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Biological evaluation of Cyclooxygenase-2 inhibitor Nimesulide derivatives as anti-agents

College of Sciences and Health Professions

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Abstract

Cyclooxygenase-2 (COX-2) inhibitor nimesulide inhibits the proliferation of various types of cancer cells mainly via COX-2 independent mechanisms, which makes it a good lead compound for anti-cancer drug development. A series of new nimesulide analogs were evaluated with cell proliferation assay based on a non-small lung cancer cell line H292. The results showed that several derivatives were very active to against H292 cell growth with IC50s of sub nano mole. These results suggest the possibility of using these nimesulide derivatives as chemo preventive agents. It has been proved that these compounds bind to tubulin and Hsp27 in the tumor cells, which presumably explains the potent anti-cancer activity of the compounds. However, it is still unclear either tubulin or Hsp27 mainly contributed to the anti-cancer activity. It is also possible that these two molecular targets of the compounds exhibited synergistic effects. Further investigations are needed to elucidate the molecular mechanism of the novel anti-cancer agents.