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Investigation of small molecule interaction with receptors in cancer therapy

Suresh Palanivel
Tampere University of Technology, Tampere, Finland

Cancer is a generic term, a second leading death causing disease, follows uncontrolled growth of abnormal cells results in death. The death rate is about to increase up to 23.3% in 2020, of that breast cancer ranks fourth. The western women suffer mostly with breast cancer than any other cancers. Plant-derived, marine-derived and synthetic phenolic compounds have been proposed as effective inhibitory agent for their anti-cancer activity. In our present work, we have screened the compound alkylaminophenols for their anti-cancerous property. Earlier studies of alkylaminophenols in Human osteosarcoma cell lines (U2OS) and Human embryonic kidney cell lines (HEK293T) results in a promising chemo-therapeutic effect. In our current study, we have chosen a receptor specific cell line, MCF-7 breast cell lines, through docking, a ligand-receptor interaction study. The preliminary studies on the effect of cytotoxicity in alkylaminophenols, inhibits the cell growth at the range of 1-2μM (IC50). Further studies on DNA content morphology analysis and apoptosis protein expression analysis, we identified that alkylaminophenols can efficiently inhibit the growth of MCF-7 cell lines. Also, the cell death transition mechanism is also studied using the fluorescence microscope and fluorescence-based assays were used to analyse the morphological variations at single cell level. Overall, we will discuss the cytotoxicity effect of alkylaminophenol and its mode of regulation at the single cell level and further studies are warranted to determine the gene expression profiling of these phenolic compounds.

Biography

Suresh Palanivel has completed his Master's at the age of 23 years from Edinburgh Napier University, Scotland and pursuing Doctoral studies in Tampere University of Technology, Finland. Currently, he is being in charge of Molecular Signaling Laboratory, Tampere University of Technology. He has published more than 3 papers in reputed journals and has presented many oral and poster presentations in the scientific and researchers meeting.

suresh.palanivel@student.tut.fi

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