

Metal coordination governs the antimicrobial efficacy of calcitermin derivatives

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Streszczenie

Antimicrobial peptides are promising alternatives to classical antibiotics. Their microbicidal activity can arise from different mechanisms, one of which is known as nutritional immunity and has metal micronutrients and metal-binding biomolecules as its main players. Calcitermin is an antimicrobial peptide and an effective metal chelator. Its properties as an antibacterial and anti-*Candida* agent have been recently studied both as a free peptide and in the presence of zinc and copper ions, with which it forms stable complexes. Calcitermin derivatives have also gained attention thanks to the possibility of improving their properties, like metal-binding affinity and/or stability in biological fluids, through *ad hoc* modifications of the native peptide sequence. In this work, the Ala-to-Ser substitutions close to the coordination site of calcitermin have been introduced to study the impact on the biological activity and metal-binding properties. Our results show that metal coordination has a clear impact on the bioactivity of the studied compounds, to the point that the truncated fragment of calcitermin, solely containing the main metal-binding residues, also shows antimicrobial activity.

Adres publiczny

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