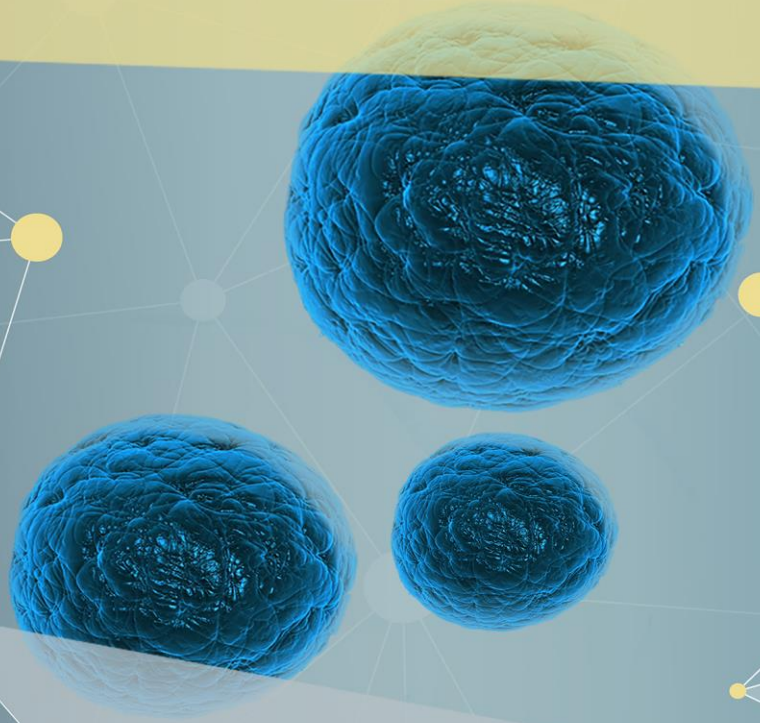
Serbian Association for Cancer Research

5th CONGRESS OF SDIR: TRANSLATIONAL POTENTIAL OF CANCER RESEARCH IN SERBIA

ABSTRACT BOOK



Virtual event
December 3

2021

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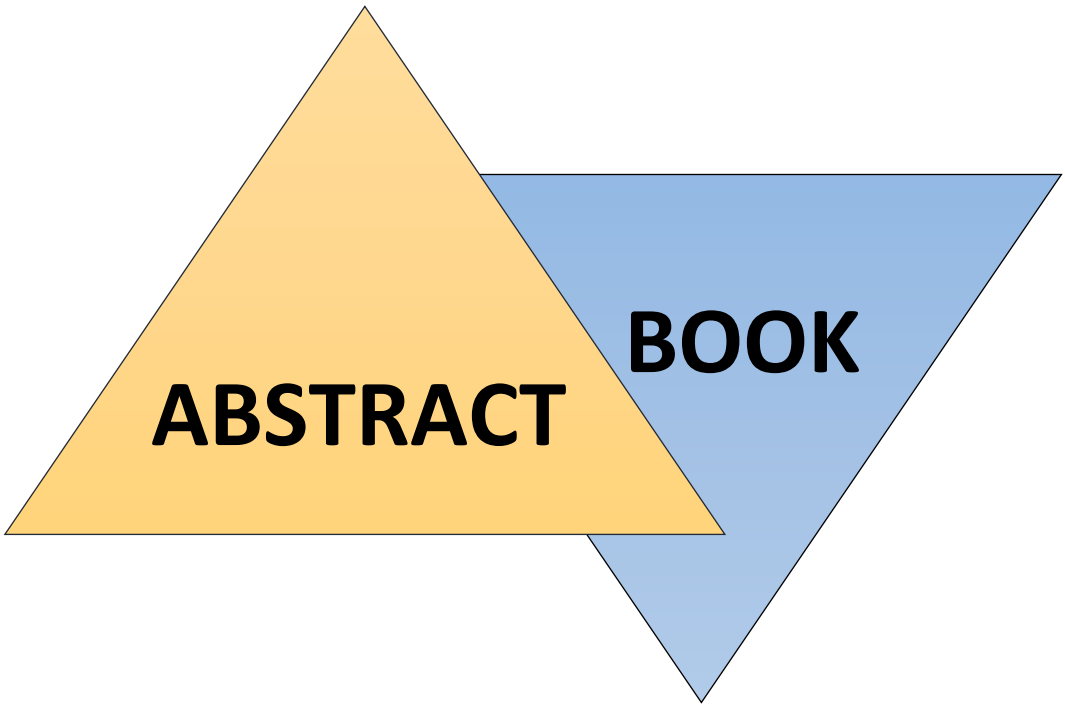

TRANSLATIONAL POTENTIAL OF CANCER RESEARCH IN SERBIA

SDIR – 5

Virtual event, December 3, 2021

THE FIFTH CONGRESS OF THE SERBIAN ASSOCIATION FOR CANCER RESEARCH

with international participation

"TRANSLATIONAL POTENTIAL OF CANCER RESEARCH IN SERBIA "

December 3, 2021, Virtual event

Serbian Association for Cancer Research (SDIR) is a member of the European Association for Cancer Research (EACR).

President of SDIR-5 Congress

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Overcoming paclitaxel-induced multidrug resistance in glioblastoma cells by using a combination of metformin and bafilomycin A1

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Background: Glioblastoma (GBM) is the most frequent and aggressive malignant brain tumor, and is associated with poor patient survival. Conventional GBM treatment includes surgery, radiotherapy and chemotherapy, however drug resistance and relapse continue to occur which highlights the need for alternative approaches. The use of autophagy modulators in combination with chemotherapeutic drugs has potential therapeutic value. Material and methods: The effects of bafilomycin A1, an inhibitor of lysosomal degradation, and metformin, a drug commonly used for type 2 diabetes treatment, that induces autophagy through mTOR inhibition, were studied in GBM cell line U87 and its multidrug resistant counterpart U87-TxR. The effects of bafilomycin A1 and metformin on autophagy, cell death, and cell growth were evaluated by western blot, flow cytometry and SRB assay. Results: U87-TxR cells responded differently to autophagy modulation, in comparison to sensitive parental U87 cells. Metformin induced cell death in U87-TxR cells but not in U87, while bafilomycin A1 further enhanced metformin-induced cell death of multidrug resistant cells. Furthermore, a co-treatment with metformin and bafilomycin A1 reversed paclitaxel-induced resistance in multidrug resistant cells. Conclusion: These results suggest that metformin and bafilomycin A1 could be used to enhance the cytotoxicity of classic chemotherapeutics and support further research into compound combinations as a therapeutic approach that helps to overcome multidrug resistance.

Keywords: bafilomycin A1; glioblastoma; metformin; multidrug resistance; paclitaxel