first time we showed that Cys has direct or indirect roles in cellulose classification, either alone or in connection with the other amino acids as dipeptides in cellulase categorization. The count of Cys and Cys-Asp reported as an important factor in 100% and the count of Cys-Ala in 80% of weighing algorithms. The result of decision tree algorithms also clearly confirmed that Cys has significant role in cellulase classification.

Keywords: Cellulase, Attribute Weighting, Decision Tree Algorithms, Bioinformatics.

Abstract No.58

The Enhancement of Surface Hydrophobicity by Calcium Ion may have Significant Contribution in cell Death Inducing Activity of Human Calprotectin

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As calcium and zinc-binding protein complex, calprotectin (MRP8/14) is abundant in cytosolic fraction of human neutrophils. Calprotectin is a multifunctional protein with broad spectrum of activities, including antimicrobial property and apoptosis inducing activity. This protein is significantly elevated in serum and body fluids of patients with various inflammatory conditions, suggesting that this protein plays significant function influencing the inflammatory processes. In this study calprotectin was purified from human neutrophils, using a two-step ion exchange chromatography. The apoptosis inducing activity of this protein was examined against two leukemia cancer cell lines, using 3-(4,5-Dimethylthiazol-2-yl)-2,5-Diphenyltetrazolium bromide (MTT) assay. Furthermore, to explore role of calcium binding on surface hydrophobicity of calprotectin, fluorescence study was performed. As shown, calcium binding induces conformational changes and increases the solvent exposed hydrophobic surfaces of human calprotectin, making the protein prone to aggregation. Since the early aggregates have an intrinsic ability to impair fundamental cellular processes by interacting with cellular membranes, consequently, calcium binding to calprotectin may lead to the formation of a toxic folding variant of this protein with sticky (hydrophobic) surface which may interact with plasma membrane to kill cells. This study may suggest contribution of the exposure of surface hydrophobicity by calcium ion, in the pathway of apoptosis inducing activity of human calprotectin.

Keywords: Calprotectin, Calcium, Surface Hydrophobicity, Aggregation, Fluorescence Study.

Abstract No.59

Interaction of [Pd(phen)(n-pr-dtc)]Br with DNA of Calf Thymus

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Cis-diamminedichloroplatinum(II) (cisplatin) is used in the clinical treatment of several types of human cancers[1]. Various strategies have been used to reduce the major toxicity of cisplatin. One of these strategies is to develop new compounds capable of reducing these toxicities[2].thus in this study we prepared 1,10-phenanthroline-n-propyldithiocarbamatopalladium(II) bromide, [Pd(phen)(n-pr-dtc)]Br,and characterized by spectroscopic techniques such as UV-Vis,FT-IR,1HNMR and nonspectroscopic techniques like conductivity measurements, elemental analysis and decomposition temprature.Studies of antitumor activity of this complex against human cell tumor lines(k562) have been carried out. It shows IC50 value lower than that of cisplatin.The interaction of the complex has been studied with DNA of calf thymus (CT-DNA) at 300K and 310K using UV-Vis isothermal titration method in 25 mM Tris-HCl buffer of pH=7.0. This complex can denature CT-DNA at very lower concentrations (~ 100 μM). The concentration of this complex in the midpoint of transition, [L]1/2, are 0.078 and 0.064mM at 300 and 310K respectively. The mode of binding of the complex to CT-DNA, has been investigated by ultraviolet spectroscopy. The result of these studies indicate that [Pd(phen)(n-pr-dtc)]Br complex exhibit cooperative binding with DNA. In the interaction studies between the [Pd(phen)(n-pr-dtc)]Br complex with CT-DNA, several binding parameters such as, K (the apparent binding constants, are 46.68 and 58.45 mM^{-1} at 300 and 310 K, respectively), n (the Hill coefficients, are 2.15 and 2.93 at 300 and 310K respectively), g (the number of binding sites per 1000 nucleotides, is 5 at 300 and 310 K), n (the ratio of the concentration of bound metal complex to the total DNA concentration) and m (a measure of the metal complex ability to denature DNA, are 207.30 and 223.78 $(kJ/mol)(mmol/L)^{-1}$ at 300 and 310 K respectively). Thermodynamic parameters such as (conformational stabilities of DNA in the absence of metal complex, are 15.10 and 14.00 kJ/mol at 300 and 310 K, respectively), (the heat needed for DNA denaturation in the absence of metal complex, is 47.98 kJ/mol)