



# CORE LABORATORY FACILITY AT VIRGINIA BIOINFORMATICS INSTITUTE

Providing life science customers worldwide with access to best-in-class technologies for discovery and analysis.

## ABOUT CLF

VBI's Core Laboratory Facility (CLF) is a dedicated multi-user resource for the development and application of state-of-the-art high-throughput technologies. The CLF is a "one-stop" shop for these technologies, providing researchers access to these services, as well as an experienced staff. The goal of the CLF is to provide high quality data, analysis, and experimental design assistance in a timely fashion while maintaining excellent customer service.

## OUR SERVICES

At the CLF, a wide range of "omic" technology platforms is available for the study of DNA (sequencing and genotyping), RNA (gene expression analysis), and proteins (proteomics). The CLF also offers a selection of molecular biology applications and custom services.

## ABOUT VBI

The CLF is part of the 130,000 square-foot, state-of-the-art research facility at the Virginia Bioinformatics Institute at Virginia Tech. Work at VBI involves collaboration in diverse disciplines such as mathematics, computer science, general, synthetic and systems biology, medicine, plant, animal and human pathology, biochemistry, engineering, physics, statistics, and economics. This transdisciplinary approach to science serves as a foundation for far-reaching collaborations and partnerships in the scientific community. By successfully channeling innovation into information technology and biology, researchers at VBI are addressing some of today's key challenges in the biomedical, environmental and agricultural sciences.

# SERVICES INCLUDE:

## CUSTOM SERVICES — ASK US

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We are your link to a variety of commercial services

## GENOMICS

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### Sequence Gap Closures and Assembly

#### Sanger Sequencing

- » PCR Products
- » Plasmids
- » Microsatellites

## 2ND GENERATION SEQUENCING

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### Roche GS-FLX™ Sequencing

- » Titanium
  - » Shotgun
  - » Amplicon
  - » Transcriptome
  - » Paired-End Runs

### GAIIIX Illumina Sequencing

- » Single Run
- » Amplicon
- » Transcriptome
- » Paired-End Runs
- » Mate Pair Runs

## GENE EXPRESSION ANALYSIS

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### Affymetrix

- » Expression
- » Custom
- » Exon
- » SNP
- » miRNA
- » Tiling Arrays

### Real-time PCR

## PROTEOMICS

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- » Protein Expression Profiling
- » Peptide/Protein Sequencing
- » Peptide/Protein Quantitation

## MOLECULAR BIOLOGY APPLICATIONS

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- » PCR
- » Cloning
- » Mini Preps
- » Robotics

## BIOINFORMATICS

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- » Experimental Design Assistance
- » Data Analysis and Interpretation
- » Access to Biostatistical Help

# CLF HIGHLIGHTS

» The CLF is a cost-recovery center occupying 6,500 square feet of space. The facility houses \$3.7 million of equipment used to provide the latest genomic, transcriptomic, and proteomic technologies.

» The CLF is an Affymetrix National Custom Array Center for custom microarray design, sample processing and analytical services.

» The CLF is supported by a custom Laboratory Information Management System (LIMS) that provides an easy-to-use, secure interface for sample submission and retrieval. The combination of application and development enable the CLF to remain a leader in helping researchers take a complete systems biology approach to their science.

» In 2007, the CLF completed the largest ever Affymetrix GeneChip® microarray study for a plant experimental system in an academic research setting. The 2600-chip experiment explored the counterplay of plant and pathogen genes during infection of soybean with the root-rot pathogen *Phytophthora sojae*, with a focus on mechanisms of long-lasting disease resistance.

» In 2009, the CLF completed the genome sequencing of the domesticated turkey, *Meleagris gallopavo* using the Roche GS-FLX™ sequencer, generating 350GB of data. The genome sequence and genomic resources should provide turkey breeders with the tools needed to improve commercial breeds of turkey for production traits such as meat yield and quality, health and disease resistance, fertility and reproduction.

## FOR MORE INFORMATION

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