intact and RNase-treated LMG160 using circular dichroism in the range of far UV (190-260 nm) and fluorescence spectroscopy.The results showed that α-helical content was abundant in both intact and RNase-treated LMG160 in the absence of NaCl although the helicity of RNase-treated LMG160 was more than intact LMG160. Intrinsic emission fluorescence spectra imply that although both emission maxima were almost the same, intact LMG160 showed 8 nm red-shift compared to the RNase-treated form. It means that accessibility of tryptophan residues to the bulk solvent is increased.By increasing sodium chloride concentration from 0-1 M, the α-helical content of the intact LMG160 was decreased almost 8% by increasing %2.1 β-sheets, %1.3 β-turn and %4.7 random coil. The addition of increasing amount of sodium chloride to the intact and RNase-treated LMG160 exhibited 50% and 25% emission maxima reduction, respectively. Using modified Stern-Volmer equation, intact and RNase-treated LMG160 Ksv was 6.19M-1 and 1.67M-1, respectively. Also the amount of fa parameter indicated that the fraction of the initial fluorescence that is accessible to NaCl is 66% further for the intact LMG160 compared to RNase-treated.The result suggests that RNA moiety is important in this ribonucleoprotein structure implying that the intact LMG160 exhibits more relaxed structure compared to RNase treated protein.

Keywords: Ribonucleoprotein, Low Mobility group (LMG) proteins, Circular dichroism, Fluorescence spectroscopy, Ionic strength.

Abstract No.230

The Effect of some Synthetic Benzochromene Compounds on ROS and NO generation in Breast Cancer Cell Lines (MCF-7, MDA-MB231 and T47D)

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The cytotoxic activity of many chemotherapeutic drugs is resulted of their potential in apoptosis induction. Apoptosis is defined as programmed cell death that can occur in response to a variety of insults, such as cytotoxic compounds. Reactive oxygen species (ROS) and nitric oxide (NO) generation are some of the signs observed in cells subjected to anticancer drugs treatment. In contrast to their role on promoting cell growth under non-stress conditions, ROS are powerful inducers of apoptosis when cells are under stress. Nitric oxide, which is one of the smallest biological products of mammalian cells, plays various roles such as an intracellular or transcellular messenger and apoptosis inducer in cells.Intracellular ROS generated by some synthetic benzochromene compounds were measured by a non-fluorescence dye, DCFH-DA, which is permeable in cells and interacts with intracellular ROS to generate fluorescent 2′, 7′-dichlorofluorescein (DCF). DCF can then be measured by spectrophotometer (λmax = 525 nm). We also measured the nitrite concentration in the culture medium as an indicator of NO production using the Griess reaction method.Previously we showed that these compounds induce apoptosis in these cell lines. In this study we demonstrated that the amount of ROS generations in MCF-7 and MDA-MB cells treated for 4 and 24 h were significance and time-dependent. Nevertheless, T47D cells that were treated for 4 h didn't produce ROS but after 24 h ROS production was considerable. None of the cell lines produced NO after 4 h. NO generation by MCF-7 cell line treated for 24 h, was significant. However, these compounds did not induce NO generation in MDA-MB231 and T47D cell lines.This study indicated that one of the ways that these compounds can induce apoptosis is by increasing ROS generation. However this needs to be worked on in detail.

Keywords: Breast Cancer, Benzochromene Derivatives, ROS, NO.

Abstract No.231

Study on the Interaction of L-Proline-Derived Aminophosphinic Acid Ligand with Bovine Serum Albumin

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Organo-phosphinic acids are known as organic derivatives of hypophosphorus acid (H3PO2) and have found potential applications in the areas of industrial, agricultural and medicinal chemistry. The structure of the phosphinic functional group mimics the transition state of peptide hydrolysis. Among the a-functional phosphinic acids, a-aminophosphinic acids are an interesting class of compounds possessing broad biological activities. Herein, we report synthesis and the study on the interaction of a carrier protein with a new L-proline based aminophosphinic acid ligand. Serum albumins are one type of proteins possessing various physiological functions. Serum albumins act as carriers for transporting of many of compounds such as fatty acids, amino acids and drugs. Bovine serum albumin (BSA) is used in biophysical and biochemical studies as a model protein because of low

cost, ready availability and similarity to human serum albumin (HSA). In the present study, we investigated the interaction of the synthesized phosphinic acid with BSA using steady state fluorescence, synchronous fluorescence, and fluorescence resonance energy transfer (FRET). The fluorescence titration experiments showed the quenching effect of the considered synthesized phosphinic acid on the emission of BSA with slightly blue shift. The binding parameters including number of binding sites and binding constant have been estimated from the fluorescence quenching results. Further, the distance of the bound ligand from the tryptophan residues and Förster critical distance have been determined. The changes in the microenvironment of the tyrosine and tryptophan residues have been investigated using the synchronous fluorescence spectra.

Keywords: Aminophosphinic acid, Bovine Serum Albumin, Ligand binding, Fluorescence Spectroscopy.

Abstract No.232

A Spectroscopic Study on Interaction of Diamines with Guanosine Triphosphate

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Diamines are positively charged small molecules that have essential roles in cell growth, cell division, differentiation, gene regulation, enzyme activity and signal transduction. Diamines bind to negatively charged macromolecules including proteins, nucleic acids and phospholipid membranes and cause physiological effects in organism. Diamines are able to make complex, through their amine groups, with nucleotide compounds. Positive charge of the amines can interact with negative charge of phosphate of nucleotides. Moreover free electron pair of nitrogen of the amine group interacts with nucleotide base via van der Waals interactions. It is expected that diamines affect on nucleotides function either the nucleotides act as a substrate (ATPase, RNAse) or a ligand (GTP-binding proteins or microtubules). Guanosine triphosphate (GTP) is one of important nucleotides in metabolism.In this research GTP was used as a model nucleotide to investigate GTP-diamine interaction by measuring ΔA253 (lmax of GTP) in the presence of increasing concentrations of 1,3-diaminopropan, 1,4-diaminobutane (putrescine) and 1,5-diaminopentane (cadaverine) in PEM buffer (100mM PIPES, 1mM EGTA, 2 mM $MgSO_4$) using spectrophotometer UV-vis at 37°C. The results showed that diamines causes a change in GTP spectrum with a concentration-dependent manner showing interaction of diamines with guanine base of GTP molecule. But quality of the interaction differed from cadaverine to other diamines. In conclusion, diamines interact with GTP molecule probably via electrostatic interactions with its guanine base. Such interactions may disturb GTP binding to other molecules.

Keywords: Diamines, Putrescine, Cadaverin, GTP, Interaction.

Abstract No.233

Polyanionic Couted Nanoparticles Triggers Tau Protein Fibrillization in Vitro

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Neural transmission is vital process in brain function. Microtubules and MAP proteins are two of the main macromolecules, facilate transmission through neural axons. Among microtubule associated proteins, fibrillar tau protein has been demonstrated to participate in Alzheimer disease. To mimic tau fibrillization in vivo, several molecules have been tested for identification of tau aggregation in vitro. In this study carboxylate couted carbon nanotubes to simulate microtubules and magnetic iron nanoparticles (polyaspartated, polysulfonated and carboxylated) were employed instead of heparin. The interaction between recombinant human tau and polyanionic nanoparticles were characterized by using transmission electron microscopy and spectroscopial methodologies. Our results showed that functionalized nanoparticles and carbon nanotubes induce tau fibrillization in vitro.

Keywords: Tau Protein, Nanoparticles, Carbon Nanotube, Fibrillization.
