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Release No.08-08-38

Aug. 11, 2008

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## News Release

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### **USU Scientists Characterize Immune Response, Inflammatory Gene in VEEV**

**BETHESDA, Md.** —A collaborative team of scientists from the Uniformed Services University of the Health Sciences (USU) and the Tumor Vaccines and Biotechnology Branch, Division of Cellular and Gene Therapies, Center for Biologics Evaluation and Research, Food and Drug Administration have characterized the immune response and inflammatory gene response in **Venezuelan equine encephalitis virus (VEEV)**.

In an article published in the June 16 edition of the *BMC Genomics* 2008, Drs. Radha Maheshwari, Professor of Pathology and Anuj Sharma at USU, along with collaborators Drs. Raj Puri and Bhaskar Bhattacharya, reported the findings regarding the comprehensive gene expression changes that occur during VEEV infection of the brain. We have identified several genes *e.g.*, chemokines, *Oas1b*, *Fcerg1*, *Mif* and *Clu* which may provide potential targets for therapy against VEEV infection in the future. VEEV have been identified as an emerging infectious disease and have been developed as a bio-warfare agent and may be a potential biological terror agent.

VEEV was first isolated in 1938 from the brain of the infected equines and has caused regular outbreak of disease at five to ten years interval. One of the largest outbreaks of 1960s caused over 200,000 human infections and about 100,000 equine mortalities in Central Colombia. In 1995 over 75,000 to 100,000 human cases of VEEV infection were reported with more than 20 fatalities from all age groups. The actual death number remains unknown but human mortality rate was ~0.5%. There is no specific therapy for the treatment of VEEV infection or *togaviruses* as such and there is currently no FDA approved vaccine for VEEV prophylaxis. The current experimental vaccines which is under investigational new drug status, has limited use due to non-responders and residual virulence.

The current study, supported by grants from the US Army Medical Research and Material Command and Defense Threat Reduction Agency, has important implications towards identifying therapeutic targets for treatment of VEEV infection.

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.

*Learning to Care for Those in Harm's Way*

The university educates health care professionals dedicated to career service in the Department of Defense and the U.S. Public Health Service. 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, national disasters, emerging infectious diseases, and other public health emergencies. Of the university's more than 4,000 physician alumni, the vast majority serve on active duty and are supporting operations in Iraq, Afghanistan, and elsewhere, offering their leadership and expertise.

For more information, contact the Office of External Affairs at 301-295-1219.