

Binase penetration into alveolar epithelial cells does not induce cell death

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Abstract

Microbial ribonucleases possess a broad spectrum of biological activities, which demonstrate stimulating properties at low concentrations and cytotoxicity and genotoxicity at high concentrations. Mechanisms of their penetration into the cells still remain unclear. In this study penetration of *Bacillus intermedius* RNase (binase) in alveolar lung epithelial cells, type II (ATII) pneumocytes, has been investigated. Using immunofluorescence analysis we have shown for the first time internalization of binase by primary non-differentiated pneumocytes ATII. The enzyme did not penetrate in MLE-12 (Murine Lung Epithelial-12 cells). However, binase was cytotoxic towards tumor MLE-12 cells, but not ATII cells. These results clearly indicate higher sensitivity of tumor cells to binase compared to normal cells; they also demonstrate that penetration of the enzyme into alveolar epithelial cells is not directly associated with their death. © 2012 Pleiades Publishing, Ltd.

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Keywords

ATII, binase, cytotoxicity, immunofluorescence, internalization, MLE-12, type II alveolar epithelial cells