The cytotoxic agents NSC-95397, brefeldin A, bortezomib and sanguinarine induce apoptosis in neuroendocrine tumors in vitro.

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Source

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Abstract

The aim of this study was to investigate the apoptosis resulting from NSC 95397, brefeldin A, bortezomib and sanguinarine in neuroendocrine tumor cell lines.

MATERIALS AND METHODS:

A multiparametric high-content screening assay for measurement of apoptosis was used. The human pancreatic carcinoid cell line, BON-1, human typical bronchial carcinoid cell line NCI-H727 and the human atypical bronchial carcinoid cell line NCI-H720 were tested. After incubation with cytotoxic drugs, the DNA-binding dye Hoechst 33342, fluorescein-tagged probes that covalently bind active caspase-3 and chloromethyl-X-rosamine to detect mitochondrial membrane potential were added. Image acquisition and quantitative measurement of fluorescence was performed using automated image capture and analysis instrument ArrayScan. In addition, nuclear morphology was examined on microscopic slides stained with May-Grunewald-Giemsa.

RESULTS:

A time- and dose-dependent activation of caspase-3 and increase in nuclear fragmentation and condensation were observed for the drugs using a multiparametric apoptosis assay. These results were confirmed with nuclear morphological examination on microscopic slides.
CONCLUSION:

NSC 95397, brefeldin A, bortezomib and sanguinarine induced caspase-3 activation with modest changes in nuclear morphology.

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