

Update on the Road to a Vaccine Against Canine Pyometra

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Pyometra is a serious and potentially fatal uterine infection predominantly affecting intact female dogs, particularly those that are middle-aged or older. Characterized by the buildup of pus within the uterine cavity (Smith, 2006), this condition is both common and potentially life-threatening. The standard treatment is still often ovariohysterectomy, involving surgical removal of the uterus and ovaries. However, this procedure is not without risk, especially considering that pyometra can compromise multiple organ systems, including the liver and kidneys, thereby increasing surgical and anaesthetic complications. Furthermore, surgical intervention eliminates the animal's reproductive potential. Although medical therapies offer a non-surgical alternative, they are often associated with a risk of recurrence during future oestrous cycles. Therefore, the development of a vaccine that could prevent the onset of pyometra while maintaining fertility would be highly advantageous. Our research has been focusing on targeting the bacterial iron acquisition mechanism. We propose that disabling specific virulence genes may induce overexpression of certain immunogenic proteins, thereby triggering a robust antibody response in the host.

In previous studies the vaccine candidates have been tested in a murine model. Intravaginal and subcutaneous administration of various vaccine candidates resulted in systemic antibody production. Intranasal application is currently being studied. Recent findings will be presented.

References

Smith FO. Canine Pyometra. *Theriogenology* 2006;66:610–612.