

INVITED SPEAKER

**THE MYCOPLASMA SURFACE PROTEINS MIB AND MIP: AN ANTIBODY
DEGRADING DEVICE.**

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Mycoplasma immunoglobulin binding (MIB) and mycoplasma immunoglobulin protease (MIP) are surface proteins found in the majority of mycoplasma species, acting sequentially to capture antibodies and cleave off their VH domains. Cryo-electron microscopy structures show how MIB and MIP bind to a Fab fragment in a "hug of death" mechanism. As a result, the orientation of the VL and VH domains is twisted out of alignment, disrupting the antigen binding site. We also show that MIB-MIP has the ability to promote the dissociation of the antibody-antigen complex. This system is functional in cells and protects mycoplasmas from antibody-mediated agglutination. These results highlight the key role of the MIB-MIP system in immunity evasion by mycoplasmas through an unprecedented mechanism, and open exciting perspectives to use these proteins as potential tools in the antibody field.