

Pneumococcal histidine triads – involved not only in Zn^{2+} , but also Ni^{2+} binding?

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Streszczenie

Polyhistidine triad proteins, which participate in Zn^{2+} uptake in *Streptococcus pneumoniae*, contain multiple copies of the HxxHxH (histidine triad motif) sequence. We focus on three such motifs from one of the most common and well-conserved polyhistidine triad proteins, PhtA, in order to understand their bioinorganic chemistry; particular focus is given to (i) understanding which of the PhtA triads binds Zn^{2+} with the highest affinity (and why) and (ii) explaining whether Ni^{2+} (also crucial for bacterial survival and virulence) could potentially outcompete Zn^{2+} at its native binding site. There is no significant difference in the stability of zinc(II) complexes with the three studied protein fragments, but one of the nickel(II)–polyhistidine triads is remarkably stable; we explain why and hypothesize about the biological importance of this finding.

Adres publiczny

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