biocompatibility properties of this material. Hence nanoneuroscience is a recently coined term describing the convergence of the existing but different worlds of nanotechnology, neurobiology that a large body of research is emerging that hints at the potential applications of nanotechnology in neuroscience.In present investigation, applying molecular mechanic(MM) method with OPLS, force field and quantum mechanics(QM) method-using density functional theory(DFT) with B3LYP keyword- we carried out a theoretical study on SWCNTs interaction with sphingomyelin as one of the most important components of the neuron membrane. We study about physical properties of this interaction. Hence, we have investigated places of interaction and electrical properties of this interaction. The result shows that the interaction of sphingomyelin with SWCNT has minimum value of interaction energy and structural stability in solvent. Since physical properties of this system are important for nanoneuroscience practical applications, the present study opens the door to nanoneuroscience.

Keywords: Nanoneuroscience, Sphingomyelin, SWCNT, DFT.

Abstract No.63

Real-Time Differential Scanning Fluorimetry of Quorum Sensing-Mediated Proteolytic Activity in Selected Bacterial Pathogens

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Cellular communication between bacterial pathogens is established through the release of autoinducers upon reaching a certain population density. This mechanism, called quorum sensing (QS), allows synchronization and downstream expression of associated virulence genes leading to an efficient and effective establishment and survival within the host. In bacterial pathogens, several proteases are reportedly secreted during QS and play major roles during pathogenesis. Aversion of this process is very crucial in order to prevent further damage within the host and can be achieved by anti-quorum sensing (AQS) usually by molecules produced as secondary metabolites from certain plant species.This study developed a real-time proteolytic activity assay by differential scanning fluorimetry using the high-resolution melt (HRM) program of the Rotor-Gene cycler and the fluorescent dye Flamingo PinkTM based on the principle of substrate protein stability. QS-mediated proteolytic activity from expressed gelE, sspA and apr gene products of Enterococcus faecalis, Staphyloccus aureus and Pseudomonas aeruginosa, respectively, were analyzed with high-precision based on their real-time enzymatic effect on substrate protein stability measured as fluorescence by Flamingo Pink which undergoes dramatic fluorescence enhancement in the presence of denatured protein – a reflection of the thermodynamic state of the protein substrate during enzymatic digestion. A remarkable decrease in fluorescence was observed when bromofunone, an AQS molecule, was added during bacterial culture. The levels of expressed protease gene products were also confirmed by real-time quantitative PCR of the gene transcripts.The developed protocol demonstrates precise detection and measurement of proteolytic activity mediated by the QS signaling pathway. This technique enables rapid screening of AQS molecules such as from plant extracts, and can therefore be applied as a tool for discovery of drugs with potential antimicrobial activity.

Keywords: Fluorescence, Quorum Sensing, Protease, Protein Stability.

Abstract No.64

A Theoretical Investigation on Oxaliplatin Interaction with β-Lactoglobulin

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Bovine β-Lactoglobulin (BLG) as the most important whey protein in milk, is a globular protein belonging to the lipocalin family. According to the crystal structure, BLG comprises predominantly a β-sheet configuration containing nine antiparallel β-strands from A to I. Many investigations have been done about BLG interaction with material for various applications, such as fatty acid, Vitamins and Drugs. But

interaction between drugs and BLG converted to an important subject for many works today.Oxaliplatin is the third generation analogue of cisplatin that show activity against colon cancer and has demonstrated antitumor activity in cisplatin resistant cell lines. Furthermore, oxaliplatin is the only platinum compound to be clinically effective in colorectal cancer and is therefore frequently used as first-line treatment, of primary tumours, and second-line treatment, for recurring tumours, against this malignancy.In present investigation, we study the interaction of oxaliplatin with BLG using AutoDock 4.2 software for docking and analysis of binding sites of this drug on milk carrier protein of BLG.So, we have investigated the types and places of interaction which occurred between oxaliplatin and BLG. Our result shows that physical interactions such as electrostatic and hydrogen bonds have effective role in this interaction, then, BLG can be consider as a carrier of oxaliplatin. Our results are helpful for designing of new targeted drugs with lower side effects for cancer treatment.

Keywords: Oxaliplatin, BLG, Theoretical Method, AutoDock.

Abstract No.65

cDNA Cloning of IP3-Receptor Binding Core and Expression Study in E.Coli

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Inositol Trisphosphate (IP3) is a ubiquitous second messenger in eukaryotic cells that triggers Ca^{2+}-release from intracellular stores. IP3 binds to an intracellular receptor (IP3R) and induces conformational change within the ligand-binding domain which regulates Ca^{2+} release, hence, both IP3 and its receptor (IP3R) are key components of the signal transduction mechanism. Here we present cDNA cloning of IP3-binding core encoding only residues 224-604 of human IP3R type 2 that binds to IP3 with high affinity. RNA extraction (from fresh human spleen), RT-PCR, PCR and cloning were carried out, and then the cloned DNA was checked by sequencing. In order to test ligand-induced conformational change in IP3-binding core, the recombinant protein containing IP3 binding site is need. Therefore, the vector harboring of IP3-binding core was transformed to E.Coli BL21(DE3) to expression study in prokaryote system and characterized in the absence and presence of its ligand.

Keywords: Inositol 1,4,5-trisphosphate, Cloning , RT-PCR.

Abstract No.66

Threonine-Serine Protein Kinase B-Mediated Cytoprotection by White Radish (Raphanus sativus Linn.) Aqueous Extract on Lidocaine-Induced Neonatal Fibroblast Injury In Vitro

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Lidocaine as a classic amide-type local anesthetic is extensively utilized for epidural anesthesia. Several reports state that administration of lidocaine may lead to neuronal injury both locally and systemically in certain extreme cases, especially during birth, affecting not only the mother but also the newborn. Recently, there are also findings showing cytotoxicity in fibroblasts in vitro simulating local administration of the anesthetic and its toxicological effects in tissues at the point of entry. Raphanus sativus crude aqueous extracts (RSAE) have been analyzed to contain high concentrations of glucosinolates and isothiocyanates which have been extensively studied to promote cytoprotection against cellular stress induced either physically or chemically. In this study, the effects of RSAE were evaluated on lidocaine-induced cytotoxicity in human dermal neonatal fibroblasts (HDFn). HDFn were exposed to lidocaine in the presence or absence of RSAE. After exposure, cell viability and lactate dehydrogenase activity were evaluated including the mitochondrial transmembrane integrity. Relative quantitation of cfos and cjun expression as early markers of apoptosis was also determined. The cytoprotective capability of RSAE in preventing lidocaine-induced injury was also investigated. Exposure of HDFn cells to lidocaine resulted to significant cell injury confirmed by cytopathic effects, LDH leakage and upregulation of cfos and cjun. However, pre-treatment of the cells with RSAE significantly attenuate lidocaine-induced cell injury by stabilizing the mitochondrial potential with marked increase in Akt (threonine-serine protein kinase B)