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Antiproliferative activity of tetrahydrofuran jaspine B analogues

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It is well-known that chemotherapeutic agents lack selectivity - thus killing healthy cells and their use may simultaneously lead to serious adverse effects. Marine ecosystem is a rich reservoir of biologically active compounds with strong anticancer and cytotoxic properties. Such compounds include the jaspine B (Fig.1) (pachastrissamine), which has a cytotoxic activity against a wide range of tumor cell lines. Jaspine B derivatives are nowdays being intensively studied for their anticancer potential.

The purpose of this study is to investigate antiproliferative effects of different synthetic jaspine B analogues in vitro and to understand the underlying mechanisms of action

Methodology & Theoretical Orientation Jaspine B derivatives with tetrahydrofuran structure 209, 210, 211, 301 (Fig.1) were tested using: MTT assay to evaluate their cytotoxic activity. Flow cytometry was used to enlighten the underlying mechanis of action.

Findings Our results prove that jaspine B derivative 209 displayed the highest antiproliferative activity in all cell lines with the significant cytotoxic effect in Jurkat and with the lowest cytotoxicity in 3T3. We proved that 209 analogue is capable of apoptosis induction and cell cycle arrest.

Conclusion & Significance: Jaspine B derivative 209 has been suggested as a potential anti-tumor agent. Our results generate new possibilities for further in vivo efficacy studies with this synthetic compound.

Biography

Alexandra Nagyová is a Ph.D. candidate in the Department of Pharmacology at Pavol Jozef Šafarik University in Košice, Slovakia. She completed her masters' degree in Pharmacy at Comenius University in Bratislava

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