

The pro-apoptotic action of the peptide hormone *Neb*-colloostatin on insect haemocytes.

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Streszczenie

The gonadoinhibitory peptide hormone *Neb*-colloostatin was first isolated from ovaries of the flesh fly *Neobellieria bullata*. This 19-mer peptide is thought to be a cleaved product of a collagen-like precursor molecule that is formed during remodelling of the extracellular matrix. In this study, we report that upon injection of picomolar and nanomolar doses, this peptide exerts a pro-apoptotic action on haemocytes of *Tenebrio molitor* adults, as visualized by changes in morphology and viability. The F-actin cytoskeleton was found to aggregate into distinctive patches. This may be responsible for the observed inhibition of adhesion of haemocytes and for the stimulation of filopodia formation. However, *Neb*-colloostatin injection did not induce the formation of autophagic vacuoles. Our results suggest that physiological concentrations of *Neb*-colloostatin play an important role in controlling the quantity and activity of haemocytes in insect haemolymph. They also suggest that during periods in which *Neb*-colloostatin is released, this peptide may cause a weakening of the insects' immune system. This is the first report that exposure to a peptide hormone causes apoptosis in insect haemocytes.

Słowa kluczowe

insects, haemocytes, *Neb*-colloostatin, Apoptosis

Adres publiczny

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