Introduction: SIRT3 is a mitochondrial NAD+-dependent-protein-deacetylase involved in the regulation of cellular metabolism.\(^1\)\(^,\)\(^2\) As a key factor in AMPK and PGC1-\(\alpha\) activation in stress, the decrease in SIRT3 expression or activity is associated with diverse pathologies and aging. Actually, SIRT3 expression was found decreased in HCC of aged individuals with CVDRF.\(^3\) CVDRF such as diabetes mellitus (DM), dyslipidemia, hypertension and obesity strongly associate to endothelial dysfunction, which early manifests as erectile dysfunction (ED).\(^4\)

Methods: HCC’s samples from individuals aged 40–60 years, submitted to programmed urological surgeries at Hospital São João-Porto, were divided in three groups (n = 4): (1)-controls without ED or CVDRF; (2)-DM patients; and (3)-patients with three or more CVDRF including DM. Dual immunolabelling of SIRT3 and superoxide dismutase (SOD)2 with alpha-actin was carried out. As well, levels of SIRT1, SIRT3, SOD2, PGC1-\(\alpha\), NADPH oxidase (Nox), 1, phospho-AMPK and AMPK were assessed by Western-blotting.(WB).

Results: We observed SIRT3 and SOD2 expression in \(\alpha\)-actin-labelled fusiform muscle cells in all groups. The semi-quantification by WB demonstrated a significant decrease in SOD2 expression in group 3 relatively to controls, as well as, an increased tendency of Nox1 and PGC1-\(\alpha\) and a decreasing trend in phospho-AMPK in groups 2 and 3. No differences in SIRT1 and SIRT3 were observed among groups.

Conclusion: This study suggests that CVRF including DM increase oxidative stress in HCC owning to a decrease in SOD2 expression and concomitant increment in Nox1. Further studies with an increased number of HCC samples will be necessary to elucidate the role of the AMPK-PGC1-\(\alpha\)-SIRT3 signaling pathway in the response to oxidative damage.\(^5\)

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References

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Examination of antiproliferative effects of the horseradish extracts
L. Durić\(^1\), D. Četojević-Simini\(^2\), M. Milanović\(^1\)

1 University of Novi Sad, Faculty of Medicine, Department of Pharmacy, Novi Sad, Serbia
2 University of Novi Sad, Faculty of Medicine, Experimental Oncology Department, Oncology Institute of Vojvodina, Sremska Kamenica, Serbia
E-mail address: djuriclarisa@gmail.com (L. Durić).

Aim: The aim of the study was to investigate in vitro the antiproliferative effects of the horseradish juice and pulp extracts on human tumor cell line MDA-MB-231 (ER-, human breast adenocarcinoma). Cell growth was determined by measuring the total protein by colorimetric sulforhodamine B assay. The obtained results (expressed as mean ± SD) were analyzed by Tukey HSD test and the differences were considered statistically significant at \(p<0.05\).

Results: According to the IC50 parameter (the concentration that inhibited the cell growth by 50%), as an important indicator of the antiproliferative effects, the most pronounced antitumor activity was observed for chloroform juice extract (IC50 = 5.52 ± 1.47 \(\mu\)g/ml). In addition, highly potent was chloroform pulp extract (IC50 = 19.44 ± 3.82 \(\mu\)g/ml), as well as the dichloromethane juice (IC50 = 26.50 ± 4.15 \(\mu\)g/ml) and pulp (IC50 = 26, 01 ± 2.45 \(\mu\)g/ml) extracts. On the other hand, significantly lower in vitro antitumor effect was noticed for the butanol pulp extract (IC50 = 114.52 ± 0.28 \(\mu\)g/ml). IC50 values for butanol juice extract, as well as water juice and pulp extracts were higher than 500 \(\mu\)g/ml.

Conclusion: The obtained results suggest that \(A.\) rusticana as a significant source of antitumor agents, especially liposoluble isothiocyanates and as such, it should be recommended for further use in a human nutrition and prevention of cancer.

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Contribution of the determination of numeric value of adc map in early detection of prostate cancer
Dj Perovíc
Faculty of Medicine, University Novi Sad, Serbia
E-mail address: djukaperovic@yahoo.com.

Aim: To define the range of ADC values for the absence of malignant disease, as well as to determine the threshold of ADC values for suspected prostate cancer.