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Combined action of binase and bleomycin toward human lung adenocarcinoma cells

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Abstract

Some microbial ribonucleases (RNases) demonstrate selective cytotoxic effect against a wide range of tumor cells. In this context combined use of cytotoxic RNases in complex therapy with other chemotherapeutic agents appears to be especially promising. In this study we have investigated the apoptosis-induced effect of Bacillus pumilus RNase (binase) in combination with known anti-tumor antibiotic bleomycin on human lung adenocarcinoma A549 cells. The combined effect of high concentrations of these agents did not have any mutual increase in their apoptosis-induced action, while a combination of non-apoptotic concentrations resulted in the increase of the proportion of apoptotic cells up to 22% as compared with individual effect of bleomycin (6%) and binase (12%) used separately. These results indicate that binase and bleomycin are effective in combination of their low concentrations and ineffective in combination of their high concentrations.

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Keywords

Antitumor activity, Bacillus pumilus, Binase, Bleomycin, Cytotoxic ribonucleases, Lung adenocarcinoma