Molecular details of host glycans recognition from *M. genitalium* and *M. pneumoniae* cytoadhesins

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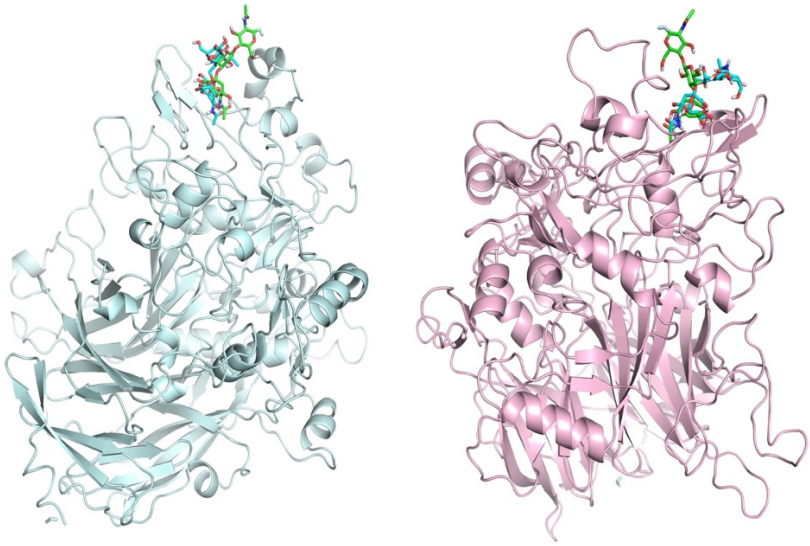
Mycoplasma pneumoniae (*Mpn*) and *Mycoplasma genitalium* (*Mge*) are two closely related human pathogens associated with respiratory tract and urogenital infections, respectively. *Mpn* is responsible for up to 40% of community-acquired pneumonias in persons of all ages [1]; *Mge* is instead implicated in several urogenital pathologies such as urethritis in men and cervicitis and pelvic inflammatory disease in women [2]. Additionally, this sexually transmitted bacterium has been associated with preterm birth, spontaneous abortion and HIV acquisition. Both pathogens express cytoadhesins that mediate the attachment to host sialylated glycans, favoring the bacterial infection. Remarkably, in contrast to other important respiratory pathogens, a vaccine for *Mpn* is not yet available. Moreover, the rapid emergence of antibiotic resistance documented for both patoghens, Mpn and Mge, emphasizes the urgency for the development of alternative therapeutic strategies [3]. In this perspective, a deep knowledge of the molecular details of host glycans recognition by bacterial cytoadhesins is strongly needed. Thus, in this project, we used NMR techniques [4] and computational methods to establish the molecular basis for sialoglycans recognition and ligand specificity of both Mpn and Mge cytoadhesins. The information obtained provided the 3D features of the complexes, determining the preferred epitopes recognized by each cytoadhesin and could be used to identify competitive binding inhibitors



3D complexes of ctytoadhesins from Mpn (left) and from Mge (right) interacting with host sialylated glycans (3'SLN in green and 6'SLN in cyan).

Bibliographic references:

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