

Copper(II)-binding induces a unique polyproline type II helical structure within the ion-binding segment in the intrinsically disordered F-domain of ecdysteroid receptor from *Aedes aegypti*.

Autorzy

Magdalena Rowińska-Żyrek

Anna Więch

Joanna Wątlą

Robert Wieczorek

Danuta Witkowska

Andrzej Ożyhar

Marek Orłowski

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Streszczenie

Reproduction of the dominant vector of Zika and dengue diseases, *Aedes aegypti* mosquito, is controlled by an active heterodimer complex composed of the 20-hydroxyecdysone receptor (EcR) and ultraspiracle protein. Although *A. aegypti* EcR shares the structural and functional organization with other nuclear receptors, its C-terminus has an additional long F domain (AaFEcR). Recently, we showed that the full length AaFEcR is intrinsically disordered with the ability to specifically bind divalent metal ions. Here, we describe the details of the exhaustive structural and thermodynamic properties of Zn^{2+} - and Cu^{2+} -complexes with the AaFEcR domain, based on peptide models of its two putative metal binding sites (Ac-HGPHPHPHG-NH₂ and Ac-QQLTPNQQQHQQHSQLQQVHANGS-NH₂). Unexpectedly, only in the presence of increasing concentrations of Cu^{2+} ions, the Ac-HGPHPHPHG-NH₂ peptide gained a metal ion-induced poly-L-proline type II helical structure, which is unique for members of the family of nuclear receptors.

Adres publiczny<http://dx.doi.org/10.1021/acs.inorgchem.9b01826>Strona internetowa wydawcy<https://www.acs.org/content/acs/en.html>

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