

## MEET THE CBG TEAM



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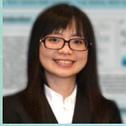
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TEXAS TECH UNIVERSITY

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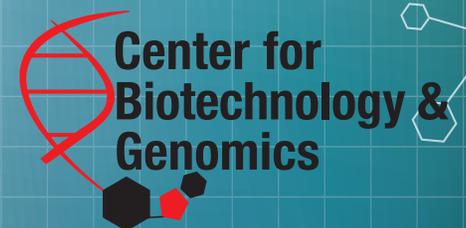


TEXAS TECH UNIVERSITY  
CENTER FOR  
BIOTECHNOLOGY  
AND GENOMICS

NEXTGENSEQUENCING/  
GENOMICS

PROTEOMICS/  
METABOLOMICS

BIOINFORMATICS



## NEXTGEN SEQUENCING/ GENOMICS

The Nextgen Sequencing/Genomics core facility at the Center for Biotechnology and Genomics provides sequencing services to the entire TTU community as well as outside customers.

These services include sequencing library preparation from DNA/RNA, sequencing on Illumina, Miseq, and NovaSeq 6000 platforms, and primary and secondary data analysis.

We also standardize new protocols for sequencing library preparation.

A major component of our service includes student training in Nextgen sequencing and associated Bioinformatics.

### Services offered:

- ▶ Stranded mRNA-sequencing for both prokaryotes and eukaryotes
- ▶ Small RNA sequencing
- ▶ Whole genome resequencing
- ▶ 16S metagenome sequencing
- ▶ Meta-transcriptome sequencing after target depletion
- ▶ ChIP-sequencing
- ▶ Sanger sequencing



## PROTEOMICS/ METABOLOMICS

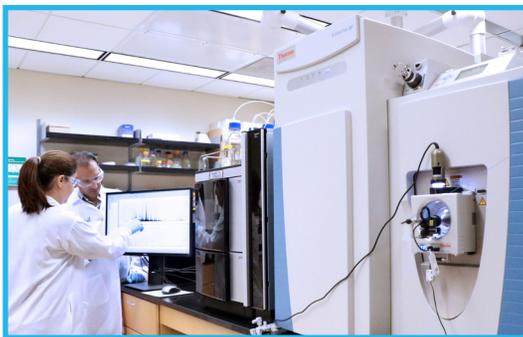
The Proteomics/Metabolomics core facility at the Center for Biotechnology and Genomics provides services to the entire TTU community as well as outside customers for analysis of proteins and metabolites from cells, tissues, or other biological samples using cutting-edge instrumentation and methods.

### Services offered:

- ▶ Protein IDs by LC-MS/MS and MALDI-TOF/TOF
- ▶ Whole proteome profiling from cells, tissue, etc.
- ▶ In-gel/in-solution digestion of proteins
- ▶ Data analysis using advanced software such as MASCOT, SEQUEST, Compound Discoverer, LipidSearch, and Ingenuity Pathway Analysis (IPA)
- ▶ Protein quantification (label-free quantification, tagging)
- ▶ Analysis of post-translational modifications in proteins (e.g. phosphorylation)
- ▶ Global metabolite/lipid profiling
- ▶ Targeted metabolite analysis (identification and quantification)

### Instruments include:

- ▶ Mass Spectrometers: Q-Exactive HF, LTQ Orbitrap Velos, ABI SCIEX 4800 (MALDI-TOF/TOF)
- ▶ LC systems: Dionex-Ultimate 3000 Nano-LC, Vanquish UHPLC, Dionex-Ultimate 3000 with fraction collector for peptide fractionation



## BIOINFORMATICS

The Bioinformatics core facility at the Center for Biotechnology and Genomics provides services in the domains of genomics, proteomics, and general bioinformatics.

Services include:

### Nextgen Sequencing (NGS)

- ▶ RNA-Seq analysis
- ▶ Small RNA-Seq analysis
- ▶ *de novo* transcriptome assembly and annotation
- ▶ Whole genome assembly
- ▶ Metagenome and metatranscriptome analysis
- ▶ Pathway analysis

### Proteomics

- ▶ Proteome analysis for identification of proteins
- ▶ Quantitative proteome analysis
- ▶ Pathway analysis
- ▶ Analysis of post translational modifications
- ▶ Computational proteomics
- ▶ Protein modeling
- ▶ Protein-protein and protein-ligand docking

### General Bioinformatics Software Development

