



ABSTRACT BOOK OF THE

1st INTERNATIONAL CONGRESS ON CANCER & ION CHANNELS

September 21 – 23, 2017, Sanliurfa, TURKEY

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0103-Inhibition of Na⁺/K⁺-ATPase in SHSY5Y and U87MG Cancer Cells by the venom of Desert Black Cobra (*Walterinnesia morgani*) from Şanlıurfa, Turkey

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Introduction/Aim: Cancer and neurodegeneration are often thought of as disease mechanisms at opposite ends of a spectrum; one due to enhanced resistance to cell death and the other due to premature cell death. The ion pump Na⁺/K⁺-ATPase has an important role in cellular mechanism, where it modulates sodium reabsorption and homeostasis of the extracellular compartment. Also, many of the genes associated with either cancer and/or neurodegeneration play a central role in cell cycle control, DNA repair, and kinase signaling. In the present study the effect of the venom of Desert Black Cobra (*Walterinnesia morgani*) from Şanlıurfa was investigated functional changes in Na⁺/K⁺-ATPase activity on SHSY5Y and U87MG neuronal cancer cell lines.

Materials and Methods: For this purpose, cytotoxic effects of *W. morgani* venom were determined on SHSY5Y and U87MG cell lines by MTT assay. Na⁺/K⁺-ATPase activity was determined following treatment with different concentrations of *W. morgani* crude venom (IC₅₀ and 2xIC₅₀) 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. Additionally, change of TEER (Trans epithelial Electrical Resistance) values was determined in cultured colonic human intestinal cancer cells (CaCo-2).

Results: According to the cytotoxicity results, IC₅₀ values were determined as 1.02 and 5.53 µg/ml by MTT assay against SHSY5Y and U87MG cell, respectively. Flow cytometry analyses were shown that *W. morgani* venom triggered inhibition on Na⁺/K⁺-ATPase activity in SHSY5Y and U87MG cells. Western blot analysis exhibited inhibition of Na⁺/K⁺-ATPase in a dose dependent manner. Also, *W. morgani* crude venom reduced TEER values of CaCo-2 cell lines with increased membrane permeability.

Conclusion: *Walterinnesia morgani* venom contain a large number of pharmacologically highly active substances through a specific mode of action each with the potential of becoming a potent drug. The formulations or combinations of this venom for targeted drug delivery could be used to cancer and neurodegenerative diseases treatments. Further detailed investigations need to focus on isolation of active peptide from *W. morgani* venom.

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

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NOTIFICATION

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

ORAL PRESENTATIONS

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| O101 | <p><i>“The Research of the Anti-Tumoral Effects on Mice Formed of Curcumin's Ehrlich Solid Tumor”</i></p> <p><u>Seher YILMAZ*</u>, Harun ÜLGER, Tolga ERTEKİN, Mehtap NİSARİ, Şerife ÇINAR, Arzu Hanım YAY, Niyazi ACER</p> | Angiogenesis, Anticancer Drug Development |
| O102 | <p><i>“Argyrophilic Nucleolar Organizing Region–Associated Protein Synthesis Amounts in Selection of the Most Reliable Dose of the Drugs Such as Rhamnetin in Cancer Treatments”</i></p> <p><u>Tolga ERTEKİN*</u>, Recep EROZ, Mehtap NİSARİ, Duygu BİRCAN, Mustafa NİSARİ, Erdoğan UNUR</p> | Primary tumorigenesis and Cell cycle, Anticancer Drug Development |
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| O105 | <p><i>“Expression of miR-143, miR-145, miR-192, Tumor Suppressor miRNAs using qPCR in Colon Cancer Tissues”</i></p> <p><u>Cigdem GUNGORMEZ*</u>, Hatice GUMUSHAN AKTAS, Ersin BORAZAN</p> | Tumor suppressor genes |
| O106 | <p><i>“Knockdown of TIGAR Inhibits Proliferation and Induces Apoptosis and Autophagy via Oxidative Stress Markers in Lung Cancer Cell by Targeting TIGAR”</i></p> <p><u>Osama Hamid SHAREEF</u> and Can Ali AGCA*</p> | Cell Death Mechanisms |
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| O108 | <p><i>“Anticancer Activities of Heterocyclic Compounds against Breast and Colon Cancer Cell Lines”</i></p> <p><u>Senem AKKOÇ*</u>, İlhan Özer İLHAN and Veysel KAYSER</p> | Anticancer Drug Development |
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| O110 | <p>Views of Student Nurses on the Ethical Issues Experienced by Patients Diagnosed with Cancer</p> <p><u>Feray KABALCIOĞLU BUCAK*</u>, Mert KARTAL</p> | Cancer ethics |

