

NMR studies on Cu(II)-peptide complexes: exchange kinetics and determination of structures in solution.

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The interaction of copper(II) with histidine containing peptides has recently acquired renewed interest following the established link between abnormal protein behaviour in neurodegenerative processes and unpaired copper homeostasis. Five peptide sequences taken from the amyloid precursor protein and the prion protein were considered. Addition of paramagnetic Cu(II) ions to solutions of such peptides was not found to severely affect the appearance of NMR spectra, thus limiting the usual approach for structural determination. Exchange kinetics was shown to play a major role in determining the observed paramagnetic spin-lattice relaxation rates. Two independent methods were suggested for evaluating the exchange rates of His-containing peptides from the copper-coordination sphere and to calculate copper-proton distances. In such a way NMR was demonstrated to have the potential of providing detailed structures of the Cu(II)-peptide complexes in solution

Adres publiczny

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