



The New England Regional Biosafety Laboratory

Cummings School of Veterinary Medicine, Tufts University, Grafton, MA

The New England Regional Biosafety Laboratory at Tufts University is one of thirteen regional biosafety laboratories (RBLs) funded by the National Institute of Allergy and Infectious Diseases (NIAID) dedicated to the study of existing, emerging and re-emerging infectious diseases, toxin-mediated diseases and biodefense priority pathogens.

Mission:

- Investigate NIAID priority pathogens, including Select Agents, in a secure, state-of-the-art facility.
- Develop research expertise, diagnostic tools, therapeutics, and vaccines.
- Assist national, state and local public health efforts in the event of a bioterrorism or infectious disease emergency.
- Train and educate scientists conducting biomedical research on infectious diseases, priority pathogens, and CDC Select Agents.
- Support research and provide services to investigators regionally and nationwide, studying biodefense and infectious diseases in academia, not-for-profit organizations, industry, and government.

Capabilities:

- Secure laboratory (BSL2/3) and ABSL3 vivaria for infectious disease and select agent work.
- Small animal models (rodents, rabbits, ferrets, and avian species).
- Gnotobiotic or SPF piglet models.
- Aerosol delivery of pathogens, vaccines, and therapeutic agents.
- Arthropod-borne transmission and challenge studies.
- Animal care staff certified through the American Association of Laboratory Animal Science.

Science:

Investigators at Tufts Division of Infectious Diseases and New England RBL have expertise in disease pathogenesis, histopathology, immunopathology, pathophysiology, transmission, prevention, treatment and diagnosis of infectious diseases, toxin-mediated diseases and biodefense pathogens.

Additional expertise includes:

- Vaccine development and evaluation, including thermostable and needle-free delivery methods.
- Development of animal models for evaluation of vaccine candidates and therapeutics.
- Development and nonclinical evaluation of therapeutic agents.
- Enteric infections and toxin-mediated diseases associated with food and waterborne illness.
- Development of assays for the detection of microorganisms.
- Food and water security.

Currently under Investigation:

- Arboviruses
- Botulinum toxins A-G
- *Cryptosporidium* spp. (*C. parvum*, *C. hominis*, *C. meleagridis*)
- Enteric viruses (astrovirus, rotavirus, norovirus)
- *Francisella tularensis*
- Microsporidium spp. (*Enterocytozoon bieneusi*, *encephalitozoon intestinalis*)
- Ricin (from *Ricinus communis*)
- *Schistosoma* spp.
- Shiga-toxin producing *E. coli* (STEC) and hemolytic uremic syndrome (HUS)
- *Shigella* spp. (*S. dysenteriae* type 1, *S. flexneri*, *S. sonnei*)
- Tick-transmitted infections
- Toxinogenic *Clostridium difficile*

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