CHAPTER 5

BIOCHEMISTRY

Doctoral Theses

029. CHINNADURAI (S)
Response of Glioblastoma Cell Lines to Potentially Cytotoxic Agents in Normoxic and Hypoxic Conditions.
Supervisor : Prof. Debi P Sarkar
Th 18079

Abstract

It elucidate the role of hypoxia in influencing the response to an ROS enhancing agent hydroxylamine, the responses of U87MG and U373MG cell lines to hydroxylamine, either singly or in combination with cisplatin during normoxia and hypoxia and the altered cellular signaling pathways that may influence the variation of response.

Contents

1. Modulation of curcumin responsive pathways by hypoxia : A study in glial cell. 2. Influence of hypoxia on the nature of cell response to hydroxylamine either singly or in combination with cisplatin.

030. KHARE (Garima)
Characterization of Important Drug Targets for the Identification of Novel Inhibitors Against Mycobacterium Tuberculosis.
Supervisor : Prof. Anil K Tyagi
Th 18228

Abstract

It describes the larger goal of development of novel and more efficcious antitubercular drugs. The emphasis has been laid on the structure determination and characterization of important drug targets of M.tuberculosis along with an attempt to identify inhibitors by employing virtual screening strategy. The targets chosen for the study include Fatty Acyl-CoA Synthetase (FadD13, Rv3089), a crucial enxyme belonging to

mymA operon, Thiamin Phosphate Synthase (ThiE, Rv9414c) and Bacterioferritin B (BfrB, Rv3841), an iron storage protein believed to be crucial for iron homeostatis in M. tuberculosis.

Contents

1. Introduction. 2. Review of literature. 3. Aims and objectives. 4. Results and discussion. 5. Summary and conclusions.

031. SAINI (Vikram)
Sequencing and Analysis of the Genome of an Immunotherapeutic Mycobacterial Species.
Supervisor : Prof. Anil K Tyagi
Th 18146

Abstract

This work has characterized M. indicus pranil (MIP), establish as a distinct mycobacterial species and elucidate its genomic blue print, lead to specialized investigations towards understanding the physiology and metabolism of MIP along with its potential for immunomodulation. It has also undertaken comparative analysis of the genomes of MIP and other mycobacteria with special emphasis on : Understanding the genome dynamics of mycobacterial evolution and the basis of genomic downsizing / genome gain in MIP. Indentified the plausible genomic determinants responsible for the non pathogenic nature of MIP.

Contents

1. Introduction and review of literature. 2. Polyphasic taxonomic analysis establishes Mycobacterium Indicus pranil as a distinct species. 3. Whole genome shotgun sequencing and assembly of Mycobacterium indicus pranil genome. 4 Massive gene acquisitions in Mycobacterium indicus pranil provide a perspective on mycobacterial evolution and insights into its immunomodulatory potential.

032. SUROLIA (Ranu)
Delivery of Monensin Using PLGA Nanoparticles for the Treatment of Malaria.
Supervisor : Prof. P C Ghosh
Th 18084

Abstract

In the present work, monensin loaded PLGA nanoparticles for-

mulations prepared with different molecular weight PLGA and the effect of monensin in these formulations of the inhibition of growth of Plasmodium falciparum in vitro in culture is examined. The results of these studies clearly showed for the first time that antimalarial activity of monensin in significantly modulated following entrapment into PLGA nanoparticles under in vitro condition. The inhibition of growth of P. falciparum by monensin-PLGA nanoparticles is significantly dependent on the molecular weight and inherent viscosity of the polymer. Maximum inhibition of growth of P. falciparum by manensin is observed when PLGA of 110 kDa is used for the preparation of nanoparticles.

Contents

1. Introduction & review of lierature. 2. Optimization and preparation of various monensin loaded PLGA nanoparticles. 3. Characterization of various monensin loaded PLGA nanoparticles by various biophysical techniques. Summary and conclusion.

033. TYAGI (Nikhil)
Folate-Mediated Targeted Delivery of Ricin to Human Epidermoid Carcinoma (KB) Cells Using Sterically Stabilized Liposomes as Vehicles.
Supervisor : Prof. Phahlad C Ghosh
Th 18083

Abstract

It studies the effect of ricin entrapped in various charged conventional and sterically stabilized liposomes having different density and chain length of PEG in combination with monensin on the sensitivity of a human epidermoid carcinoma cell line (KB). Also evaluate the efficacy of monensin intercalated in various charged sterically stabilized liposomes having different density and chain length of PEG on the surface on the enhancement of the cytotoxicity of sterically stabilized liposomal ricin in human epidermoid carcinoma (KB) cells.

Contents

1. Introduction and review of literature. 2. Aims and objectives. 3. Materials and methods. 4. Results. 5. Discussion. 6. Summary and conclusion. 7. Bibligraphy. 8. Publications.