

# Community Update

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## Staying in Touch

Welcome to the spring 2011 edition of our Galveston National Laboratory (GNL) Community Update. Members who attended the quarterly Community Advisory Board meeting on April 20, 2011, received updates on research work at UTMB, as well as institutional updates on campus construction/building plans and legislative items of interest. Thanks to all who attended. As always, if you have any questions or ideas on something you would like to see highlighted in future editions of this e-newsletter, please let us know.

### EMERGING STARS IN INFECTIOUS DISEASE RESEARCH

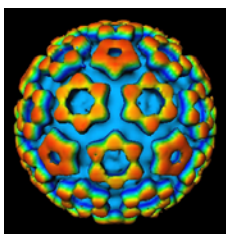
In each e-newsletter we highlight some of the important research ongoing at UTMB. In this edition we'd like to introduce you to one of our researchers in the field of infectious diseases. Elizabeth A. Fritz, PhD, is an assistant professor in the Department of Microbiology & Immunology. Inside the GNL BSL4 lab, Dr. Fritz is working closely with Dr. Thomas W. Geisbert on research related to the development and testing of vaccines and treatments against emerging infectious diseases such as Ebola, Marburg, Lassa, Nipah and Hendra. Dr. Fritz' primary interests are studying how these diseases function at the cellular level, with the goal of understanding how bodies respond, and identifying better means to aid in the diagnosis and/or treatment.

Ebola and Marburg are hemorrhagic diseases that affect humans and nonhuman primates with mortality rates of approximately 50-90% and 20-80%, respectively. Currently, there are no licensed vaccines or effective treatments for Ebola, Marburg or Lassa virus. Dr. Fritz is focusing her research efforts on understanding the immune response to these highly dangerous pathogens. This response is the initial line of defense against infection in the body. Dr. Fritz has shown that certain white blood cells positive for a specific Marburg protein antigen had decreased in infected animals. A decline in the "natural killer lymphocyte" – or NK – cell population was also observed in Marburg-infected animals. In a similar study, Dr. Fritz and her colleagues showed that Ebola infection of animals resulted in an early depletion of these NK cells. Research like this could provide valuable insight into the means by which these viruses infect and spread in and amongst humans and animals, ultimately leading to better treatments and possible cures.



Elizabeth A. Fritz, PhD

### GNL FACILITY AND RESEARCH UPDATE



All of the GNL laboratories are now fully commissioned and open for business, and spaces that were last to come into use are being populated with research. For the next few months, the GNL team will concentrate on refining and finalizing room-specific operational manuals, standard operating procedures and protocols for these remaining laboratories. These initial items, along with proper staff training, are essential components for safe laboratory operation. We are also focusing on setting up specialized pieces of research equipment for essential tasks such as imaging and microscopy. One such piece of equipment, a confocal microscope, will be available for use in our BSL3 laboratory. A confocal microscope provides superior resolution of specific details in specimens, compared to traditional microscopes. When preparing a specimen for viewing with a confocal microscope, scientists stain cells with special dyes that attach only to certain components of the cell.

When light of a specific wavelength shines on the dyed sample, scientists can distinguish unique components of the specimen via a crisp, clear image. The microscope can also illuminate one point in a specimen at a time, allowing for the formation of 3-D images to enable clearer and closer study of specific cells. This type of sophisticated equipment is not common in a BSL3 environment. Hence, the GNL will have specialized capabilities to make local discoveries that will have a global impact.

## GNL HOSTS SECOND SUCCESSFUL TOPICS IN BIOSECURITY SESSION

Biosecurity, especially as it regards select agent research, continues to be hotly debated within the federal government. This debate will ultimately result in updated federal regulations and guidelines that will impact U.S. research and the lives of future scientists in the infectious disease research field like those at UTMB.



*Drs. Kenneth Bernard (left) and Robert Kadlec (right) were the guest speakers for Session II of the GNL's "Topics in Biosecurity" symposia series.*

To contribute to the national dialogue on this topic, earlier this year the GNL hosted the second session in its Topics in Biosecurity Symposia Series. These informative and interactive sessions seek to connect infectious diseases students, staff, faculty, and the Galveston community, with the biosecurity field's foremost opinion leaders. On Feb. 28, 2011 the GNL and the National Biocontainment Training Center (NBTC) hosted special guests Kenneth Bernard, MD and Robert Kadlec, MD who shared their insight from their years of experience working in and with the White House to advance federal biosecurity policies. Discussion concentrated on the national and international challenges facing U.S. Select Agent Program development, implementation and oversight, and on how researchers can get involved in the debate.

The guest speakers and date for Session III in the series, planned for late summer/early fall, will be announced soon!

## NIAID BIOCONTAINMENT LABS FROM ACROSS THE COUNTRY CONVERGE ON UTMB

On April 10-12, 2011, the GNL hosted the third annual meeting of the National Institutes of Allergy and Infectious Diseases (NIAID) biocontainment laboratory network. This group, dubbed the National Biocontainment Lab – Regional Biocontainment Lab or NBL-RBL Network, meets yearly in support of its goal of working together to accomplish NIAID's mission to discover new vaccines, and treatments, and test for the world's deadliest diseases.

The GNL hosted more than 80 attendees representing 14 universities, including Duke University, University of Colorado, University of Pittsburgh and others. During the meeting, attendees collaborated on issues affecting their labs' research needs as well as those of the industry at large. The GNL also offered "hands-on" demonstrations of laboratory mechanics and processes for lab maintenance and engineering staff as part of its safety training efforts through the National Biocontainment Training Center.



*Fourteen biocontainment lab engineers from across the country participated in "on the job" training at the GNL following the NBL-RBL annual meeting.*

## FIRST ANNUAL IHII RETREAT HELD

On April 28-29, 2011, UTMB's Institute for Human Infections and Immunity (IHII) held a retreat on campus to maximize collaborative and interdisciplinary research, identify gaps in our research portfolio, and take advantage of new opportunities and funding trends. More than 80 IHII faculty members attended. The retreat began on Thursday evening with a keynote address by Dr. Carole Heilman, Director of the Division of Microbiology and Infectious Diseases of the NIH National Institute for Allergy and Infectious Diseases. The Friday morning agenda included poster presentations by most IHII research groups along with plenary lectures focused on three strategic themes: 1) Proteomics for studying human-pathogen interactions; 2) New imaging technologies for infectious disease and immunology research, and; 3) International research on tropical and emerging infectious diseases and epidemiology. Following a lunch for IHII faculty members, breakout sessions were held to discuss opportunities and strategies for each of the strategic theme topics.



*IHII director Dr. Scott Weaver thanks Dr. Heilman for her participation in the first annual IHII Retreat.*

## CAMPUS UPDATE

The UTMB campus is a veritable hive of activity. More than half of our hurricane-damaged space (which totaled 1 million square feet) has been returned to permanent function. About 1,600 construction workers are on site, busy with everything from modernizing John Sealy Hospital and the patient garage adjoining our campus-based clinics to replacing elevators and upgrading a vast network of heating, cooling and electrical systems. Design development plans for a new Clinical Services Wing and the proposed Jennie Sealy Replacement Hospital are proceeding on schedule. Efforts to restore Old Red—the very heart of the institution—are also on track, with the goal of having the amphitheater back in service when a new crop of students arrives in the fall.

In other news, be sure to follow UTMB's Office of Health Policy and Legislative Affairs updates from the 82<sup>nd</sup> session of the Texas Legislature. Click here for the latest news and legislative analysis from Dr. Ben Raimer on "[Ben's Blog](#)."

## SPEAKER REQUESTS

Do you know of a local civic or educational group that might enjoy hearing from one of UTMB's infectious disease researchers? From tips on fighting the flu to the complexities of biocontainment research, our team is engaged in groundbreaking research across a variety of areas and we are happy to share that work with you. We can assemble guest speakers and presentations for any age group. Send a speaker request via [www.utmb.edu/gnl/contact](http://www.utmb.edu/gnl/contact).



*In early May, members of the UTMB team were invited to share news of the GNL with Johnson Space Center's Safety Action Team. Pictured at JSC (l to r) are NASA's Dr. Duane Pierson, Dr. Joan Nichols and Dee Zimmerman of UTMB, and NASA's Carl Martin.*

## Upcoming Community Advisory Board Meeting Notice

Please plan to join us for the next CAB meeting on **Wednesday, Aug. 24, 2011, from 8 a.m.–10 a.m.** in the Caduceus Room, located on the sixth floor of the UTMB Administration Building. An email reminder will be sent out prior to the meeting.