

Researchers identify novel pathway responsible for infection of a common STD pathogen

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Researchers from Boston University School of Medicine (BUSM) have for the first time identified a novel pathway that is necessary for infection to occur with the pathogen *Neisseria gonorrhoeae*, which is responsible for the second most common infectious disease worldwide, gonorrhea. The study, which was recently published online in the *Journal of Bacteriology*, may lead to new treatment methods for this sexually transmitted disease.

N. gonorrhoeae is a [pathogenic bacterium](#) that readily develops resistance to antibiotics such as sulfanilamides, penicillins, tetracyclines and fluoroquinolones. It has recently been reported that *N. gonorrhoeae* is becoming resistant to cephalosporins, which are the only treatment option recommended by the [Centers for Disease Control and Prevention](#) (CDC). Today, new therapeutic methods other than antibiotics are in great need to treat these infections.

According to the BUSM researchers, understanding the process of how *N. gonorrhoeae* causes disease in both men and women is essential for the design of new targets to block the infection. "The first step in the disease gonorrhea is the colonization of bacteria on human mucosal surfaces, such as the vaginal and penile mucosa," explained senior author Caroline Genco, PhD, professor of medicine and microbiology and director of research in [infectious diseases](#) at BUSM.

In this study, Genco and her colleagues identified a novel pathway that is critical for colonization of this bacterium on host mucosal surface. The key of this pathway is a single protein, designated as Fur, the ferric uptake [regulatory protein](#), which controls the expression of hundreds of *N. gonorrhoeae* genes by either increasing or decreasing the expression of these genes.

The study found that genes whose expression is increased by Fur may play a critical role in the prevention of disease development by triggering the host immune system to recognize and clear the bacterium.

"These pivotal studies provide new candidates that can be targeted for therapeutic intervention in this common sexually transmitted disease," she added.

Provided by Boston University Medical Center

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