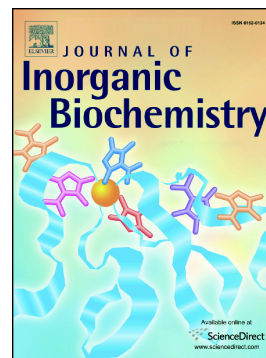


Accepted Manuscript

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PII: S0162-0134(18)30056-4
DOI: doi:[10.1016/j.jinorgbio.2018.05.018](https://doi.org/10.1016/j.jinorgbio.2018.05.018)
Reference: JIB 10508

To appear in: *Journal of Inorganic Biochemistry*

Received date: 29 January 2018
Revised date: 21 March 2018
Accepted date: 26 May 2018

Please cite this article as: Vibe Jakobsen, Livia Viganor, Alfonso Blanco-Fernández, Orla Howe, Michael Devereux, Christine J. McKenzie, Vickie McKee, Tetrameric and polymeric silver complexes of the omeprazole scaffold; Synthesis, structure, in vitro and in vivo antimicrobial activities and DNA interaction. *Jib* (2017), doi:[10.1016/j.jinorgbio.2018.05.018](https://doi.org/10.1016/j.jinorgbio.2018.05.018)

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Tetrameric and polymeric silver complexes of the omeprazole scaffold; synthesis, structure, *in vitro* and *in vivo* antimicrobial activities and DNA interaction

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Keywords: silver(I), omeprazole, antimicrobial, *Galleria mellonella*, flow cytometry.

Abstract

Two complexes $[\text{AgI}(\text{pmtbH})]_4$ (**1**) and $\{[\text{Ag}_4(\text{pmtbH})_4(\text{NO}_3)_4 \cdot 2\text{X}]_n\}$ (**2**) (where X is H₂O or MeOH) were synthesised and structurally characterised. Complex **2** showed therapeutic potential against *Candida Albicans*, *Escherichia Coli*, *Staphylococcus Aureus* and *Pseudomonas Aeruginosa* but complex **1** did not show significant activity *in vitro*. Further *in vivo* studies using larvae of the insect *Galleria mellonella* indicated that complex **2** significantly stimulates the immune system and that pre-treatment with the complex offers appreciable protection against all three bacteria. Real-time flow cytometry data support the observed antimicrobial profile of complex **2** and suggest the antimicrobial response may be linked to a form of bacterial programmed cell death (PCD). DNA interaction studies indicated DNA intercalation but not cleavage of plasmid DNA isolated from the three bacteria.

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