Jinan, the capital of eastern China's Shandong province, is a sprawling city known for its many natural springs, most prominent being the park-enclosed Baotu Spring. Near the city centre, expansive Daming Lake has landscaped islands and parkland with temples and pavilions. The modern Shandong Museum displays a huge collection of provincial artefacts, spanning the Neolithic Longshan culture to the Ming dynasty.

Shandong University Qilu Hospital

Jinan Children's Hospital

Department of Neurosurgery, Provincial Hospital, Shandong University, Jinan, 250021, China.

Lung cancer continues to be a leading cause of cancer-related death worldwide, with non-small cell lung cancer (NSCLC) accounting for more than 80% of lung cancer cases. Current therapies for NSCLC have only limited effect and treatment resistance develops rapidly.

In a previous study, Sun et al. showed have shown that C1-phenylethynyl tetrahydroisoquinoline (THIQ) analogue 4 has anti-proliferative activity against PC3 human prostate cancer cells. However, this anticancer effect was achieved with relatively high IC50 in A549 lung cancer cells. To improve the potency of the drug, in the present study, a series of novel THIQ analogues (analogues 5a-d) were prepared by using an oxidative C-H functionalization strategy, and their potential anticancer activities on A549 lung cancer cells were investigated. Among these analogues, analogue 5c can markedly inhibit A549 cell proliferation in a dose-dependent manner with a reasonable IC50 of $14.61 \pm 1.03 \,\mu$ M. This effect was mediated by analogue 5c-induced G0/G1 phase arrest and cell apoptosis. Treatment with analogue 5c was shown to induce reactive oxygen species (ROS) accumulation, disruption of mitochondrial membrane potential, reduction of glutathione, elevation of intracellular calcium ion (Ca2+), and activation of Caspase-3. Furthermore, analogue 5c can lead to DNA double-strand break and the activation of p53 pathway in A549 cells. In conclusion, the oxidative C-H functionalization strategy to generate analogue 5c could improve the drug anticancer efficacy by inducing mitochondria-dependent apoptosis in A549 cells ¹.

1)

Sun X, Liu M, Gao L, Mao Y, Zhao D, Zhuang J, Liu L. A novel tetrahydroisoquinoline (THIQ) analogue induces mitochondria-dependent apoptosis. Eur J Med Chem. 2018 Mar 7;150:719-728. doi: 10.1016/j.ejmech.2018.03.017. [Epub ahead of print] PubMed PMID: 29573707.

Jinan

From: https://neurosurgerywiki.com/wiki/ - **Neurosurgery Wiki**

Permanent link: https://neurosurgerywiki.com/wiki/doku.php?id=jinan



Last update: 2024/06/07 02:57