diagnosis correct predicted the histological diagnosis. The patients with diagnosis dysplasia were recommended to using of impression cytology monitoring effects of the preventive treatment.
Conclusion: This study shows impression cytology employing a Biopore membrane to be a useful diagnostic tool in differentiation of pigmented tumors and suspected OSSN of the bulbar conjunctiva. Atypical melanocytes, which have migrated to the epithelial surface, can be detected by this technique. This technique is reproducible, economical and high informative. Impression cytology may be successfully used as non-invasive technology for diagnosing all the surface tumors and monitoring for cancer prevention.

P6
Effect of hyperhomocysteinemia on NMU-induced rat mammary tumorigenesis

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Despite the advent of new and aggressive therapeutics, breast cancer remains a leading killer among women; hence there is a need for the prevention of this disease. Hyperhomocysteinemia (HHcy), a consequence of disturbed methionine metabolism, is a well-known factor for several types of carcinoma, including breast cancer. Furthermore accumulating bodies of epidemiological studies have suggested an inverse association of dietary intake and blood concentrations of folate and vitamins B6 and B12, which are key cofactors directly involved in Hcy catabolism, with the risk of breast cancer. However, the major unanswered question whether or not HHcy is associated with cancer pathogenesis and is an indicator of tumorigenesis, remains elusive. Taking into account all above mentioned data, the aim of the work was to study the influence of experimental model of HHcy induced by feeding animals methionine enriched diet and HHcy corrected with vitamins B6, B9, B12 on the development of N-methyl-N-nitrosourea (NMU)-induced mammary tumors in female Wistar rats.

The study was carried out on seven-week-old virgin Wistar rats ($n = 100$). Animals were kept at standard conditions with free access to water and experimental semi-synthetic diets. Diets were: 1) normal semi-synthetic diet; 2) 2% methionine-enriched diet; 3) 2% methionine-enriched diet with 5-fold increased level of vitamins B6, B9, and B12 compared to control and methionine enriched diets. Rats were fed diets supplemented beginning from seven days before initiation with NMU (50 days of age) to termination of latency period (90 days after NMU).

The results of study suggest that the HHcy modulates the susceptibility of mammary gland to NMU carcinogenesis. Despite the decrease of mammary tumor incidence by 26% ($p < 0.05$) as well as of multiplicity of palpable tumors by 33% ($p < 0.05$), the latency period decreased 1.23 times ($p < 0.05$) and portion of mammary adenocarcinomas induced by NMU increased by 27% ($p < 0.05$) compared to the analogous characteristics of animals from control group. Enriched of methionine diet with vitamins B6, B9 and B12 promoted (i) to the decrease of mammary tumour incidence and multiplicity of palpable tumours, (ii) to the decrease of the portion of malignant tumours among all the NMU-induced tumours, and (iii) to the 1.3 times increase of latency period compared to the animals obtaining the methionine diet.

Obtained results have demonstrated that the risk of mammary tumor incidence under HHcy conditions increases. This risk can by substantially reduced by HHcy corrections by vitamins B6, B9 and B12. A negative influence of HHcy on the chemical induced mammary gland carcinogenesis is obviously due to them interaction of NMU mutagenic activity and modulation influence of HHcy on the epigenetic mechanisms of the regulation of the expression of genes associated with the malignant cell transformation.

P7
Flavonoid-positive plant fractions yield a potent inducer of promyelocytic leukemia cell differentiation with no enzyme inhibitory action within the XO system

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Bioactivity-guided fractionation was carried out on flavonoid-positive fractions of A. squamosa, a popular fruit tree with known medicinal uses. The chemical purification process yielded an isolate characterized via physical and spectral means, and dereplicated using high-resolution mass spectrometry. When assayed for xanthine oxidase, an enzyme correlated with brain tumors, the compound showed non-inhibition of uric acid product, suggesting inability to act directly as enzyme inhibitor while suppressing the superoxide free radicals of the metabolic pathway. Verification of the compound's identity may find more analogs to positive controls and elucidate the ambivalent role assigned to uric acid as either cause or protector of oxidative burst. Tests conducted on HL60 promyelocytic leukemia cells in culture revealed a strong inducer of differentiation, presenting an alternative approach with less adverse effects usually accredited to chemotherapeutic agents.

P8
Antitumor effect of experimental soybean curd produced from thermally treated soy

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Aim: to find optimal technological modifications of soybean foods for use in nutrition of cancer patients and in preventive nutrition of patients of cancer risk groups.
Results: Two modifications of soybean curd – produced from fresh or thermally treated soy (FS or TS) – were elaborated. Both variants were tested on healthy and Walker W-256 carcinosarcoma or Guerin's carcinoma (GC) bearing rats. The TS curd, if moderately consumed during the term from tumor transplantation to the end of the experiment or the same term + 7–14 days before transplantation, caused growth retardation of W-256 (36–48%) and GC (26%). The same product consumed excessively (ad libitum) accelerated W-256 growth (100%). If the same product consumption started 2 days after W-256 transplantation, tumors growth rate was permanent. FS curd consumption even if it was moderate accelerated W-256 growth (26%). Anticancer effect of TS curd and negative effect of FS curd was found both in perfect in vivo experiments and in express-tests. In all experiments (both positive and negative in anticancer effect) antioxidant and anti-inflammation action of both products were found. So, the results obtained show TS

curd may be included to complex treatment of cancer patients but only if it would be dosed correct. At the same time, FS curd is contradicted for cancer patients.

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P9

The effect of cabbage juice and its components on the expression and activity of phase 1 and 2 enzymes in rats

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Cruciferous vegetables (Brassica) are rich in glucosinolates which undergo hydrolysis to form isothiocyanates (ITCs), thought to be responsible for the chemopreventive properties of this food group. One of the Brassica representative common in Central and Eastern European diet is raw, or cooked cabbage and sauerkraut. The aim on this study was to search the possible mechanism of anticarcinogenic activity of cabbage juice and its components by evaluating their effect on phase 1 and phase 2 enzymes expression and activities in rats. Male Wistar rats were treated by gavage with cabbage juice (1.25 mL), indole-3-carbinol (I3C) (100 mg/kg b.w.) or phenethyl isothiocyanate (PEITC) (100 mg/kg b.w.) for 4, 10 and 30 days. The administration of cabbage juice resulted either in increase or decrease in CYP450 content and activity depending on the tissue and treatment period. In rat liver the significant increase of EROD (the marker of CYP1A1) and MROD (the marker of CYP1A2) activities were observed after 30 days of treatment with cabbage juice in comparison with the control group of animals receiving only water. I3C and PEITC enhanced the activities of all CYP450 markers at all time points, with most significant increase after 30 days of treatment. Administration of cabbage juice increased also the activities of GST and NQO1 in rat liver at all point time. In kidney the increase of these enzymes activities was observed only after 4 days of cabbage juice administration. The similar effects were observed as result of I3C and PEITC treatment. Western blot analysis showed significant enhancement of hepatic GST alpha and mu protein levels after treatment with cabbage juice, I3C and PEITC in comparison with control. Among tested CYP450 isoforms significant increase in the level of hepatic CYP1A1 in cabbage juice and indole-3-carbinol treated animals was found. PEITC treatment changed the expression of CYP2B only. This compound increased the level of CYP2B in liver and to lesser extend in kidney. The translocation of Nrf2 from cytosol to nucleus in liver was observed after treatment with PEITC. The results of this study indicate that cabbage may exert its chemopreventive activity by modulation the expression and activity of CYP1A P450 isozymes and induction of phase 2 enzymes. Since similar results were observed after treatment with I3C and PEITC, it suggests that these compounds may be responsible for the observed effects.

P10

The exploitation of anticarcinogenic potential of white cabbage to improve nutritional value of meat products

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Two recent decades marked the rise of new approach to cancer control emphasizing rather prophylaxis including the one involving dietary means (chemoprevention) as opposed to treatment (chemotherapy). A number of groups of phytochemicals present in food were identified displaying various activities protecting against malignant transformation or slowing down cancer development. Accordingly, vitamin (mainly antioxidant) supplements were suggested as possible anticarcinogenic agents and consumption of fruits and vegetables recommended as anticarcinogenic diet. However, recent statistical analyses of large epidemiological studies gave not very optimistic results as the association between plant food consumption and decrease of cancer risk turned out hardly convincing. The question arises why the approach successfully employed in the development of new pharmaceuticals (from mechanistic through in vivo to human studies) did not seem to work in the case of dietary chemoprevention? What bits in the puzzle are missing? One of the reasons might be that in our assessments we kept forgetting about a very important factor, i.e. quality of fruits and vegetables that depends on both agricultural practices and processing. The majority of human studies took into account only amounts consumed ignoring the actual content of health promoting vs. unhealthy substances present in food. And food industry used the raw materials with high content of e.g. antioxidants seldom following their fate upon processing. In the light of current knowledge, it appears necessary to undertake efforts to use chemopreventive potential of fruits and vegetables for designing foods with carefully planned composition and verified biological potential of final produces. With this in mind, we exploited the benefits offered by white cabbage components to elaborate the technology of meat processing to obtain meat products enriched with cabbage anticarcinogenic components hence with improved nutritional value. The choice of vegetable stemmed from both traditional usage of cabbage in Central Europe and our studies demonstrating its technological and nutritional advantages. The scientific base and probable health benefits of these products to be introduced into Polish market next year (2008) will be presented.

P11

Polyphenolic compound resveratrol targets heat shock protein 70 in chronic myeloid leukemia to induce apoptosis

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Chronic myelogenous leukemia (CML) is a myeloproliferative disease associated with a characteristic chromosomal translocation called the Philadelphia chromosome resulting in BCR-ABL fusion protein. Though there are a few treatment options but drug resistance is often encountered. Resveratrol (Res) is a phytoalexin produced by several plants. We studied the chemotherapeutic effects and mode of action of Res on K562 (CML) cells. Res induces apoptosis in K562 cells in a time and dose dependent manner. This was established by cell cycle analysis by flow cytometry, caspase-3 activity measurement, nuclear fragmentation and AnnexinV binding.. The pro-survival protein PKB/Akt and was identified as the molecular targets of Res. The activation of this protein was impeded by Res, as confirmed by western blot analysis. For the first time we elucidate that Res treatment also caused suppression of Hsp 70 both in the mRNA and protein level. The downregulation of Hsp70 in presence of Res was correlated with Akt by using Akt siRNA and PI3K inhibitor LY294002. The down regulation of transcriptional activity of HSE was deter-