

# Immune overreaction may enable recurrent urinary tract infections

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The immune system may help open the door to recurrent urinary tract infections (UTIs) by overdoing its response to an initial infection, report researchers at Washington University School of Medicine in St. Louis. The findings appear August 12 in the open-access journal *PLoS Pathogens*.

Using a [mouse model](#), the researchers demonstrated that severe inflammatory responses to an initial UTI cause bladder damage and allow [infection](#) to persist longer. In support of this, they found that immunodeficient mice lacking these acute inflammatory responses were protected from chronic bladder infection. Finally, they demonstrated that mice with a history of chronic bladder infection that was subsequently cleared with [antibiotic treatment](#) develop persistent immune cell infiltrations within the bladder wall, and these mice are highly susceptible to further UTI.

"We found markers in the mice that may one day help us identify patients vulnerable to recurrent infection and refine our treatment strategies," says lead author Thomas J. Hannan, DVM, PhD. "There were infection-fighting elements in the responses of some mice that we might, for example, be able to promote through vaccines for these patients."

UTIs affect millions of people each year, the authors note. Although antibiotic therapy has historically been helpful, [antibiotic resistance](#) is a rapidly increasing concern, according to Scott Hultgren, PhD, director of

the Center for Women's Infectious Diseases Research, where the experiments were conducted.

"Women and infants are at greatest risk for having a UTI, and chronic and recurrent infections are common," says Hultgren. "UTIs are estimated to cause around \$1.6 billion in medical expenses every year in the United States."

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