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Synthesis and Antitumor Activity of Novel Pyridoxine-Based Bioisosteric Analogs of trans -Stilbenes

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Abstract

© 2017 Mikhail V. Pugachev et al. A series of trans-6-phenylethenyl substituted pyridoxine derivatives, novel bioisosteric analogs of drugs based on trans-stilbene scaffold, were synthesized using the Wittig reaction of a bis-triphenylphosphonium pyridoxine derivative with various aromatic aldehydes. Two compounds demonstrated high activity against the estrogen-dependent MCF-7 (breast cancer) cell line with IC 50 in the range of 1.9-7.9 μM and very good selectivity for other studied normal and tumor cells, including the estrogen receptor negative MDA-MB-231 breast cancer cells. The active compounds possessed an intense blue fluorescence, and this feature allowed us to effectively visualize them in cytoplasm and in nucleus. The obtained results make the described chemotype a promising starting point for the development of new anticancer agents for the therapy of estrogen-dependent malignancies.

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