

TABLE OF CONTENTS

Table of contents

1. List of figures	iii- v
2. List of tables.....	vi
3. Abbreviations.....	vii-viii
4. Abstract.....	ix-xii
5. Chapter 1 (Introduction).....	1-11
Brief of Cancer and environmental carcinogens.....	1-4
Brief introduction of human cell cycle.....	4-5
Introduction to systems biology.....	5-8
Introduction to bio-kinetics of cell cycle.....	9
Introduction of protective potential of carbon based nanoparticles.....	10
Objectives.....	10-11
6. Chapter 2 (Review of Literature)	12-27
Cancer deaths and environmental carcinogens.....	12-16
Systems biology.....	16-23
Bio-kinetics of human cell cycle.....	23-25
Nanoparticles as guard against environmental carcinogens.....	25-27
7. Chapter 3(Materials and Methods)	28-34
Identification of biomolecular targets.....	28
Protein-Protein interaction network.....	28-29
Network Analysis.....	29-30
Modulation and Pathway enrichment.....	30-31
Molecular Docking Analysis.....	31-32

Construction of human cell cycle model and time course simulation.....	32
Protection by carbon-based nanoparticles.....	33
8. Chapter 4 (Results).....	35-100
Results for Benzo(a)pyrene.....	35-69
Results for NNK.....	70-100
9. Chapter 5 (Discussion)	101-123
Network analysis of BaP rewired PPIN.....	105-110
Network analysis of NNK rewired PPIN.....	110-115
Molecular Docking Analysis.....	115-118
Biokinetics of cell cycle model.....	118-121
Protection by carbon nanoparticles.....	121-123
10. Conclusion.....	124-128
11. Summary.....	129-130
12. References.....	131-159
13. Bibliography.....	160- 161
14. Annexure (1- 6).....	162- 225
15. List of publications.....	226
16. Certificates.....	227-230
17. Full Length Published paper	