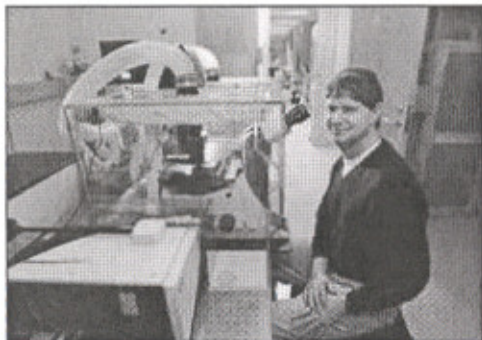


Article published March 31, 2008

## UT expands research of Lyme disease



Mark Wooten, an assistant professor at the University of Toledo, will seek better answers for treating Lyme disease.

( THE BLADE/AMY E. VOIGT )

 Zoom | Photo Reprints

By **MEGHAN GILBERT**  
**BLADE STAFF WRITER**

Lyme disease is a sneaky illness.

After a bite from an infected tick, which you might not even notice, the bacteria that causes the disease - *Borrelia burgdorferi* - hides out, unnoticed by your immune system.

But when it surfaces later, the immune system picks up on it and attacks, causing inflammation and other problems.

### WHAT IT IS

- Caused by the bacteria *Borrelia burgdorferi*, Lyme disease is transferred to humans by infected ticks.
- A bulls-eye rash can accompany a tick bite, and symptoms are similar to the common cold.
- Most cases can be treated with antibiotics. If left untreated, the infection can spread to the joints, heart, and nervous system.

*Source: Centers for Disease Control and Prevention*

Research at the University of Toledo medical school, the former Medical College of Ohio, is being undertaken to expose the bacteria's tricks for more accurate diagnosis and treatment of the disease. More than 20,000 cases are reported each year, with others likely going undiagnosed.

Mark Wooten, an assistant professor of medical microbiology and immunology at UT, has recently received

four grants totaling nearly \$3 million over four years for his studies.

"It's one of those bugs that's been hard to study," Mr. Wooten said. "We're getting answers that aren't correct."

The traditional way of studying the disease in a test tube is inaccurate because the bacteria do not act the way they do in animals. So to get better information, researchers need to study the actual animal carriers of the disease, such as mice.

With a high-tech multiphoton microscope on the health science campus acquired two years ago, researchers can get three-dimensional images and follow the progression of Lyme disease. By looking at a mouse under anesthesia with the microscope, researchers can track the infection. That's made easier by the way the mice are engineered - bacteria glow red and immune cells glow green.

If the researchers can see how the bacteria can evade the first line of defense in the skin and why and how the bacteria show up sometimes months later after hiding out in human tissue, they can come up with better ways to treat the illness, Mr. Wooten said.

When Lyme disease is diagnosed early, which usually happens when the person notices a bulls-eye rash around a tick bite, it is easily and inexpensively treated. It's when the disease goes unnoticed until a person starts having problems with swelling in joints, heart, or brain that it can become a serious degenerative illness.

The about \$2.8 million in grants Mr. Wooten received, two from private institutions and two from the National Institutes of Health, are essential for taking a closer look at Lyme disease.

In a climate where grants are increasingly competitive, two things helped put Mr. Wooten in good shape to get the funding - the access to technologically advanced equipment and a peer review system to perfect the grant-writing process.

Until about three years ago, one out of three or four grant requests to NIH were funded. Now that figure is closer to one in 10, said Akira Takashima, chair of UT's medical microbiology and immunology department.

"You have to be so lucky or you should be so good," he said.

Being recognized as qualified to do this type of research and the implications for what it could lead to, such as more effective antibiotics or even vaccines, really puts UT on the map, Mr. Takashima said.

"Somehow people believe two plus two is four. No. Really it can be two plus two can be 20," he said. "You can find the unexpected or striking."

Contact Meghan Gilbert at:  
mgilbert@theblade.com  
or 419-724-6134.