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Aim: This study aims to investigate the signaling pathway AMP-activated protein kinase (AMPK)-Peroxisome proliferator-activated receptor-gamma coactivator (PGC)1α-sirtuin (SIRT)3 in the human corpus cavernosum (HCC) between healthy individuals and those with cardiovascular disease risk factors (CVDRF).

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-α 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, PGC1α, NADPH oxidase (Nox)1, phospho-AMPK and AMPK were assessed by Western-blotting(WB).

Results: We observed SIRT3 and SOD2 expression in α-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 PGC1α 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-PGC1α-SIRT3 signaling pathway in the response to oxidative damage.[5]

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PS075

Examination of antiproliferative effects of the horseradish extracts

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Aim: The aim of the study was to investigate in vitro the antiproliferative effects of the horseradish juice and pulp using different solvents for the extraction.

Introduction: Horseradish (*Armoracia rusticana*, Brassicaceae) is a perennial herbal plant, which is widely used in human nutrition, as well as in a traditional medicine. Horseradish is a rich source of bioactive compounds such as isothiocyanates, that have proved to be significant antitumor agents.

Methods: Samples were prepared by the Kupchak extraction method, and the antiproliferative effects of the horseradish juice and pulp extracts were examined on the 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 μg/ml). In addition, highly potent was chloroform pulp extract (IC50 = 19.44 ± 3.82 μg/ml), as well as the dichloromethane juice (IC50 = 26.50 ± 4.15 μg/ml) and pulp (IC50 = 26, 01 ± 2.45 μg/ml) extracts. On the other hand, significantly lower in vitro antitumor effect was noticed for the butanol pulp extract (IC50 = 114.52 ± 0.28 μg/ml). IC50 vales for butanol juice extract, as well as water juice and pulp extracts were higher than 500 μg/ml.

Conclusion: The obtained results suggest that *A. rusticana* is 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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PS080

Contribution of the determination of numeric value of adc map in early detection of prostate cancer

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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.