ISSN 3009-3848
ISSNe 3009-383X

Oncology Insights

Official Journal of the Serbian Association for Cancer Research

SDCR

Year 2023/No. 1

ISSN 3009-3848
ISSNe 3009-383X

ONCOLOGY INSIGHTS

Official Journal of
the Serbian Association for Cancer Research

Belgrade, Serbia
October, 2023

oncogenic Δ40p53β and a decrease in tumor-suppressive TAp73β. Finally, we have studied the expression profile of the p53/p73 isoforms in a panel of five patient-derived melanoma cell lines that harbor mutations in BRAF and show different sensitivity to BRAFi and/or MEKi. We have found that increased levels of p53 isoforms (p53α, p53β, and Δ40p53β) and lower levels of tumor-suppressive TAp73β isoform could correlate with acquired resistance to BRAFi/MEKi and/or BRAFi targeted therapy. We, therefore, propose that p53 family isoforms can play a role in melanoma cells' aggressiveness and could be a potential marker and target for melanoma therapy.
Keywords: isoforms, melanoma, p53, p73, resistance, targeted therapy

O07

The anticancer effects of triterpene saponin deglucocyclamine isolated from *Cyclamen hederifolium*

Milica Pajović[1], Jovana Stanković Jeremić[2], Sofija Jovanović Stojanov[1], Dejan Gođevac[2], Milica Pešić[1], Ana Podolski-Renić[1]

[1] *Institute for Biological Research "Siniša Stanković" – National Institute of the Republic of Serbia, University of Belgrade, Despota Stefana 142, 11060 Belgrade, Serbia*

[2] *University of Belgrade – Institute of Chemistry, Technology, and Metallurgy, National Institute of the Republic of Serbia, Njegoševa 12, 11000 Belgrade, Serbia*

Background: Following the traditional Serbian use of cyclamen tubers in the treatment of the most aggressive forms of lung cancer, we performed methanolic extraction of fresh tubers of Cyclamen hederifolium to isolate and identify bioactive constituents. The triterpene saponin deglucocyclamine (SDGC) was identified as a major constituent of cyclamen extract, and its anticancer effects were studied using a panel of NCI-60 cell lines and primary cell cultures obtained from patients with non-small cell lung cancer (NSCLC). **Material and Methods:** The cyclamen tubers were ground, lyophilized, and extracted with methanol at room temperature with the use of an ultrasonic bath. The part of the methanol extract was further fractionated by dissolving in H2O and then washed with CH2Cl2. The water layer was extracted with n-BuOH. The butanol extract was fractionated by isocratic CC on silica gel with CHCl3−MeOH−H2O eluent. This resulted in the isolation of triterpene saponin deglucocyclamine (SDGC, C52H84O22) which was identified using 1D and 2D NMR spectra. SDGC was tested at 10 μM against a panel of NCI-60 cancer cell lines and then over a concentration range of 0.01-100 μM using the sulforhodamine B (SRB) assay. SDGC was also tested in the 0.01-10 μM concentration range against 5 primary patient-derived NSCLC cell cultures (2 stage IB, 2 stage IIA, and 1 stage IIB) using the MTT assay. Cell death analysis was performed in patient-derived NSCLC cells using annexin/propidium iodide staining and flow cytometry. **Results:** SDGC at 10 μM after 72 h significantly inhibited cell growth of all tested cancer cell lines in the NCI-60 panel. Therefore, SDGC IC50 values were evaluated across the entire NCI-60 panel, ranging from 600 nM to 1 μM. In patient-derived NSCLC cells, SDGC IC50 values were between 1.3 μM and 4.6 μM after 72 h of treatment. SDGC at 10 μM induced late apoptosis and necrosis, significantly reducing the percentage of viable cells to 40% after 48 h. At the same concentration, cisplatin was ineffective against patient-derived NSCLC cells. **Conclusion:** The triterpene saponin deglucocyclamine (SDGC), whose anticancer effects have not been studied before, showed promising results against NSCLC, melanoma, colon, breast, ovarian, kidney, prostate, and CNS cancer cell lines, as well as patient-derived NSCLC cells. Further more detailed studies of SDGC at the cellular and molecular level are planned.
Keywords: anticancer, cyclamen, NCI-60, non-small cell lung carcinoma, patient-derived cell culture

O08

The effect of diiron thiocarbyne complex on tumor cells of different grade

Ekatarina Mihajlović[1], Sanja Jelača[1], Lorenzo Biancalana[2], Lorenzo Chiaverini[2], Sanja Mijatović[1], Stefano Zacchini[3], Fabio Marchetti[2], Danijela Maksimović-Ivanić[1]

[1]*Department of Immunology, Institute for Biological Research "Siniša Stanković" – National Institute of Republic of Serbia, University of Belgrade, Belgrade, Serbia*

[2]*Department of Chemistry and Industrial Chemistry, University of Pisa, Pisa, Italy*

[3]*Department of Industrial Chemistry "Toso Montanari", University of Bologna, Bologna, Italy*

Background: Iron is an important trace element with a broad range of functions in diverse physiological processes and a tightly regulated metabolism. Over the years, numerous studies have indicated that cancer cells exhibit an iron-seeking phenotype, meaning they have higher demands for iron than healthy cells. This feature may serve as a foundation for a new approach to cancer therapy. In order to develop an anticancer drug with improved efficacy,