endocrine disorder) are discussed. Changes that occurred in the inwardly rectifying potassium channel gene (KCNJ11) were translated to the protein level by use of the web-based Translate tool of ExPASy Proteomics Server. A model of the protein was build based on the 3JYC.PDB structure, with the use of the HOMER server. A tetramer was subsequently built using the pre-calculated quaternary structure of 3JYC.PDB. Missense mutations that had been detected in the patients' samples, including E227K and E229K were then applied to the modeled structure and their effect studied with regard to altered interactions in and between monomers. Both mutations occur in a loop connecting two beta strands protruding from the cytoplasmic domain of the protein and are located in the interface between two monomers. Based on this model, R192, R134, and H193 of the adjacent monomer are found to have important roles in the interactions occurring in this region, which would be abolished upon mutation. Overall, this study is presented as a concrete example of protein modeling application in the study of endocrine genetic disorders. It should be mentioned that in this case, occurrence of missense mutations in the protein would be considered as one of the evidences used in the course of a change of medication in these patients.

Keywords: Protein Modeling, KCNJ11, Missense Mutation.

Abstract No.161

Study on Some Physicochemical Properties of Biomacromolecules and Their Application in Drug Targeting

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To evaluate the release pattern of films with microspheres, the release pattern of glutaraldehyde cross-linked carriers (6%, 12% and 18% w/w) has been analyzed. The objective of this paper reply to this question that if degree of cross-linking and drug conjugation capacity could change the physicochemical aspects of biomacromolecular carriers as support to immobilize an enzyme model as well as in drug targeting. The study was conducted in two different stages. In the first stage the preparation of cross-linked chitosan films and microspheres (MGn, n=6, 12 and 18) successfully took place.In the second phase, the behavioral effects were investigated by using Differential Scanning Calorimetery (DSC), Scanning Electron Microscopy (SEM), UV–Vis spectrophotometry and other spectroscopic techniques. The reactive amino groups of chitosan films and microspheres were participated in a chife-base reaction with glutaraldehyde that has at least two reactive functional groups. Some of these functional groups in the other side of the glutaraldehyde chain remain free to react with drug or enzyme's amine group (Scheme). Scheme . Synthetic method of network's macromolecule utilizing cross linking process conjugated by enzyme. Based on our results, degree of cross-linking and drug conjugation capacity, as two important factors, affect simultaneously the thermal, morphological and hydrolitic behavior of the carriers in film and microsphere forms. For example, the chitosan microspheres have low Tg (123 °C) relative to chitosan films because of its spherical structure (154 °C). The reducing of Tg in chitosan films by increasing the degree of cross linking could be because of increasing drug conjugation capacity as the key factor. Also, the morphology of the drug conjugated microspheres acquired by appeared to be little rough and irregular in shape, as evidenced by SEM, probably as a result of the microspheres aggregation. Regarding to the results from this investigation degree of cross-linking and drug conjugation capacity, as two important factors, affect the physicochemical properties drug- and enzyme-biomacromolecules. On the other hand investigation on the properties of biomacromolecules as new carriers is important because of their role in enzyme immobilization studies.

Keywords: Physicochemical Properties, Biomacromolecules, Drug Targeting.

Abstract No.162

How Social Stresses can Alter Microtubular Proteins Structure, Dynamicity and Kinetics

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Social stresses are considered as one of the major components of our modern lives. Stressful life events are generally considered as having precipitating effects on the development of human psychopathologies such as anxiety and depression. Previous works and experiments have shown that neuronal plasticity - which is defined as structural adaptation of neurons to functional requirements- can be affected by chronic and acute stress conditions. These structural changes can be

characterized by retraction of apical dendrites, reduction in axonogenesis and decreased neurogenesis. The close relationship between cytoskeleton and neuroplasticity controlling system suggests the possibility cytoskeletal proteins such as Microtubular (MT) proteins alterations in high stressful conditions. It's been observed that structural modifications to tubulin monomers and MAPs occur during stressful conditions. Acute stress results in increased hippocampal expression of acetyl-Tub (a marker of stable MT) and decreased expression of Tyr-Tub (a marker of dynamic MT). However, there has been no report about the effect of stress on MT kinetics and dynamicity. In our work, we have studied the effect of social instability (as a well-known model of social stress) on the kinetic and dynamicity of male rat brains MTs. Activity of microtubules was tested in two conditions: semi-purified (without adding exogenous GTP) and purified. MT kinetics of the stress-treated and control group shows difference. Our initial results indicate that in semi-purified conditions, MTs of the stress-treated groups reach steady state quicker than the control group, but maximum polymerization of the two groups shows no difference. Significant dynamicity differences have not yet been observed. More work on structural and protein stability differences are to be done as well.

Keywords: Social Stress, Social Instability Model, Microtubular Proteins, Microtubule Polymerization Dynamicity, Microtubule Polymerization Kinetics.

Abstract No.163

Homocysteine Thiolactone Induces Insulin Fibrillation and Enhances Cytotoxic Properties of Insulin Fibrils

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While circulating level of homocysteine (Hcy) significantly increases in type-II diabetes, inhibition of insulin signaling by homocysteine thiolactone (HCTL) leading to insulin resistance. HCTL is a cyclic thioester of homocysteine, showing high reactivity toward lysine residues, causing protein damages and induces immune responses. Since insulin has no free sulfydryl group and possesses only one lysine residue on its β-chain (Lys29), this residue is considered as a potential target site for modification by HCTL. In this study the aim was to establish a relationship between insulin structural alteration and its propensity for fibrillation/aggregation in the presence of HCTL, using different spectroscopic techniques. The results revealed that HCTL increases rate of insulin unfolding, giving rise to the appearance of solvent-exposed hydrophobic regions and induces a transition from α-helix into predominantly β-sheet structures. Also thioflavin-T (ThT) fluorescence studies revealed that HCTL markedly enhanced the quantity of insulin fibril formation in both agitating and non-agitating systems. Furthermore insulin fibrils obtained in the presence of HCTL, or collected earlier in the pathway of insulin fibrillation displayed enhanced cytotoxicity against cancer cells. This study may suggest HCTL as a possible contributing factor to the pathology of insulin fibrils.

Keywords: Insulin, Fibrillation, Structure, Cytotoxicity.

Abstract No.164

Characterization Study of Human Serum Albumin Under Sodium Benzoate Incubation as an Oxidative Stress Agent

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Several parameters are involved in protein physicochemical properties alteration and abnormalities formation. Protein carbonillation under nonenzymatic modification, as "glycation ",is one of the most important parameter which bring diabetic condition with itself. According to researches, oxidative stress and reactive oxygen species can produced oxidized proteins which have carbonyl contents in it's structure.By this attitude, sodium benzoate, as an oxidative agent, can alter protein structure and function and interfere with diabetic complexity. This compound has food industrial usage in a broadly manner.In this study, the effect of sodium benzoate on human serum albumin (HSA) was studied under the presence and absence of glucose by incubating protein solution during 14, 35 and 60 days.In the presence of glucose, the results of UV and fluorescence spectroscopy indicate: HSA conformational change at 285 and 290 nm, free lysine contents reduction, raising in AGE formation compared with fresh HSA.