

P106-Inhibition of Na⁺/K⁺-ATPase in Estrogen Receptor Negative MDA-MB-231 and Estrogen Receptor Positive MCF-7 Cancer Cells by the Venom of Desert Black Cobra (*Walterinnesia morgani*) from Şanlıurfa, Turkey

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Introduction/Aim: Breast cancer is the second most common cancer type in women after skin cancer. In 2015, approximately 40,290 women expected die from breast cancer. The ion pump Na⁺/K⁺-ATPase is a key regulator of maintain ionic and osmotic balance in cells and also plays a vital role in the regulation of cellular homeostasis, cell differentiation and proliferation. Different expression and functioning of Na⁺/K⁺-ATPase has been observed in Alzheimer's disease, diabetes and different cancer types. In the present study, the effect of the venom of Desert Black Cobra from Sanliurfa was assess the effect of Na⁺/K⁺-ATPase activity on MDA-MB-231 and MCF-7 breast cancer cell lines.

Materials and Methods: For this purpose, cytotoxic effects of *W. morgani* venom were determined on estrogen receptor negative and positive cell lines, MDA-MB-231 and MCF-7, respectively by MTT assay. CXCR4 and Na⁺/K⁺-ATPase activity were determined following treatment with IC₅₀ and 2xIC₅₀ concentrations of *W. morgani* crude venom by flow cytometry analysis. Also, the venom effect on Na⁺/K⁺-ATPase activity was performed via western blot analysis after cells exposure with different venom concentrations (1/2x, 1x and 2x IC₅₀).

Results: According to the cytotoxicity results, IC₅₀ values were determined as 2,17 and 3,23 µg/ml by MTT assay against MDA-MB-231 and MCF-7 cells, respectively. Western blot analysis exhibited inhibition of Na⁺/K⁺-ATPase levels in a dose dependent manner. Especially, MDA-MB-231 cells more sensitized to effect of venom than MCF-7 cells. Flow cytometry analysis were shown that *W. morgani* venom triggered inhibition on Na⁺/K⁺-ATPase activity in both cell lines.

Conclusion: *W. morgani* venom possess a large number highly active compounds that act a different mode of action on cells. Usage of potent effect of venom combinations or formulations may use to be with new drug targeting techniques for treatment of cancer and neurodegenerative disease. For best characterization of *W. morgani* venom action, forthcoming investigations will be focus on isolation of active protein and/or peptide from crude venom.

Key words: *Walterinnesia morgani*, Na⁺/K⁺-ATPase, CXCR4, Breast Cancer Cells, Flow Cytometry

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NOTIFICATION

All responsibility for the articles in the abstract book belong to their authors.

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