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News Release

USU, NJMS, and USDA Researchers Perform Breakthrough Research on Protective Immune Response Against Nematode Parasites

BETHESDA, Md. – Researchers at the Uniformed Services University of the Health Sciences (USU), The New Jersey Medical School (NJMS), and the U.S. Department of Agriculture (USDA) have discovered a mechanism that provides natural protection against intestinal roundworm infections, which affect more than 1.4 billion people throughout the world, and which may lead to more effective therapies against nematode parasites.

The breakthrough research in host protection against nematode parasites was published in the August 2006 issue of the prestigious journal, *Nature Medicine*. The National Institutes of Health funded research was conducted at USU and NJMS by Robert M. Anthony, while a Ph.D. graduate student in USU's Molecular and Cell Biology (MCB) program, under the supervision of the principal investigator, Dr. William Gause. Dr. Joseph Urban, USDA, also collaborated on this project.

Until now, scientists have been unable to determine how the immune system mounts an effective response against tissue dwelling helminthic parasites. The findings of Drs. Anthony, Gause, and co-workers suggest a new model of resistance, involving macrophages. Macrophages have previously been associated primarily with protection against microbes, including bacteria and viruses. The studies reported in *Nature Medicine* indicate that during helminth infection, macrophages differentiate along an alternative activation pathway that mediates clearance of these relatively large, multicellular parasites.

Dr. Gause, formerly professor and vice chair of the Department of Microbiology and Immunology at USU, is currently university professor and senior associate dean for research at the University of Medicine and Dentistry of New Jersey-NJMS. Dr. Anthony, whose doctoral dissertation is based on this work, is now a postdoctoral fellow at Rockefeller University. Dr. Gause said that this research shows us that macrophages mediate clearance of these parasites and this insight may lead to more effective treatments of this important group of pathogens.

Established by the U.S. Congress in 1972, the Uniformed Services University of the Health Sciences (www.usuhs.mil) is located on the campus of the National Naval Medical Center in Bethesda, Md., and is the nation's only federal school of medicine, including a graduate program in the biomedical sciences and graduate school of nursing.

For more information, call (301) 295-9475.