Copper(II) complexation by pituitary adenylate cyclase activating polypeptide fragments.

Autorzy

Teresa Kowalik-Jankowska

M. Jasionowski

L. Łankiewicz

Rok wydania

1999

Czasopismo

Journal of Inorganic Biochemistry

Numer woluminu

76

Strony

63-70

DOI

https://doi.org/10.1016/S0162-0134(99)00109-9

Kolekcja

Naukowa

Język

Angielski

Typ publikacji

Artykuł

Streszczenie

Results are reported from potentiometric and spectroscopic (UV–Vis, CD, and ESR) studies of the protonation constants and Cu^{2+} complex stability constants of pituitary adenylate cyclase activating polypeptide fragments (HSDGI–NH_2, TDSYS–NH_2, RKQMAVKKYLAAVL–NH_2). With HSDGI–NH_2, the formation of a dimeric complex $Cu_2H_{-2}L_2$ was found in the pH range 5–8, in which the coordination of copper(II) is glycylglycine-like, while the fourth coordination site is occupied by the imidazole N^3 nitrogen atom, forming a bridge between two copper(II) ions. The formation of dimeric species does not prevent the deprotonation and coordination of the amide nitrogen, and in pH above 8 the $CuH_{-2}L$ complex is formed. Aspartic acid in the third position of peptide sequence stabilizes the $CuH_{-2}L$ species and prevents the coordination of a fourth nitrogen donor. Aspartic acid residue in the second position of TDSYS–NH_2 stabilizes the CuL (2N) complex but does not prevent deprotonation and binding of the second and third peptide nitrogens to give 3N and 4N complexes at higher pH. The tetradecapeptide amide forms with copper(II) ions unusually stable 3N and 4N complexes compared to pentaalanine amide.

Słowa kluczowe

Stability constants, Copper(II) complexes, Pituitary adenylate cyclase activating polypeptide fragments, Histidine complexes

Adres publiczny

https://doi.org/10.1016/S0162-0134(99)00109-9

Strona internetowa wydawcy

http://www.elsevier.com