

Coordination properties of Cu(II) and Ni(II) ions towards the C-terminal peptide fragment-TYTEHA- of histone H4.

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In order to reveal more information about the toxicity caused by metals and furthermore their influence to the physiological metabolism of the cell, the hexapeptide model Ac-ThrTyrThrGluHisAla-am representing the C-terminal 71–76 fragment of histone H4 which lies into the nucleosome core, was synthesized. A combined pH-metric and spectroscopic UV-VIS, EPR, CD and NMR study of Ni(II) and Cu(II) binding to the blocked hexapeptide, revealed the formation of octahedral complexes involving imidazole nitrogen of histidine, at pH 5 and pH 7 for Cu(II) and Ni(II) ions respectively. In basic solutions a major square-planar 4 N Ni(II)-complex, adopting a {N_{lm}, 3N⁻} coordination mode, was formed. In the case of Cu(II) ions, a 3 N complex, involving the imidazole nitrogen of histidine and two deprotonated amide nitrogens of the backbone of the peptide, at pH 7 and a series of 4 N complexes starting at pH 6.5, were suggested. In addition Ni(II)-mediated hydrolysis of the peptide bond-Tyr-Thr was evident following our experimental data.

Adres publiczny

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