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Synthesis and biological evaluation of N-heterocycles as novel anticancer agents

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Many bioactive compounds, both natural and synthetic molecules, are heterocyclic compounds. Recent studies have been reported that heterocycles, such as quinoline and indole, exhibit their promising anticancer effects. In present study, we examined the anticancer effects of some indole-type compounds as well as a series of benzenesulfonate quinolines were prepared and evaluated their potential anticancer activities against a panel of cancer cell lines (Hep3B, MCF-7 and SLMT-1). Among these compounds, compound **QD019** demonstrated the best anticancer activity in all the selected cell lines with the MTS50 ranged from 0.078 to 0.625 μg/mL. According to the preliminary docking analysis using the Similarity Ensemble Approach (SEA), **QD019** may potentially interact with the DNA binding site of the nuclear factor kappa beta p65 subunit which is critical for the proliferation of cancer cells. These findings provide a clue for us to further investigate it as a lead compound for its anticancer actions. Further structural optimization of the molecular skeleton and detailed investigation for the mechanisms of the anticancer actions of **QD019** is in progress.

Biography

Po-Yee Chung is currently a research student at The Hong Kong Polytechnic University under the supervision of Dr. Johnny Cheuk-on Tang and Dr. Kim-Hung Lam. Her research focuses on drug design and synthesis of novel small organic molecules, particular in quinoline-type compounds, as anticancer agents.