

29th Euro-Global Summit on

Cancer Therapy & Radiation Oncology

July 23-25, 2018 | Rome, Italy

The dysfunction of Na/K pump α subunit as the principal cause for carcinogenesis and target of the effect of cisplatin

Liana Yeganyan¹, Yerazik Mikayelyan¹, Emma Ayvazyan¹, Gagik Bazikyan² and Sinerik Ayrapetyan¹¹Life Sciences International Postgraduate Educational Center, Armenia²National Center of Oncology, Armenia

The aim of the present research is to find out the functional differences and individual roles of $\alpha 1$, $\alpha 2$, $\alpha 3$ isoforms of α subunit of Na/K pump in normal and cancer cell membranes, and to establish the role of hydration in these processes. Hydration of some tissues (heart muscle, skeletal muscle, tissues removed from lung, liver, spleen, kidney, sarcoma-180) of healthy and sarcoma-180 carrying exogamic male albinos mice have been measured and compared. The data allow us to consider the change of cell hydration as an extra sensitive universal diagnostic parameter for cell pathology. It was shown that, $\alpha 3$ -isoform dependent intracellular signaling system controlling cell hydration in excitable and non-excitable tissues have different nature. It means that the functional status of $\alpha 3$ isoform of Na/K pump can be an important component in the process of the development of cancer. The effect of cisplatin on tissue hydration of some tissues (heart muscle, skeletal muscle, tissues removed from lung, liver, spleen, kidney, sarcoma-180) of healthy and sarcoma-180 carrying mice was investigated. The effect of cisplatin on ³H-ouabain binding with $\alpha 1$, $\alpha 2$ and $\alpha 3$ isoforms of α subunit of Na/K pump is also determined. It was found that cisplatin increases the affinity of $\alpha 3$ subunit toward ouabain. Together with other intracellular components the $\alpha 3$ isoform of α subunit is also a target for cisplatin. These investigations give us the opportunity for the development and introduction of new methods to prevent and to give the early diagnosis of cancer, as well as to decrease the side effects arising during chemotherapy.

lianayeganyanliana@gmail.com