Since 2012, she was accepted to collaborate as a research assistant in hematopoietic group in Royan Institute.

elena.shinderman@clalit.org.il