

**Genes specific to disseminated gonococcal infection isolates**

*Neisseria gonorrhoeae* is a gram-negative bacterium and strictly human pathogen. It is the sole causative agent of the sexually transmitted disease called gonorrhea. In addition to this local infection (LI), gonococcal strains can cause pelvic inflammatory disease (PID) and disseminated gonococcal infection (DGI). Iron is essential for gonococcal growth and metabolism. Gonococci synthesize multiple outer membrane proteins for binding and uptake of iron and iron-binding molecules, LbpA and LbpB, that act as receptors for the including lactoferrin binding proteins LbpA and LbpB and transferrin binding proteins TbpA and TbpB. During a genotyping project in the lab, it was observed that several DGI isolates contained an insertion between the –35 sequence of the *lbpB* promoter and the *lbpB* coding sequence. Also, the genome sequence of a DGI strain (FA1090) shows a deletion of *lbpB* and part of *lbpA*. These results suggested that a common characteristic of DGI strains might be lack of *lbpBA* expression and lack of lactoferrin utilization. To test this hypothesis, we tested numerous strains for insertion or deletion at *lbpB*. We found that 67% of the DGI strains have an insertion at the *lbpB* promoter region, whereas the insertion is only found in 9% of LI strains. We found three different sizes of insertions in these DGI strains. To find out the differences between these insertions, two primers were designed in the insertion region. We sequenced two DGI strains and noticed a 103 bp direct repeat in the insertion sequence of one strain. This strain also has a frameshift mutation that results in the synthesis of a nonfunctional LbpB protein. Because DGI strains may obtain iron from transferrin, and not lactoferrin, loss of LbpB can represent an advantage for gonococci in avoiding an immune response from the host. We are currently constructing reporter constructs to determine if the insertions upstream of *lbpB* affect *lbpBA* transcription.