

THE INNATE IMMUNE RESPONSE AND TOLL-LIKE RECEPTORS
IN THE HUMAN ENDOMETRIUM

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ABSTRACT

This study examines TLR3 in mucosal immune responses in the human reproductive tract. TLR3 expression in endometrial epithelium could be significant as the reproductive tract is a major site for viral pathogen infection. Additionally, stimulation of TLR3 could alter cytokine production and lead to endometrial dysfunction, since the cytokine milieu is essential for normal endometrial functions. We demonstrated uterine cycle-dependent TLR3 expression in endometrial epithelium. We established that stimulation with dsRNA induces TLR3-dependent proinflammatory and antiviral responses and production of natural antimicrobial defensin peptides. These results suggest that TLR3 mediates innate antiviral immune responses in the endometrial epithelium and can potentially alter the cytokine milieu, influencing the outcomes and consequences of viral infection. This research suggests that TLR3 ligands may be utilized in developing treatments and vaccines against viral pathogens of the reproductive tract and identifies possible targets for treatment of endometrial dysfunctions such as endometriosis, infertility, and spontaneous abortion.