

# Balnase, a New Dimer-Forming Ribonuclease from *Bacillus altitudinis*

Dudkina E., Ulyanova V., Ilinskaya O.

Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

## Abstract

© 2016, Springer Science+Business Media New York. Current cancer treatments still remain ineffective and cause side effects which ruinously affect healthy cells. Among new promising anticancer drugs, special attention is paid to the ribonucleases (RNases) which possess selective cytotoxicity against malignant cells. It is found that besides enzymatic activity conformational state of RNase molecules plays a role in the anticancer activity. Balnase, a new RNase from *Bacillus altitudinis*, is a close homolog of *Bacillus pumilus* RNase (binase) which selectively kills malignant cells expressing oncogenes KIT, ras, AML1/ETO, and FLT3. Earlier, homogeneous sample of balnase was obtained. Here, we have characterized structural organization of balnase. It was shown that it is a natural dimer. The enzyme has the same conformational state as binase but balnase dimers are less stable.

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## Keywords

Anticancer activity, Balnase, Binase, Conformational state, Dimerization, Structural organization

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