

Structural determination of an uncharacterized protein involved in zinc piracy by *Neisseria gonorrhoeae*

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Abstract

Neisseria gonorrhoeae causes one of the most common sexually transmitted disease called gonorrhea. Due to the emergence of antibiotic resistant strains of the bacteria, there is an urgent need to identify new bacterial targets for the treatment of gonorrhea. *N.gonorrhoeae* are Gram-negative bacteria that are highly efficient in subverting host nutritional immunity by hijacking metals such as zinc from the host metal-binding proteins. They accomplish this ‘metal piracy’ by using a transport system that consists of several proteins on their outer membrane. The structure and function of many of these membrane proteins have already been determined. However, there is an uncharacterized protein residing in the periplasmic space that is up-regulated in zinc-limiting conditions. The aim of this study was to provide an insight into the structure of this protein using X-ray crystallography and determine any conformational changes by mutating the putative metal binding residues.