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Proteinopathies or protein conformational diseases such as Alzheimer's, Parkinson's diseases and type II diabetes, are conditions that arise from the misfolding and aggregation of proteins in non-native conformations. Non-enzymatic mechanisms such as glycation or oxidation are a modifying factor that leads to proteinopathy, by affecting the structure and function of proteins which have essential role in diabetes. Identification of anti-glycation compounds is attracting considerable interest.In this study, deferiprone, deferasirox and desferal, three iron chelators used in the treatment of β-thalassemic patients, were chosen to explore their effects on the fructation of hemoglobin. Our results indicated that deferasirox cannot prevent AGE and carbonyl formation but it reduces the functional changes of hemoglobin, heme losses and helix depletion due to fructation. Deferiprone and desferal, on the other hand, prevent AGE formation and inhibit changes in the structure and function of hemoglobin during the fructation process.

Keywords: Glycation, Hemoglobin, Iron chelators, Proteinopathies.

Abstract No.215

Nanoflowers of Cobalt: Synthesis, Characterization and Application for the Electrocatalytic Oxidation and Determination of Sulfite and Nitrite

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Cobalt hexacyanoferrate (CoHCF) nanostructure was synthesized by anodic oxidation of metallic cobalt nanoflowers in a solution of K3Fe(CN)6. The synthesized CoHCF sample was then employed to prepare a modified carbon paste electrode. The modified electrode was characterized electrochemically in a phosphate buffer solution at physiological pH. Two redox transitions were appeared in the voltammograms which were related to the redox processes of CoII/CoIII and FeII/FeIII in the solid state of CoHCF. The modified electrode was successfully applied to the electrooxidation of nitrite and sulfite and these substrates were oxidized electrocatalytically on the modified electrode surface via the active FeIII species. The catalytic rate constants, the electron transfer coefficients and diffusion coefficients involved in the electrocatalytic oxidation of the compounds were reported. The modified electrode was applied to the amperometric determination of nitrite and sulfite.

Keywords: Cobalt hexacyanoferrate, Cobalt nanoflowers, Electrocatalysis, Modified electrode, Nanoflowers, Nitrite, Sulfite.

Abstract No.216

Measuring the Activity of Cytomegalovirus Promoter Using an in Vivo

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Transgenic technologies are dependent upon genetic tools among which sufficiently strong promoters for the construction of expression genes are very important. Reporter genes are essential for the quantitative analysis of gene elements that potentially regulate gene expression. Several kinds of reporter genes have been developed and luciferase reporter gene is the most favored for functional analysis of promoters and enhancers, due to rapid, sensitive and reproducible assay system.In this study we investigated the activity rate of cytomegalovirus promoter of mammalian viruse in model plant cell suspension of Nicotiana tabacum via firefly luciferase. The sequence of firefly luciferase (codon optimized luciferase gene LUC+) from pgl3 control vector was introduced in to plox vector via appropriate primers and two restriction enzymes (BamHI and XhoI). The luciferase gene was cloned in Plox vector so cytomegalovirus promoter used to drive the expression of firefly luciferase in suspension cells of Nicotiana tabacum. The plox vector which contains luciferase reporter was transformed to cells. Measurement of luciferase activity was done in intact cells. Our result show that the cytomegalovirus promoter can be

recognized by plant RNA polymerase so we measured 14,000 RLU/sec after 5 days of transfection.

Keywords: Cytomegalovirus Promoter, Luciferase, Cloning, In vivo assa.

Abstract No.217

QSAR Study of Neuraminidase Enzyme by Molecular Mechanic Method, for Nano Drug Design

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Nowadays drug design is made by two methods namely QSAR & Docking.QSAR reveals a quantitative relation between structure & function based onHamt & Hansh equations. Statistical analysis ,molecular mechanics &molecular graphics have done a great assistance in drug designing. For thepurpose of understanding of drug designing methods we should have a complete knowledge of Receptor, Ligand, Binding site & Target site.Since H1N1 influenza A infection is highly contagious ,its spread as epidemics& pandemics has made it a horrible disease.The WHO has many concerns inthis issue & expends millions of dollars to produce drugs to suppress or treatthis disease.For treatment of this disease a thorough knowledge of neuroaminidase protein is essential in order to produce potent drugs to suppress this enzyme. Due to virus's genomic inconstancy & point mutations, drugs that are no longer useful against this virus should not be used & new more potent & suppressing drugs must be designed .We studied the drug binding sites in dielecterics(32,63&78,39) in varioustemperatures(310,315,329&333 K), using Bioinformatics ,molecular mechanics & MM+ Mont carlo methods.We measured the potential energy of amino acids binding to the drug. Drugbinding sites are mor dependant to dielectric constants rather to temperature and the optimum dielectric constsnt is 39/78.

Keywords: Molecular mechanic, Influenza A, Dielectric, Neuraminidase enzyme.

Abstract No.218

Nano Theoretical Studies of Testis-Specific Protein/gene 10 structure of Homo Sapiens and its Comparison with the TSGA10 protein/gene of Rattus Norvegicus

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The isolation of a novel gene, TSGA10,is described by differential mRNA display which is expressed solely in adult human testis. It seems likely that the gene is expressed during spermatogenesis possibly in spermatocytes. The gene is composed of 19 exons extending over more than 80 kb. The complete cDNA contains an open reading frame of 2094 nucleotides, which appears to encode a novel protein. It was predominantly expressed in the testis in adult normal tissues.Cancer-testis genes are a group of genes expressed in testicular germinal cells and a range of human cancers. Testis-specific gene A10 (TSGA10) is expressed in testis and actively dividing and fetal differentiating tissues. Testis-specific gene antigen (TSGA10) is expressed in fetus, testis and frequently in human solid cancers and acute leukemias, making it a candidate for immunotherapy. There is also evidence for potential TSGA10 involvement in cell proliferation.It was reported its expression TSGA10 in human monocyte-derived dendritic cells (DC) and macrophages in vitro and in murine spleen CD11c(+) cells ex vivo. It is proposed that TSGA10 could influence the function of antigen presenting cells (APC) via its interaction with cytoskeletal proteins such as vimentin.Autoimmune polyendocrine syndrome type 1 (APS1) is a rare monogenic autosomal recessive disorder.We used the methods geometry optimization, Molecular Dynamics , Langevin Dynamics and Monte carlo and The force fields are MM,AMBER,BIO(charmm) and OPLS and temperatures are 295,300,305,310,315.By these methods were evaluated and significat results were obtaind.

Keywords: TSGA10 protein, TSGA10 gene, Molecular Dynamics, Geometry Optimization, Charmm.

Abstract No.219

Nano Study and Simulation of the Na+/k+ Channels Proteins Membrane, Using MD/MM Methods

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Sodium channels are integral membrane proteins the form ion channelsconducting sodium ions through a cell,s plasma membrane . the voltagesensitivity of this channel is due to positive amino acids located of every third position voltage gated sodium channels have