



**Uniformed Services University**

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## **USU Researcher Shares \$12.2 Million to Study *Chlamydia trachomatis***

What may be the most comprehensive study of the sexually transmitted bacterium *Chlamydia trachomatis* is now underway, thanks to a \$12.2 million grant from the National Institute of Allergy and Infectious Diseases (NIAID) of the National Institutes of Health. The multi-institutional five-year study will perform molecular genomics analyses of the disease-causing powers of *Chlamydia* on a scale never before attempted. Anthony T. Maurelli, Ph.D., department of Microbiology and Immunology of the F. Edward Hébert School of Medicine at the Uniformed Services University of the Health Sciences, along with Patrik Bavoil, Ph.D. and Jacques Ravel, Ph.D., both at the University of Maryland, Baltimore (UMB), will lead the study.

Using precise genome mapping of changes, researchers hope to define what happens to the bacteria as they interact with other microbes within their natural environment. The scientific team includes clinical experts in sexually transmitted diseases and specialists in biostatistics and bioinformatics data analysis.

In 2007, *Chlamydia* passed gonorrhea to become the leading sexually transmitted bacterial infection in the U.S. with more than one million cases reported according to the Centers for Disease Control and Prevention. While treatable with antibiotics, as many as 40 percent of infected women go untreated and develop pelvic inflammatory disease (PID). One in five women with PID become infertile, although this figure may be greatly under-estimated since many people with chlamydia are not aware of their infections and do not seek testing and treatment.

Dr. Maurelli's lab will study models of emergence for antibiotic resistance in *Chlamydia*, looking for antibiotic resistance in natural populations of infected individuals, especially immune-compromised patients. The team also will characterize the biochemical and genetic components of essential biosynthetic and metabolic pathways of *Chlamydia*, which have very limited biosynthetic capabilities and can only grow inside a host eukaryotic (e.g. human) cell. Therefore, identifying how the bacterium makes the vital compounds it cannot obtain from the host may lead to new therapeutic approaches to the prevention and treatment of *Chlamydia* infections.

Located on the grounds of Bethesda's National Naval Medical Center and across from the National Institutes of Health, USU is the nation's federal school of medicine and graduate school of nursing. The University educates health care professionals dedicated to career service in the Department of Defense and the U.S. Public Health Service. Medical students are active-duty uniformed officers in the Army, Navy, Air Force and Public Health Service who are being educated to deal with wartime casualties, natural disasters, emerging infectious diseases, and other public health emergencies. Of the University's nearly 4,400 physician alumni and more than 400 advanced practice nurses, the vast majority serve on active duty and are supporting operations in Iraq, Afghanistan, and elsewhere, offering their leadership and expertise. The University also has graduate programs open to civilian and military applicants in biomedical sciences and public health committed to excellence in the didactic and research training which have awarded more than 300 Ph.D. and 100 M.S. degrees to date.

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