

mined by EMSA and promoter assay by HSE-SEAP vector. High endogenous levels of Hsp 70 have been found to be a deterrent for sensitivity to chemotherapy. To confirm this we overexpressed Hsp70 in Hela cells and compared its reluctance to chemotherapeutic drug and UV induced apoptosis. Res has similar effects on CML patient samples without affecting the normal counterpart. We show here that Res could significantly enhance the apoptosis induction by 17-allylamino-17-demethoxygeldanamycin (17AAG), an anti-cancer agent. Furthermore the 17AAG-Akt-Hsp70 paradox was also revealed. We conclude that resveratrol possibly acts at one or more steps downstream from Bcr-Abl and blocks Akt phosphorylation and decreases expression of Hsp70 in K562 cells.

General and breast cancer prevention

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Anti-angiogenic activity of a novel class of chemopreventive compounds, oleanic acid terpenoids

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Angiogenesis is the base for solid tumor growth and dissemination, anti-angiogenic drugs demonstrated to be active in clinical trials. In addition, it has become increasingly clear that inflammation is a key component in tumor insurgence. Chemoprevention focuses on the primary or secondary prevention of cancer using natural or synthetic agents usually showing mild or no collateral effects. We noted that angiogenesis, particularly 'inflammatory angiogenesis', is a common target of many chemopreventive molecules where they most likely suppress the angiogenic switch in pre-malignant tumors, a concept we termed "Angioprevention". We have shown that various molecules, such as flavonoids, antioxidants and retinoids, act in the tumor micro-environment inhibiting the recruitment and/or activation of endothelial cells and phagocytes of the innate immunity. We have recently assessed the activity of novel compounds derived from the oleanolic acid triterpenoid, called CCDO-Me and CDDO-Imm. These compounds show a potent antiangiogenic activity at low dosages. In vivo they inhibit angiogenesis in the matrigel sponge assay and KS-Imm tumor growth. In vitro they are able to prevent endothelial cells tubulogenesis when cultured on matrigel. In HUVE cells these compounds can inhibit the activation of erk1/2 pathway after stimulation with VEGF. Moreover, from immunofluorescence experiments we observed that treatment with these triterpenoids prevents NF- κ B translocation into the nucleus and thereby the activation of downstream pathways. The particularly potent anti-angiogenic activity seen in vivo suggest that CDDO-Me may be interacting with an important network of molecular and cellular targets, on endothelial cells, and could be employed for 'angioprevention'. These substances are assessed in the US phase I trials in humans.

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Risk factors of the metabolic syndrome and cancer outcomes in a large primary prevention programme

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The metabolic syndrome was introduced in 1988 as a constellation of metabolic aberrations caused by overeating and sedentary lifestyle. The metabolic syndrome includes obesity, hyperglycaemia, high blood pressure, and dyslipidaemia and its presence has been consistently associated with an increased risk of cardiovascular disease, stroke and diabetes. Only a few studies of sufficient sample size have examined the link between risk factors of the metabolic syndrome and cancer. Since 1985, residents of Vorarlberg, the westernmost province in Austria, above 19 years of age, have been invited to yearly health check-ups for disease prevention. As of 2005, more than 180,000 individuals have participated in this so called Vorarlberg Health Monitoring and Promotion Programme (VHM&PP), with 1–21 examinations per individual resulting in a total of almost 700,000 examinations. The VHM&PP cohort has been linked to the regional Vorarlberg cancer registry for cancer incidence outcomes as well as to the Austrian National cause of death registry for mortality outcomes. Recent research of our group has shown associations of varying strengths of body mass index [1], fasting serum glucose [2], uric acid [3,4] and gamma-glutamyl transferase (unpublished) with cancer outcomes at different sites. Our results aid to the understanding of the role of these metabolic and lifestyle risk factors in cancer development supporting their use as valuable measures in not exclusively cardiovascular but also cancer prevention.

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First results of Breast Cancer Screening Program in Khanty-Mansiysk State region Ugra

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