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Binding of Ni^{2+} and Cu^{2+} ions peptides with a Cys-His motif.

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Streszczenie

Waglerin I is a 22 amino acid snake venom toxin. Its three fragments (GGKPDLRPCHP-NH_2, PCHYIPRPKPR-NH_2, PCHPPCHYIPR-NH_2), due to the presence of two Cys and His residues, are potentially very attractive ligands for transition metal ions. The main aim of this work was to establish the impact of these two adjacent residues on Ni^{2+} ion binding, especially because this kind of motif is very common in nature, and the study of low molecular weight models could be helpful in understanding larger systems. In this work waglerin fragments and their N-protected analogues were studied with Ni^{2+} (and Cu^{2+} for peptides with disulfide bridges) ions using combined potentiometric and spectroscopic measurements (UV-Vis, CD, EPR and NMR). In all peptides, except PCHPPCHYIPR-NH_2 with a disulfide bridge, the Cys–His motif was found to be crucial for the coordination of Ni^{2+} ions. In the case of the N-unprotected analogues, the N-terminal amino group participates in the coordination as well.

Adres publiczny

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