# Design, synthesis and 3D QSAR based pharmacophore study of novel imatinib analogs as antitumor-apoptotic agents

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**Abstract**

Aim: Imatinib possesses various mechanisms for combating cancer, making the development of imatinib analogs an attractive target for cancer research. Method: Two series of analogs were designed and synthesized, maintaining the essential pharmacophoric features in imatinib structure. The synthesized compounds were subjected to cell-based antiproliferative assays against nonsmall lung (A549) and colon cancer cell lines. In addition, flow cytometry cell cycle and caspase-3 colorimetric assays were performed. Results: Most compounds showed potent anticancer activity against both cell lines with IC50 = 0.14ï5.07 εM. Three compounds demonstrated ability to reinforce cell cycle arrest at G1 stage in a manner similar to imatinib. In addition, they induced apoptosis via activation of caspase-3.

*Future Medicical Chemistry 2018, May*