

**Title:**

The New England Regional Biosafety Laboratory – A Regional BSL3 Facility at TCSVM

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**Abstract:**

The New England Regional Biosafety Laboratory (New England RBL), on the campus of the Cummings School of Veterinary Medicine, serves as an important regional resource for conducting Biosafety Level 3 (BSL3) research to improve the means of detecting, preventing and treating infectious diseases that occur naturally in the environment and are transmitted among humans, and between animals and humans. The mission of the New England RBL as a regional facility, is to serve investigators within the NE region who do not have access to secure BSL3/Select agent laboratories and/or vivaria at their own institutions, with a view to: a) investigate NIAID Category A-C Biodefense and Emerging Infectious Diseases (BEID), with emphasis on BSL3/select agent pathogens, including the biology of disease, development of diagnostic tools, therapeutics and vaccines; (b) provide a facility that in addition to being secure, is also GLP-compliant; (c) train and educate graduate students and scientists from Tufts and other institutions to conduct biomedical research on BEID under BSL3 conditions and (d) provide support or collaborative opportunities with scientists with strong core expertise in infectious disease animal models and/or global public health for investigators from other academic institutions, the private sector in New England, and nationwide.

The New England RBL adds a significant scientific resource that strengthens and considerably expands the overall objectives outlined in the TII theme of Microbes and Human Condition. To accomplish its mission, the New England RBL provides state-of-the-art BSL3 laboratories and an A/BSL3 vivarium to conduct innovative biomedical research. The facility is equipped with a highly sophisticated aerobiology suite that is used for nose-only aerosol challenge of pathogens or aerosol delivery of therapeutics, and an insectary for vector-borne disease research. Currently the RBL is designed to house all rodent and invertebrate species including rabbits and ferrets, avian species and germ-free piglets. With slight modifications, small ruminants and other small animals may be housed. The Imaging and Flow Cytometry Core Facility is equipped with a Perkin Elmer IVIS Spectrum, an in vivo imaging system that monitors processes in live animals, a Zeiss LSM 700 confocal laser scanning microscope and a BD LSR Fortessa cell analyzer. This state-of-the-art equipment is complemented by

investigators within the Department of Infectious Disease and Global Health with strong scientific expertise in animal model development, evaluation of therapeutics and international health. Current research at the New England RBL includes studies on select agent bacterial toxins, *Bacillus anthracis* and *Mycobacterium tuberculosis*. CDC approval is also available for research on *Yersinia pestis*, *Francisella tularensis* and EEE; others can be added as required.