Uniwersytet Wrocławski

Repozytorium

Plik pochodzi z repozytorium Wydziału Chemii Uniwersytetu Wrocławskiego

Copper(II)-induced restructuring of ZnuD, a Zinc(II) transporter from *Neisseria meningitidis.*

Autorzy

Aleksandra Hecel

Magdalena Rowińska-Żyrek

Henryk Kozłowski

Rok wydania

2019

Czasopismo

Inorganic Chemistry

Numer woluminu

58

Strony

5932-5942

DOI

10.1021/acs.inorgchem.9b00265

Kolekcja

Naukowa

Język

Angielski

Typ publikacji

Artykuł

Streszczenie

Cluster 2 ($_{288}$HDDDNAHAHTH$_{298}$) from *Neisseria meningitidis* ZnuD is a flexible loop that captures zinc(II) ions, acting as a “fishing net”. We describe its Zn(II) and Cu(II) binding capabilities, focusing on the thermodynamics of such interactions and comparing them with the complexes of the $_{1}$MAHHHHHHL$_{9}$-NH$_{2}$ region. Copper(II) complexes with the studied ZnuD regions are thermodynamically more stable than the zinc(II) ones—Cu(II) complexes dominate in solution even in close to physiological ratios of the studied metal ions (a 10-fold excess of Zn(II) over Cu(II)). While the binding of native Zn(II) has no significant impact on the structure of its transporter, Cu(II) binding induces a conformational change of cluster 2 to a polyproline II-like helix. To the best of our knowledge, this is the first evidence of a copper(II)-induced formation of a polyproline II-like structure in a sequence that does not contain proline residues. Cu(II) coordination also changes the structure of an intracellular, N-terminal, His-rich region, folding it to an α helix.

Adres publiczny

http://dx.doi.org/10.1021/acs.inorgchem.9b00265

Strona internetowa wydawcy

https://www.acs.org/content/acs/en.html

Plik został wygenerowany dnia 2026-11-08 05:33:08

Adres w repozytorium https://old.chem.uni.wroc.pl/pl/repozytorium/tqo8908.