

## Probing the coordination environment of the human copper chaperone HAH1 : characterization of Hg<sup>II</sup>-bridged homodimeric species in solution.

### Autorzy

Marek Łuczkowski  
Brian A. Zeider  
Alia V. H. Hinz  
Monika Stachura  
Saumen Chakraborty  
Lars Hemmingsen  
David L. Huffman  
Vincent L. Pecoraro

### Rok wydania

2013

### Czasopismo

Chemistry-A European  
Journal

### Numer woluminu

19

### Strony

9042-9049

### DOI

10.1002/chem.201204184

### Kolekcja

Naukowa

### Język

Angielski

### Streszczenie

Although metal ion homeostasis in cells is often mediated through metallochaperones, there are opportunities for toxic metals to be sequestered through the existing transport apparatus. Proper trafficking of Cu(I) in human cells is partially achieved through complexation by HAH1, the human metallochaperone responsible for copper delivery to the Wilson and Menkes ATPase located in the trans-Golgi apparatus. In addition to binding copper, HAH1 strongly complexes Hg(II), with the X-ray structure of this complex previously described. It is important to clarify the solution behavior of these systems and, therefore, the binding of Hg(II) to HAH1 was probed over the pH range 7.5 to 9.4 using (199)Hg NMR, (199m)Hg PAC and UV-visible spectroscopies. The metal-dependent protein association over this pH range was examined using analytical gel-filtration. It can be concluded that at pH 7.5, Hg(II) is bound to a monomeric HAH1 as a two coordinate, linear complex (HgS<sub>2</sub>), like the Hg(II)-Atx1 X-ray structure (PDB ID: 1CC8). At pH 9.4, Hg(II) promotes HAH1 association, leading to formation of HgS<sub>3</sub> and HgS<sub>4</sub> complexes, which are in exchange on the μs-ns time scale. Thus, structures that may represent central intermediates in the process of metal ion transfer, as well as their exchange kinetics have been characterized.

### Słowa kluczowe

199mHg PAC, copper, mercury, metallochaperones, NMR spectroscopy

### Adres publiczny

<http://dx.doi.org/10.1002/chem.201204184>

### Strona internetowa wydawcy

[onlinelibrary.wiley.com](http://onlinelibrary.wiley.com)

## Artykuł

Plik został wygenerowany dnia 2026-08-27 10:36:43

Adres w repozytorium <https://old.chem.uni.wroc.pl/pl/repozytorium/46laCFM>.