



# Dr. Brian Gowen

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**Location: Merrill-Cazier Library room 154**  
**April 9, 2009 from 3:30 – 4:30 PM**

## ***“Viral Hemorrhagic Fever: Pathogenesis, Host Response, and Experimental Therapies”***

Viral hemorrhagic fever (VHF) is a severe disease characterized by acute fever, malaise, vascular leakage, and coagulopathy. The etiological agents are a group of single-stranded RNA viruses from the *Arenaviridae*, *Bunyaviridae*, *Filoviridae*, and *Flaviviridae* virus families. In addition to the occurrence of natural outbreaks, these viruses pose a threat to national security as potential bioterror agents. Currently, there are no FDA-approved antiviral therapies for the treatment of VHF, and the single approved vaccine that exists for yellow fever has had a recent increase in adverse events, raising questions regarding its safety. The main focus of my laboratory is to develop therapeutic and prophylactic countermeasures against arenaviral and phleboviral hemorrhagic fever agents. In addition to traditional antivirals that interfere with the viral life cycle and are essential to controlling viral burden, we are also interested in strategies that control host inflicted damage induced by infection. Although much has been learned in recent years, the specific mechanisms by which arenaviruses and phleboviruses cause disease are not clearly understood. The current paradigm is that infection leads to an exaggerated proinflammatory response that triggers a shift to a procoagulant state and vascular instability, ultimately leading to hypovolemic shock and multi-organ collapse. To this end, effective control of viral hemorrhagic fever will most likely involve a combination of an antiviral drug that inhibits infection, replication, or egress, and an agent that can effectively subdue the host driven disease processes evoked by infection. Data will be presented on our efforts to gain a better understanding of how arenaviruses and phleboviruses cause disease, and on recent advances in the development of experimental therapies to treat severe disease caused by these viruses.

**Refreshments will follow in the Biotechnology Building Lobby**

Seminar