



Purification of Protein Antigens from *Shigella*

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Shigella flexneri as an infectious disease agent

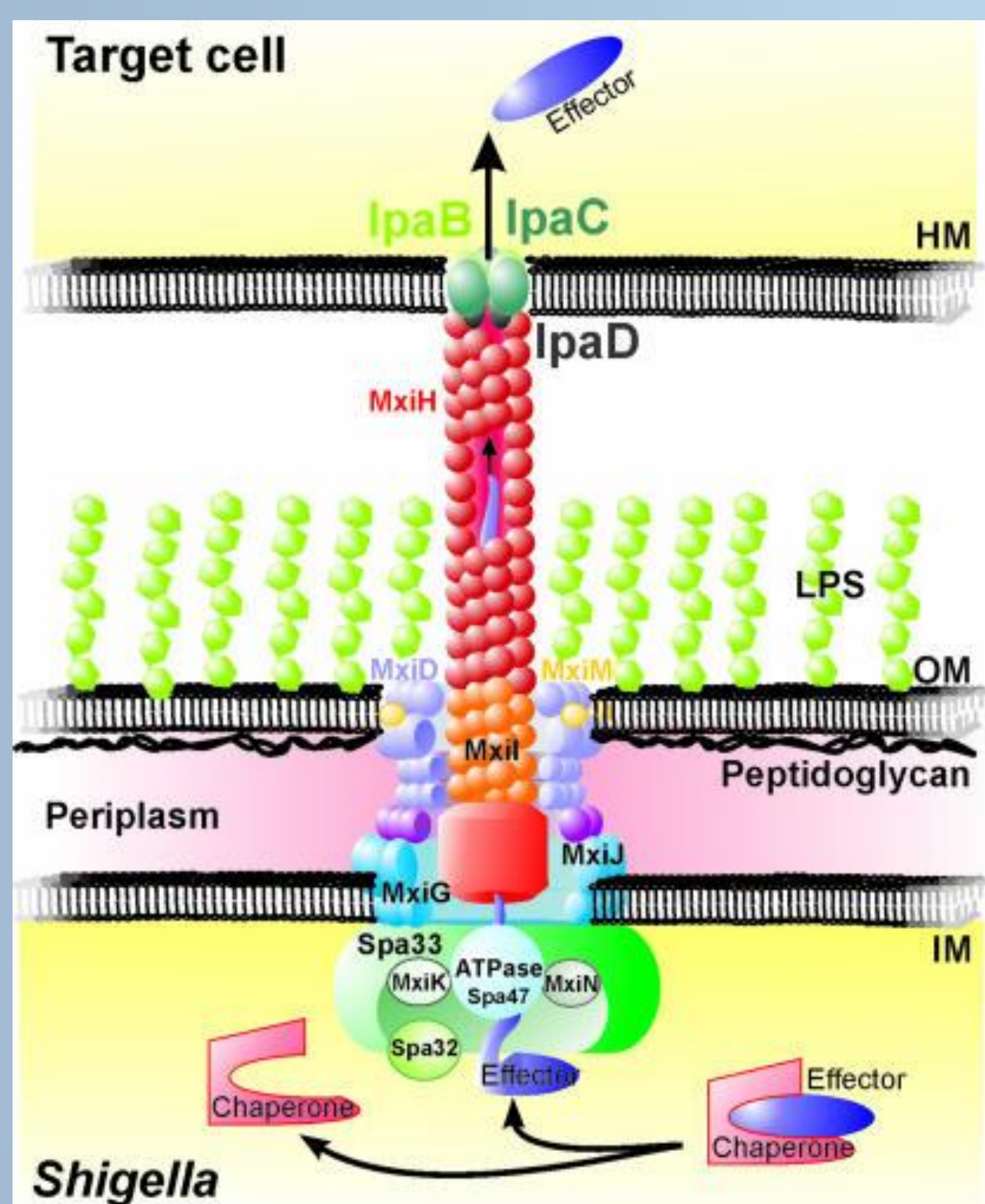
- ◆ Gram negative member of the Enterobacteriaceae (located in the digestive tract)
- ◆ Causative agent of shigellosis (bacillary dysentery)
- ◆ Low infectious dose
- ◆ Invades cells and tissues of the colonic epithelium
 - ◆ Invades and kills macrophages
 - ◆ Invades and replicates in epithelial cells
- ◆ High morbidity in developing world
 - ◆ Relatively high mortality among young children due to fluid loss (dysentery)

Shigella causes disease by invading cells of the colonic epithelium



Schroeder and Hilbi, 2008, Clin. Microbiol. Rev. 21:134

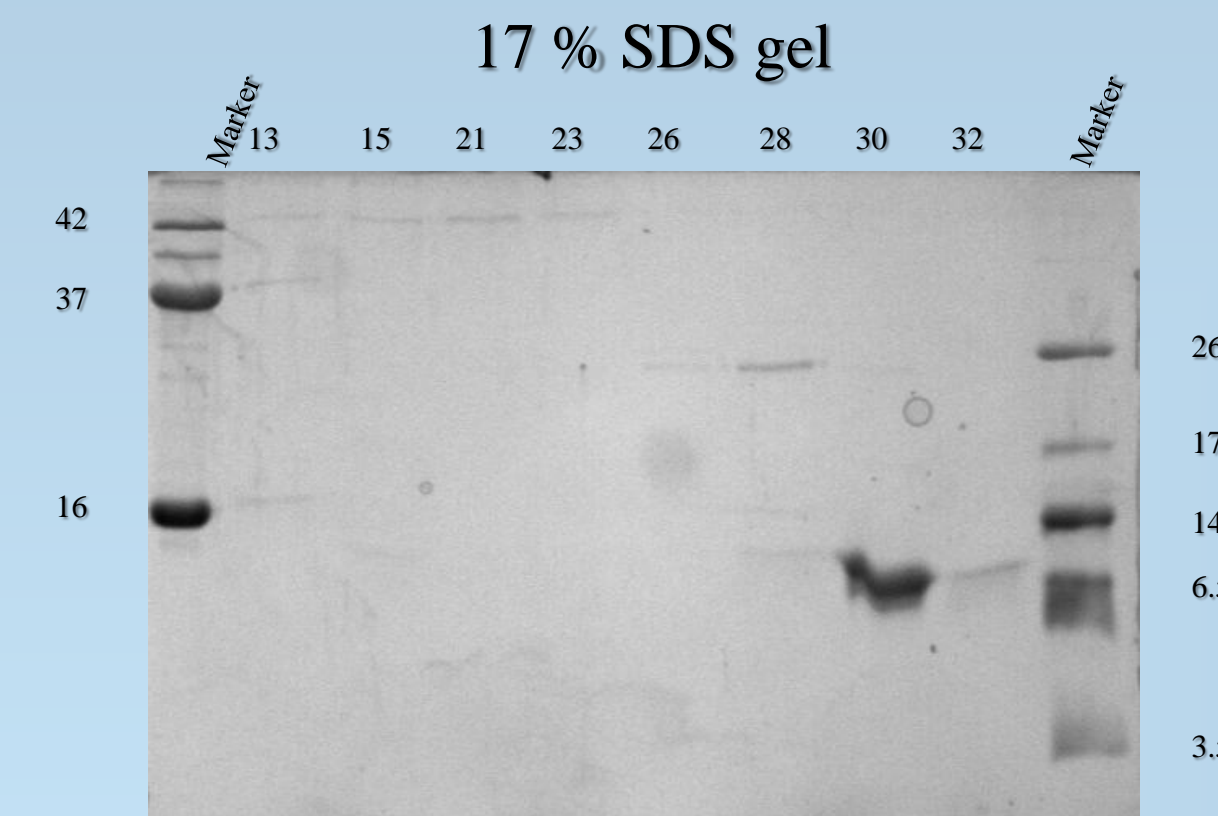
Cellular invasion requires a functional type III secretion system



Consists of a basal body that spans two bacterial membranes and an external needle that makes contact with the host cell to deliver the translocator proteins (IpaB, IpaC and IpaD) and effectors.

Schroeder and Hilbi, 2008, Clin. Microbiol. Rev. 21:134

Purification of the needle protein



Purified Invasion plasmid antigen D (IpaD)

DISCUSSION

Purified proteins from the *Shigella* type III secretion system apparatus components located on the bacterial surface make attractive targets for directed vaccination. Purification of these components marks a first step in creating these vaccines.

FUTURE PLANS

MxiH has been purified and is now ready for testing as a vaccine component

IpaD has been purified and is now ready for testing as a vaccine component

Structures are known for both proteins which will help in their formulation (stabilization)