

Structural characterization of the intra- and inter-repeat copper binding modes within the N-terminal region of "prion related protein" (PrP-rel-2) of zebrafish.

Autorzy

Elena Gaggelli
Elżbieta Jankowska
Henryk Kozłowski
A. Marcinkowska
Caterina Migliorini
Paweł Stańczak
Daniela Valensin
Gianni Valensin

Rok wydania

2008

Czasopismo

Journal of Physical Chemistry
B

Numer woluminu

112

Strony

15140-15150

DOI

10.1021/jp804759q

Kolekcja

Naukowa

Język

Angielski

Streszczenie

The unique biology of prion proteins (PrPs) allied with the public-health risks posed by prion zoonoses, such as various animal neurodegenerations, has focused much attention on the molecular basis of the controls cross-species and on the similarities between PrPs from different species. Given the common feature of PrPs as Cu^{2+} binding proteins, it appears relevant to compare the impact of Cu^{2+} on the stability constants and structures of "physiological" complexes. After having comprehensively delineated the interaction of Cu^{2+} with mammalian and avian PrPs, the stabilities and molecular structures of species generated by Cu^{2+} interacting with the irregular repeated domain derived from *Danio rerio* zebrafish PrP-rel-2 were investigated. Copper complexes with different zebrafish PrP-rel-2 fragments were analyzed by potentiometric and spectroscopic techniques. The data were interpreted as to provide evidence of all investigated repeat units selectively binding Cu^{2+} via the His imidazole(s). The structural models obtained from paramagnetic NMR showed an intra- or inter-copper binding according to the number of the His in the sequence. In comparison to the mammalian and avian cases, the enzymatic function referred to SOD-like activity was shown to be rather faint in the fish PrPs cases.

Adres publiczny

<https://doi.org/10.1021/jp804759q>

Strona internetowa wydawcy

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

Typ publikacji

Artykuł

Plik został wygenerowany dnia 2026-05-08 05:47:44

Adres w repozytorium <https://old.chem.uni.wroc.pl/pl/repozytorium/VF9h5Fo>.