IL-10

1, 6-Diaryl-3(Z)-hexen-1, 5-diynes as Antitumor Agents

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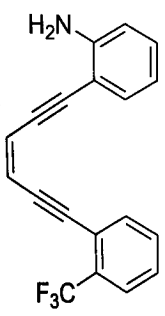
A series of 1,5-diaryl-3(*Z*)-hexen-1,5-diynes have been synthesized and the growth inhibition activity against various human tumor cell lines have also been evaluated. 2-(6-(2-Trifluoromethylphenyl))-3(Z)-hexen-1,5-diynyl)aniline (**1**) was found to show high potency of growth inhibition activity. After a 24 h treatment with compound **1**, a strong ability to induce a massive accumulation of cells in the G2/M phase was observed. After 72 h treatment with compound **1**, some of the cells undergo apoptosis *via* activation of caspase-3, -8 and -9. A brief exposure of the MDA-MB-231/ATCC cells to compound **1** is sufficient to produce sustained de-polymerization of the microtubules in a concentration-dependent manner. The disruption of microtubule is reversible when the drug is removed, which indicates a lower toxicity of this compound. The ligand docking experiment shows that compound **1** binds to the α- and β-tubuline in the same manner as colchicine. The trifluoromethylphenyl group of **1** coincides with the trimethoxyphenyl subsunit of cholchicine and the amino group of **1** serves a hydrogen bond acceptor with α-tubulin (179-Thr and 181-Val), similar to the carbonyl group of colchicine. Replacing the *ortho*-trifluoromethylphenyl ring of compound **1** to 3,4,5-trimethoxyphenyl group gave compound **2**. Compound **2** was found to exhibit even higher potency of growth inhibition activity against some human cancer cell lines.



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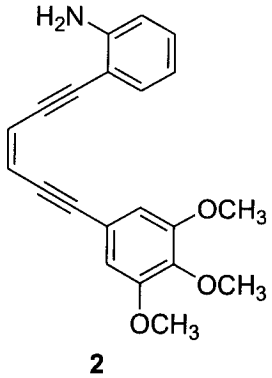

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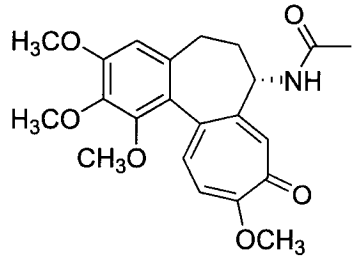

Colchicine