LIST OF FIGURES

Fig. 1: Major causes of death in India

Fig. 2: Estimates of new cancer cases in India

Fig. 3: Domain organization of MDR1

Fig. 4: Role of Cyclooxygenase-2 in cancer

Fig. 5: Chemical structure of celecoxib

Fig. 6: Effect of celecoxib on the growth of HepG2 cells

Fig. 7: Effect of doxorubicin on the growth of HepG2 cells

Fig. 8: Synergistic effect of celecoxib and doxorubicin on the growth of HepG2 cells

Fig. 9: Measurement of intracellular doxorubicin accumulation by flow cytometer

Fig. 10: Line plot showing simulation data of doxorubicin accumulation with celecoxib treatment

Fig. 11: Effect of celecoxib and PGE$_2$ on MDR1 mRNA expression in HepG2 cells

Fig. 12: Effect of celecoxib and PGE$_2$ on MDR1 protein expression in HepG2 cells

Fig. 13: Effect of celecoxib on COX-2 protein expression in HepG2 cells

Fig. 14: Effect of celecoxib on PGE$_2$ release in HepG2 cells

Fig. 15: Effect of celecoxib on nuclear translocation of AP-1 in HepG2 cells

Fig. 16: Effect of celecoxib and PGE$_2$ on JNK phosphorylation in HepG2 cells
Fig. 17: Effect of celecoxib on phosphorylation of JNK, ERK and p38 in HepG2 cells

Fig. 18: Schematic representation of the model showing COX-2 mediated regulation of MDR1 expression and site of interference by celecoxib

Fig. 19: Northern blot analysis MDR1 mRNA expression in RAW 264.7 cells

Fig. 20: Bar graphs showing the fold difference in the expression levels of MDR1 mRNA obtained by experimental and simulation data

Fig. 21: Western blot analysis of MDR1 protein expression in RAW 264.7 cells

Fig. 22: Bar graphs showing the fold difference in the expression levels of MDR1 protein obtained by experimental and simulation data

Fig. 23: FACS analysis on generation of ROS in cells exposed to 2-AAF with or without C-PC pretreatment

Fig. 24: FACS analysis on generation of ROS in cells exposed to 2-AAF with or without DPI, Akt inhibitor IV pretreatment

Fig. 25: Bar graph showing the generation of superoxide in cells after 2-AAF treatment

Fig. 26: Line plot showing simulation data on concentration of H$_2$O$_2$ being formed with 2-AAF treatment

Fig. 27: Western blot analysis on Akt and p-Akt protein expression in RAW 264.7 cells

Fig. 28: Bar graphs showing the fold difference in the expression levels of p-Akt protein obtained by experimental and simulation data

Fig. 29: Effect of C-PC on nuclear translocation of NF-κB in RAW 264.7 cells

Fig. 30: Effect of DPI and Akt inhibitor IV on nuclear translocation of NF-κB in RAW 264.7 cells
Fig. 31: Bar graphs showing the fold difference in the NF-κB translocation obtained by experimental and simulation data.

Fig. 32: Transient transfection analysis using plasmids containing CAT gene under the promoter of mouse mdr1 in RAW 264.7 cells.

Fig. 33: Schematic representation of 5’ deletion fragments of mdr1 promoter fused with CAT reporter gene.

Fig. 34: Graph showing simulation data of phosphorylated Src levels with C-PC treatment.

Fig. 35: Confocal analysis.

Fig. 36: Schematic representation of the model showing 2-AAF-induced MDR1 expression through ROS generation and possible sites of interference by C-PC, DPI and Akt inhibitor IV.