two cases, 0.5%, 1.2%). All specimens of dysplasia high, dysplasia high with area atypia and carcinoma in citu were positive for Bcl-2 and Ki-67 expression (individual variation Bcl-2, 2.6–16.4%; Ki-67, 5.8–13.4%). The high level of Bcl-2 (>10% cells staining) was observed in 50% cases and high proliferation in 30% cases.
Conclusion: Areas of cells with expression of p53, Bcl-2, Ki-67 are an indication of the transformation phenotype in tumor distant mucosa and represent high risk of development of second tumors after treatment. Diagnosis and prognosis for treatment of OSCC should not only be focused on the tumor but also on alterations in tumor-distant oral mucosa.

Prevention of miscellaneous cancers

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Changes in the system of proteolysis at the growth and metastasis of Lewis lung carcinoma upon development of cisplatin-resistance

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Drug resistance is critical in treating malignant tumors. At present, drug resistance, together with metastasis are considered as different manifestations of tumour progression. The interrelation of these processes with the system of proteolysis, which plays an important role in tumour progression, remains still weakly studied. The informative parameter revealing the abnormality in the proteolytic system is the proteinase-antiproteinase balance.

The aim of the work is to study the dynamics of the change of total proteolytic activity (TPA), the level of main proteinase inhibitor (α1-proteinase inhibitor, alpha1PI) in the blood plasma of C57B1/6 mice upon the growth and metastasis of Lewis lung carcinoma (LLC) with different resistance to the anticancer drug cisplatin.
Materials and Methods: The development of the cisplatin resistance was achieved by sequential intramuscular transplantations of carcinoma cells from cisplatin-treated animals. Three variants of drug resistant LLC (LLCR9, LLC19, and LLCR27 obtained in result of 9-, 19-, and 27-courses of cisplatin therapy, respectively) as well as the reference (sensitive) variant (LLC/S) have been used in our work. The studied indexes were determined on the day 10th, 15th, 20th, 25th, 28th after tumor transplantation. The intact animal blood plasma has been used as reference.
Results: A considerable change of the growth kinetics of LLC has been observed as a result of the decrease of carcinoma drug sensitivity. The growth rates of LLCR19 and LLCR27 tumours have increased considerably. Such modifications of the kinetic parameters of tumour have been preceded by the changes of TPA in the latent period of carcinoma growth (up to 10 days). The increase of TPA during this period correlates with the tumour growth rate. A considerable increase of alpha1PI (>60%) in the exponential phase of tumour growth (LLCR19 and LLCR27) leads to the subsequent growth deceleration. The value of TPA/alpha1PI ratio has shown that the development cisplatin-resistance of LLC is accompanied by the imbalance between proteolytic and antiproteolytic activities shifted to the activation of proteinases in blood plasma and deficiency of alpha1PI despite of the elevation of its level in blood plasma. A decrease of the cisplatin-sensitivity of LLC has been shown to proceed together with the considerable increase of the metastasis process.
Conclusion: The decrease of the cisplatin-sensitivity of LLC has been experimentally shown to be accompanied by the increase of tumour growth rate and metastatic activity and the imbalance between proteolytic and antiproteolytic activities. One may assume that the shift of the proteinase-antiproteinase balance in the blood plasma can be used for the prognosis of metastasis and for the search of the ways to prevent the metastasis through the influence on the proteolytic system.

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Multiple anticancer targets of chemopreventive curcumin in squamous cell lung carcinoma in vitro

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Introduction: Throughout the world, lung cancer is infamous for high mortality. Curcumin, a chemopreventive has chemotherapeutic potential but its mechanisms are still being elucidated. In this study, newer genes targeted by Curcumin were investigated to identify new targets for chemoprevention/therapy of squamous cell lung carcinoma (SCC) in vitro.
Methods: Lung squamous cell carcinoma cells (H520) were cultured in vitro. Apoptosis was detected in these cells after exposure to Curcumin (25μM) for 24 hours by morphological examination, MTT assay, flowcytometry and TUNEL assay. Microarray analysis of gene expression profiles on curcumin treatment was done. Real time quantitative RT-PCR and western blotting followed the microarray study.
Results: Curcumin (25μM for 24 hours) produced 29.8$\pm$2.1% cytotoxicity (MTT assay). Apoptosis was corroborated by flowcytometry (23.7$\pm$1.4%) and TUNEL (21.6$\pm$1.8%). Using microarray analysis, 34 genes were seen to be upregulated and 31 genes downregulated after curcumin treatment. Among several apoptosis related genes that were upregulated, Growth arrest and DNA damage gene, GADD45a and Peroxiredoxin-I were upregulated more than 2-fold. Real time quantitative RT-PCR and western blotting validated the results.
Conclusions: This study helps to identify novel putative intervention sites as chemopreventive and chemotherapeutic targets for curcumin in squamous cell lung carcinoma (SCC) in vitro and can contribute to better understanding of lung carcinogenesis and anticancer therapy.

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Prostate-specific antigen gene polymorphism and prostate cancer risk

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Prostate-specific antigen (PSA, kallikrein-related peptidase 3) is an androgen-regulated serine protease that is part of the kallikrein superfamily, produced predominantly by the prostate and primarily by secretory luminal epithelial cells. The action of androgens is regulated by androgen receptor (AR). After binding to androgen, the AR recognizes and binds androgen response elements (AREs) in the promoter regions of androgen regulated genes, such as the PSA gene. A single-nucleotide polymorphism in the ARE-I region at position –158 relative to the transcription