



## Mission

- The Regional Biocontainment Laboratory (RBL) at Duke was built with funding from NIH (NIAID UC6-AI058607) to support **basic research to develop drugs, diagnostics, and vaccines for emerging and reemerging infections and biodefense.**
- The RBL has a comprehensive safety and operations program to provide state-of-the-art biocontainment facilities for **BSL2, BSL3, and Select Agent research.**
- The Duke RBL **Immunology, Virology, and Microbiology** units are available to Duke faculty and their collaborators as fee-for-service shared resources. These units can be utilized separately or all together to provide comprehensive study support.

## Sponsored Research Programs (selected)

- **Safety / Biopreparedness Training**
  - DIDRT – Duke Infectious Disease Response Training Program (NIH UH4-ES027072; PI: G. Sempowski)
- **Vaccine/Therapeutic Development**
  - Duke DARPA Pandemic Prevention Platform Program (P3) (DoD-DARPA HR0011-17-2-0069; PI: G. Sempowski)
  - CETR – Center of Excellence in Translational Research (Immunology & Influenza Virology Core; NIH U19-AI109784; Duke PI: G. Sempowski)
- **Host Response & Immune Monitoring**
  - DOD Center for Long Term Follow-up of the Late Effects of Acute Radiation Exposure in Primates (Project 3: Immune Recovery; DoD W81XWH-15-1-0574; Duke PIs: B. Chen, G. Sempowski)
  - AC STI CRC – Atlantic Coast Sexually Transmitted Infections Cooperative Research Center (Host Response Monitoring Core; NIH U19-AI113170; Duke PIs: G. Sempowski, H. Staats)
- **Proficiency Testing & Quality Assurance**
  - EQAPOL – External Quality Assurance Program Oversight Laboratory (Luminex and Viral Diversity Programs; HHSN272201700061C; PI: T. Denny)

## RBL Microbiology

**Coordinator:** Rosemarie Asrican, MS

**Services:** RBL Microbiology focuses on **minimum inhibitory concentration screening, colony forming unit assays, and bacterial and fungal challenge** models in mice. We provide customized full or partial support to meet your microbiology lab and animal model needs.

## RBL Immunology

**Manager:** Andrew Macintyre, PhD

### Services:

- **Commercial Luminex assays** (Magnetic/Non-magnetic, Full assay service or Read only)
- **Sample preparation** from whole blood or tissue (Cell Separation, Plasma, Serum, DNA/RNA)
- **ELISA** (Commercial kit, Custom antigen-specific endpoint ELISAs)
- **Real-time Thermocycler use**
- Quantitative signal joint T Cell Receptor Excision Circle (**sjTREC**) analysis (Mouse, Human, NHP)
- **Human TCR $\beta$  sequencing**

### Instrumentation

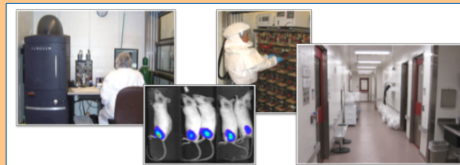


RBL Immunology supports research with specialized instrumentation including Luminex bead readers, quantitative RT thermocyclers, high-throughput multi-well plate washers/readers, and QIAcube sample preparation systems

## Other Support Services

**Animal Model Support:** ABSL2/3 small animal housing (mice, rabbits, ferrets), aerobiology exposure, sample procurement, live animal imaging

**Biocontainment Support:** Use of BSL2/3 containment space, training, decontamination (vaporized hydrogen peroxide)



## RBL Virology

**Manager:** Charles McGee, PhD

### Services:

- Quality-controlled **virus stock propagation** (BSL2, BSL3, Select Agent; tissue culture or egg propagation)
- **Viral load quantification** (Plaque/focus forming unit assays, Tissue culture infectious dose 50% assays, Hemagglutination units assay)
- **Virus serology assays** (Hemagglutination inhibition assay, Micro-Neutralization assay, Plaque reduction neutralization test)
- **In vivo challenge models** including sample procurement and processing from infected animals (Human influenza in ferrets, Mouse-adapted influenza in mice, Rabbitpox in rabbits)
- Development of **project-specific virology support assays** (Track record working with flaviviruses, human cytomegalovirus, influenza viruses, human rotavirus, poxviruses, and vesicular stomatitis virus)

### Virology support



RBL Virology supports research with in vivo and in vitro assays using BSL2, BSL3, and Select Agent viruses.

## Leadership / Contact Info

**Director:** Gregory D. Sempowski, PhD

**Assoc. Dir., Safety & Operations:** T. Scott Alderman, MS

**Asst. Dir., Programs & Development:** Heather E. Lynch, PhD

**RBL Website:** <https://shared-resources.dhvi.duke.edu/rbl>

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Services can be requested via [CoreResearch@Duke](mailto:CoreResearch@Duke)