



Tripp Laboratories

Animal Health Research Center University of Georgia Athens, USA

Department of Infectious Diseases

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Animal Health Research Center (AHRC)

- The studies performed here bridge basic research with translational vaccine and therapeutic development by promoting promising discoveries with industry, state and government
- Develop platform enabling technologies that can be applied to important human and animal (zoonotic) diseases



The AHRC Facilities

FEATURES OF THE AHRC

- › • State-of-the-art facilities, including BSL-3 Enhanced, ABSL-3 and BSL-3Ag laboratories
- 24/7/365 security
- A robust biosafety program
- Personnel to assist outside investigators with research
- UGA CVM Investigators who can conduct research for you
- Enrollment in the UGA Occupational Health and Safety Program
- Animal care provided by our AAALAC-accredited Animal Resources program
- A large necropsy suite with dedicated spaces for both large and small animals

Facilities



AVAILABLE RESEARCH SPACE IN THE AHRC >

BSL-3 Enhanced RESEARCH LABORATORIES

NUMBER
OF
LABS
5

- ▶ 4 labs with each having 170 square feet of research space
- ▶ 1 lab with 350 square feet of research space

Each lab includes:

- One or more biosafety cabinets
- A tabletop centrifuge
- -20 and/or -80 freezer
- CO2 incubators
- Orbital shaker
- Portable sink

All 5 labs share a 400-square-foot common prep area with a common usage pass through sterilizer.

Facilities



AVAILABLE RESEARCH SPACE IN THE AHRC ›

ABSL-3

SMALL ANIMAL ROOMS

NUMBER
OF
ROOMS

6

6 rooms with 300 square feet
each of animal research space

- Automatic watering systems
- Temperature and humidity control

In addition each animal research space includes:

- A feed room
- Viewing room

The following routine research support services are included with all research spaces:

- Required clothing for use inside biocontainment areas
- Required personal protection equipment (PPE), including:
 - Disposable gloves
 - Eye protection
 - Disposable respirators
 - Tyvek covers (sleeves, suits)
 - Foot wear
 - PAPRs and hoods
- Use of common biocontainment areas, such as showers and lockers
- Waste management services, including: tissue digester, effluent decontamination, incineration, sharps disposal, autoclave waste disposal
- Liquid disinfection and sterilization utilizing VHP with biomonitors
- Complete animal care services

Facilities

AVAILABLE RESEARCH SPACE IN THE AHRC >

BSL-3-Ag LARGE ANIMAL ROOMS

NUMBER
OF
ROOMS

6

- 6 rooms with 250 square feet each of animal research space
 - Automatic watering systems
 - Temperature and humidity control

Each 3-Ag room includes:

- An ante room
- Inner- and outer-changing rooms

The following routine research support services are included with all research spaces:

- Required clothing for use inside biocontainment areas
- Required personal protection equipment (PPE), including:
 - Disposable gloves
 - Eye protection
 - Disposable respirators
 - Tyvek covers (sleeves, suits)
 - Foot wear
 - PAPRs and hoods
- Use of common biocontainment areas, such as showers and lockers
- Waste management services, including: tissue digester, effluent decontamination, incineration, sharps disposal, autoclave waste disposal
- Liquid disinfection and sterilization utilizing VHP with biomonitors
- Complete animal care services



Facilities



AVAILABLE RESEARCH SPACE IN THE AHRC >

BSL-3-Ag

EXTRA LARGE ANIMAL ROOMS

NUMBER
OF
ROOMS

2

2 rooms with 670 square feet
each of animal research space

Each 3-Ag room includes:

- An ante room
- Inner- and outer-changing rooms

The following routine research support services are included with all research spaces:

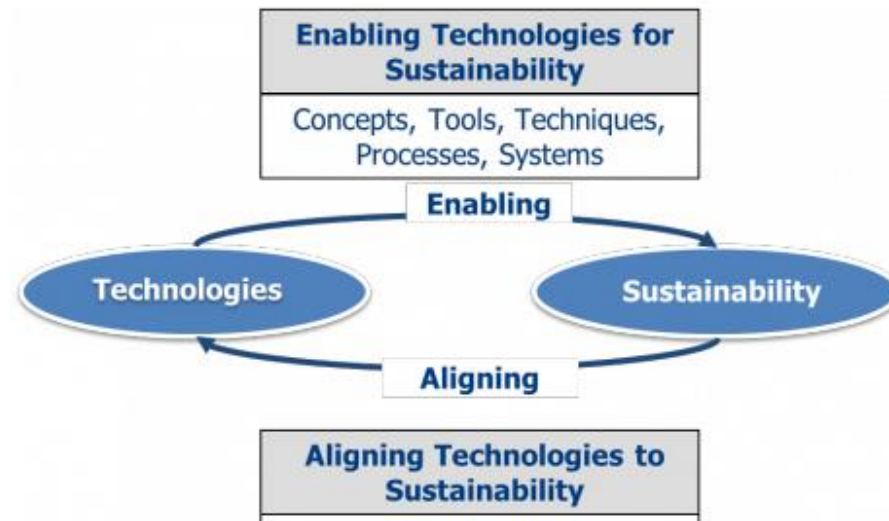
- Required clothing for use inside biocontainment areas
- Required personal protection equipment (PPE), including:
 - Disposable gloves
 - Eye protection
 - Disposable respirators
 - Tyvek covers (sleeves, suits)
 - Foot wear
 - PAPRs and hoods
- Use of common biocontainment areas, such as showers and lockers
- Waste management services, including: tissue digester, effluent decontamination, incineration, sharps disposal, autoclave waste disposal
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Our studies addressed in the AHRC



- Emerging Infectious Diseases (EIDs) including low and highly pathogenic influenza virus, and other important pathogens
- ✓ Need for rapid & sensitive detection and diagnoses methods
- ✓ Identifying biomarkers of disease
- ✓ Vaccine and therapeutic drug development
- ✓ Drug repositioning
- ✓ Embedding industry in the scientific enterprise in the AHRC
- ✓ Addressing the One Health Initiative

Overview of the Platform Enabling Technologies Used in our Laboratories



Platform enabling technologies



- 1) Biosensing and detection (Raman spectroscopy)
- 2) Therapeutic drug repurposing
- 3) Engineering enhanced vaccine cell lines
- 4) Vaccine design and novel delivery platforms
- 5) RNAi Global: Identifying the genes in the human genome required for virus replication
- 6) miRIDIAN: Identifying microRNA gene regulation of the host response to virus infection
- 7) HTS: high throughput screening (drugs, genes, etc)
- 8) Imaging and analysis: ArrayScan, flow cytometry, etc

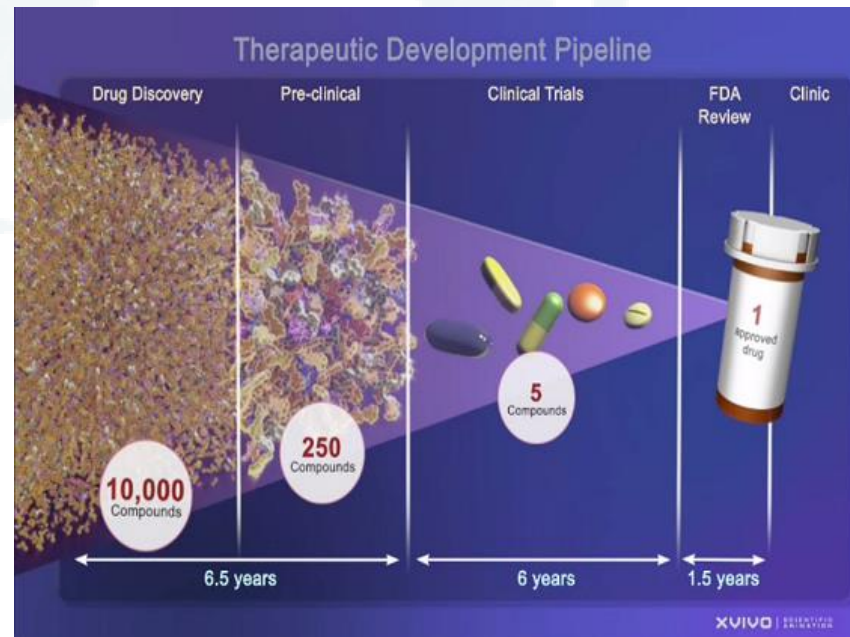
Embedding Industry Partners...



- Development /testing of human therapeutic antibodies
- Evaluating novel drug inhibitors
- Repurposing of antibodies for important animal diseases affecting the swine industry and companion animals
- Genetic engineering of enhanced vaccine cell lines
- Testing field/bench-side deployable SERS devices to rapidly identify the molecular signature of pathogens

Rescuing and Repurposing Drugs

- Developing a brand-new drug to translation takes >13 years.
- Drug “rescue” refers to research using small molecules and biologics that previously were used in studies but not further developed and submitted for Food and Drug Administration (FDA) approval.



Universal Vaccine Platform: Testing LbL Microparticle Vaccines

- Increases the immunogenicity of weakly antigens without the use of adjuvants
- Reduces antigen dose required for immunization
- Rapid synthetic manufacture with no egg or cell culture required
- Flexible design allows for multivalent or combination vaccines
- Constructs are shelf stable at room temperature (no cold chain storage required)

Genetic engineering of enhanced vaccine cell lines

- to increase production of polio virus vaccine by silencing non-essential virus resistance genes in a vaccine cell line, thereby reducing costs and increasing vaccine availability



Sustainability



- The technology developed here has the potential to change the paradigm for vaccine development for many important human viruses.
- The Technology Uptake from this proposal can be applied to other viruses associated with vaccine preventable deaths:

-influenza virus, measles virus, rotavirus, others

Contact Information



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