remarkable selectivity to MCF-7, T24 and Col2 cells with an IC50 of 16, 17, and 17μg/ml. The isolate however showed no cytotoxicity to the normal cell line, CHO-AA8. Morphological changes like cytoplasmic membrane blebbing, detachment of cells from the substrate and neighboring cells, nuclear condensation, formation of apoptotic bodies and reduction in cell size were observed in treated cells. Observations using the DAPI, a fluorescent stain complement the morphological analysis made under the bright-field microscope. Further, terminal deoxynucleotidyl transferase-mediated d-UTP nick end labeling (TUNEL) indicated that DNA fragmentation was by apoptosis which suggest its potential as a chemotherapeutic agent. Spectral characterization of the isolate showed that f6l contained polyunsaturated aliphatic esters or carboxylic acids.

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Interferon alpha/beta in rat liver after partial hepatectomy as growth modulator of hepatocytes

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Interferon (IFN)-α treatment is a common therapy for chronic viral hepatitis and contributes to preventing hepatocarcinogenesis. Besides, IFN is prescribed as a prolong course after surgical removal of tumors, combined with chemotherapy and radiotherapy. Along with IFN-sensitive cancers (kidney adenocarcinoma, lung sarcoma, malignant melanoma, neuroblastomas, cancers of limphoid, endocrine and generative organs), there are more resistant ones - cancers of stomach, liver and colon. Moreover, high and low concentrations of IFN can cause different answers. Our aim was to assess the expression of IFN alpha and beta in nontransformed liver after partial hepatectomy (PHE) and laparotomy. The expression of interferon α/β was assessed at RNA level by RT-PCR and as content of the protein in biological test in 0.5, 1, 3, 6, 12 h after operations. The cell specificity of IFN α/β production was assessed in isolated hepatocytes and KC. IFN α and its mRNA is detected in the intact liver. PHE induces increase of IFN α protein and mRNA content during first 3 hours after operation with further decrease till 6–12 hours. This increase is less than maximally possible liver response to the injection of PolyI-PolyC inducer. IFN β is detected neither in intact nor in regenerating rat liver. IFN α-specific mRNA was shown to be produced by KC and not by hepatocytes. The laparotomy is characterized by sharp decrease of IFN α content to null in the liver. That is why the increased IFN α production in regenerating liver is not linked with acute phase response. Laparotomy is a model for acute phase response and possibly the same processes occur after surgical interference. We assume that IFN α and its targets are essential for hepatocytes to leave quiescent state and proceed to proliferation. Liver sensitivity to IFN treatment may be different at pre- and postoperational periods.

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In-vitro antiproliferative effect of Gonatanthus pumilus lectin on various human cancer cell lines

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Gonatanthus pumilus lectin (GPL) is known to polyclonally activate human T-cells. GPL agglutinated rabbit, rat, guinea pig and sheep erythrocytes but was unable to agglutinate human ABO blood group erythrocytes. N-acetyl-D-lactosamine and serum glycoprotein asialofetuin were found inhibitory in the hemagglutination inhibition assay. The lectin was purified by affinity chromatography using asialofetuin linked amino activated silica gel. The lectin had no requirement for divalent metal ions like Ca2+ and Mn2+ for its activity. GPL has a carbohydrate content of 4.1%. Chemical modification of GPL with pyridoxal, Diethylpyrocarbonate and Bis-dithionitrobenzoic acid did not affect its activity, suggesting the absence of arginine, histidine and cysteine respectively in or near the ligand-binding site of the lectin. Modification of tyrosine with N-acetylimidazole led to 50% inactivation of GPL. However, total inactivation was observed only upon N-bromosuccinimide modification of tryptophan residues of the lectin. In vitro antiproliferative activity of GPL was tested on seven human cancer cell lines DU145 (Prostate), PC-3 (Prostate) A549 (Lungs), HCT15 (Colon), 502713 (Colon), KB (Oral) and IMR32 (Neuroblastoma). A 50% inhibition of proliferation was observed in DU145, PC3 and KB at the lowest concentration (10 mg/ml or less) of the lectin tested. HCT15 and 502713 cell lines showed 50% inhibition at 50 mg/ml of GPL. While very less inhibitory effect of GPL was observed on the proliferation of A549 and IMR32. The inhibitory effect of GPL was not associated with toxicity to the cell lines.

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Cysteine proteases as target for anticancer therapy and tumor prevention

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Human lysosomal cysteine proteases of the papain superfamily have received increasing attention as promising novel therapeutic targets (Bromme et al., 2005). Progression of human tumors is accompanied by the increased expression and activity of cysteine, aspartyl, serine and metalloproteases. A correlation was found between tumor growth and increase of cysteine proteases in humans.

Aim: to evaluate the role of inhibitor of cysteine proteases in treatment and prevention of experimental murine tumors.

Methods: CBA mice were used; lymphosarcoma LS (106 cell/ml) was implanted into tight muscles. Cyclophospamide, in the doses of 25,30, 50 and 100 mg/kg, recombinant TNF-α