

## VISION

We bring clinicians, industry researchers, and product developers together with scientists and engineers of multiple disciplines to tackle the challenge of highly controlled, well-characterized, efficient, reproducible, and high-quality therapeutic cell manufacturing.



MAKING CELL THERAPIES MORE ACCESSIBLE

**COLLABORATE**

with clinical partners

**INNOVATE**

rapid validation of cells

**INVENT**

new tools and technologies

**ENABLE**

low-cost production

**TRANSLATE**

clinical applications

**TRAIN**

a strong, talented workforce

## Who should work with us?

### Anyone looking to:

- ▶ Characterize their cell product and understand the attributes that contribute to efficacy and safety
- ▶ Improve their cell culture efficiency
- ▶ Develop or incorporate new sensors for quality assessment
- ▶ Increase automation of manufacturing and analytical processes
- ▶ Optimize their supply chain or refine their distribution strategy

### Examples of potential collaborators:

- ▶ Clinical Researchers
- ▶ Pharmaceutical and Cell Therapy Companies
- ▶ Biotechnology and Equipment Development Companies
- ▶ Specialty Chemical and Biologics Supply Companies

## ENGAGE WITH THE MARCUS CENTER

### MOVE INTO NEXT-GENERATION CELL MANUFACTURING

- ▶ Understand your cells
- ▶ Develop your analytics
- ▶ Enable process intensification
- ▶ Access the broader ecosystem

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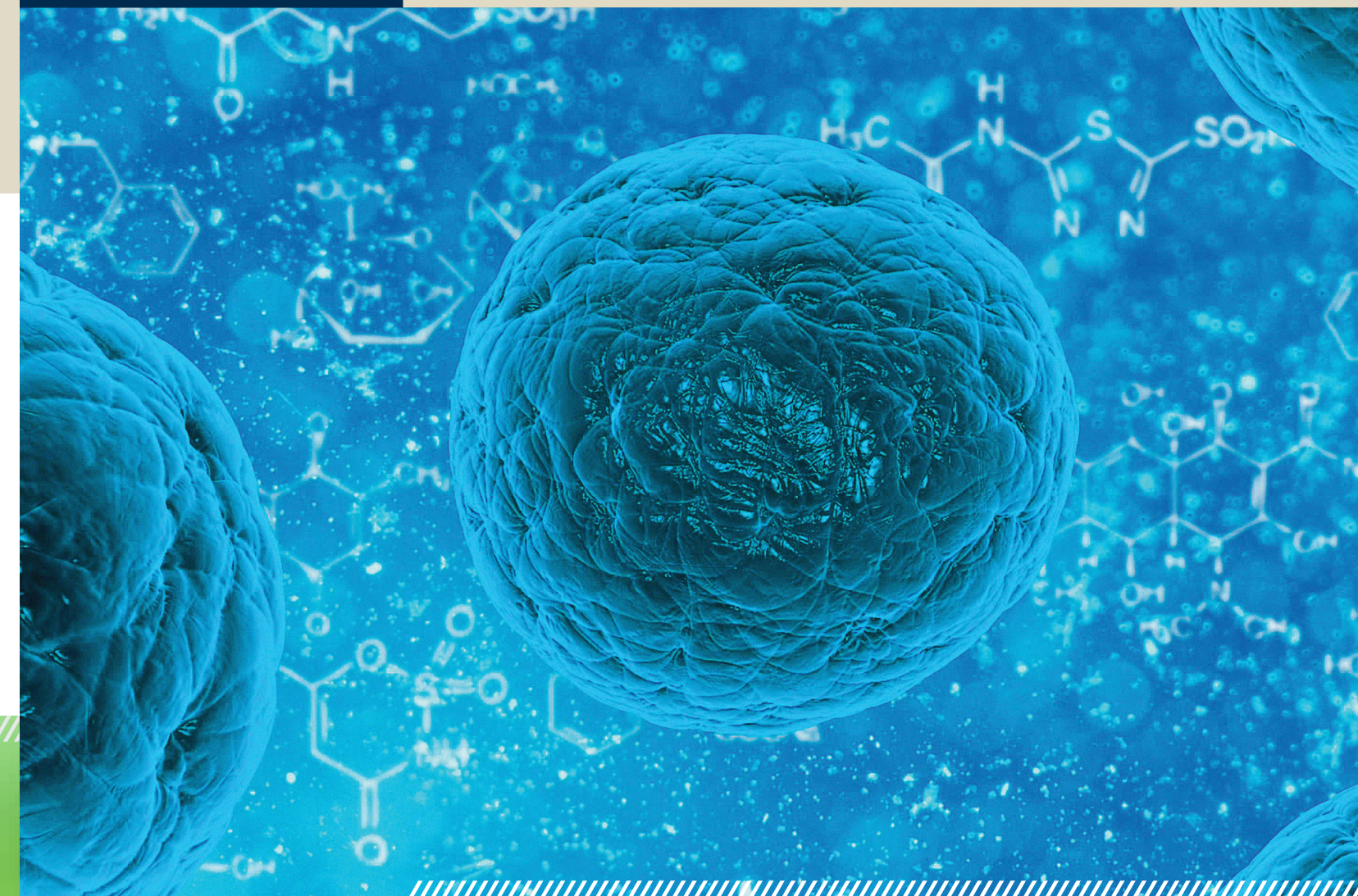


### LEVERAGE THE VAST RESOURCES AVAILABLE AT GEORGIA TECH AND PARTNER INSTITUTES

NSF ERC for Cell Manufacturing Technologies (CMA<sup>T</sup>)  
National Cell Manufacturing Consortium (NCMC)  
Georgia Tech Petit Institute for Bioengineering and Bioscience (IBB)  
Georgia Tech Manufacturing Institute (GTMI)  
Georgia Tech Research Institute (GTRI)

Georgia Tech Institute for Robotics and Intelligent Machines (IRIM)  
National Institute for Innovation in Manufacturing Biopharmaceuticals (NIIMBL)  
Advanced Regenerative Manufacturing Institute (ARMI)  
Global Center for Medical Innovation (GCMI)

## THE MARCUS CENTER OF EXCELLENCE FOR CELL BIOMANUFACTURING: MAKING CELL THERAPIES MORE ACCESSIBLE





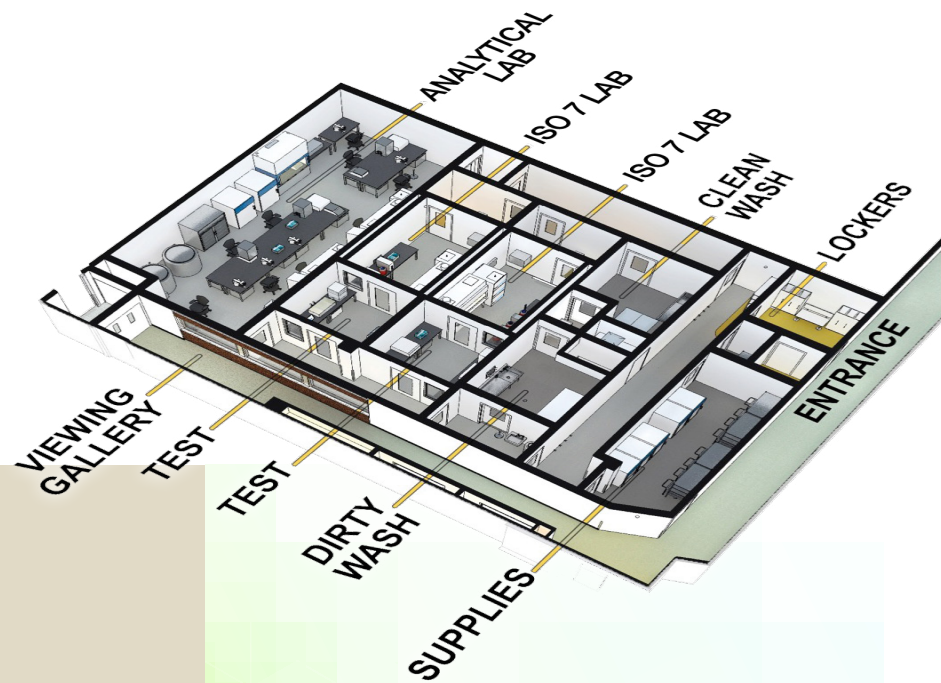


## WHO ARE WE?

The **Marcus Center of Excellence for Cell Biomanufacturing** (The Marcus Center) provides end-to-end **R&D solutions** for the whole spectrum of cell manufacturing needs. From **Critical Quality Attributes** (CQAs) identification to new **Process Analytical Technologies** (PATs) and process development, let **The Marcus Center be your partner**.

## Facilities

- 4,000 sq.ft. of BSL 2 Laboratory space
- ISO 8 Analytics Laboratory
- Isolated ISO 7 suites
- In-line analytical testing capability
- Workforce training



## Research Expertise

- Analytics and Characterization
- Monitoring and Sensing
- Process Development and Validation
- Supply Chain and Logistics
- Culture Optimization
- Transduction and Transfection Technologies

## Accelerate Application and Predictability

### CHARACTERIZE

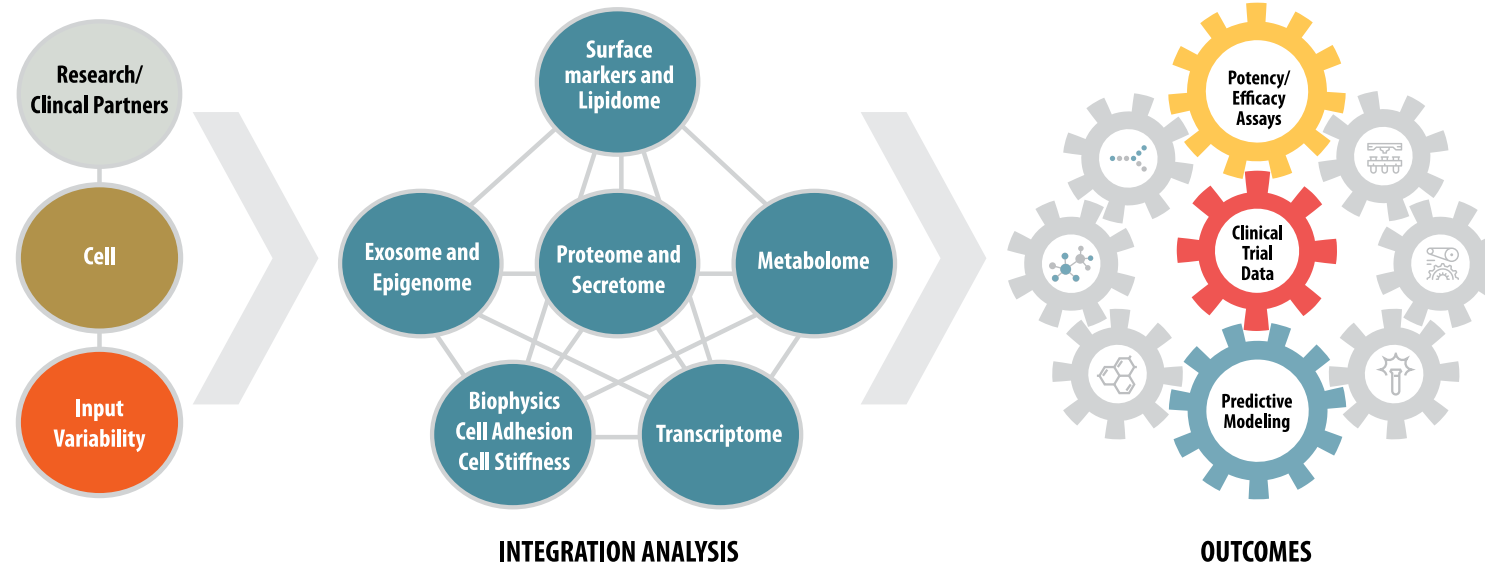
Comprehensive assessment of clinical cells can provide insight to unique multivariate CQAs.

### CORRELATE AND CONFIRM

Advanced analytical models identify relationships between characterization data and clinical or surrogate performance outcomes to identify CQAs to monitor during production.

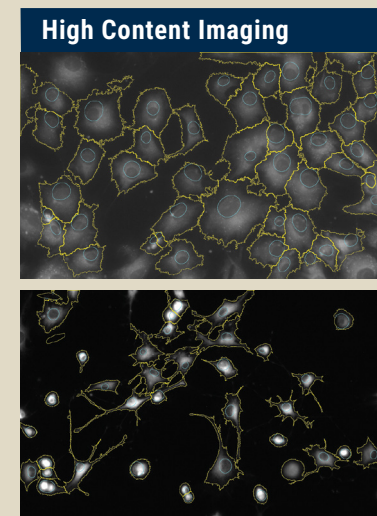
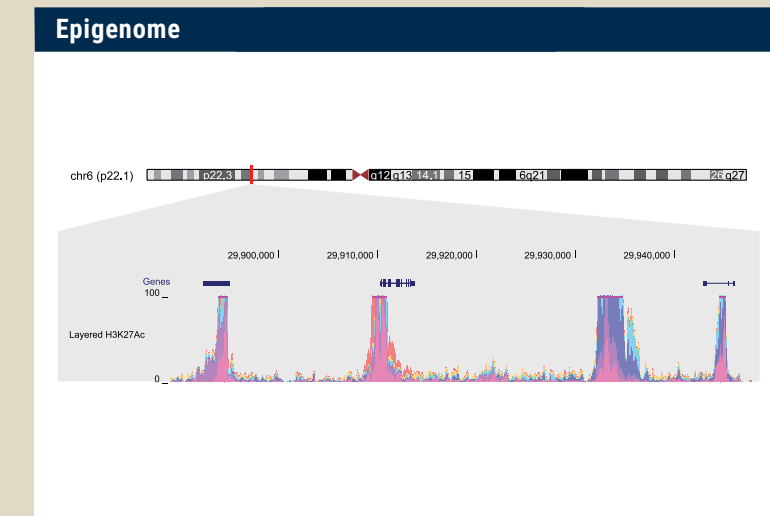
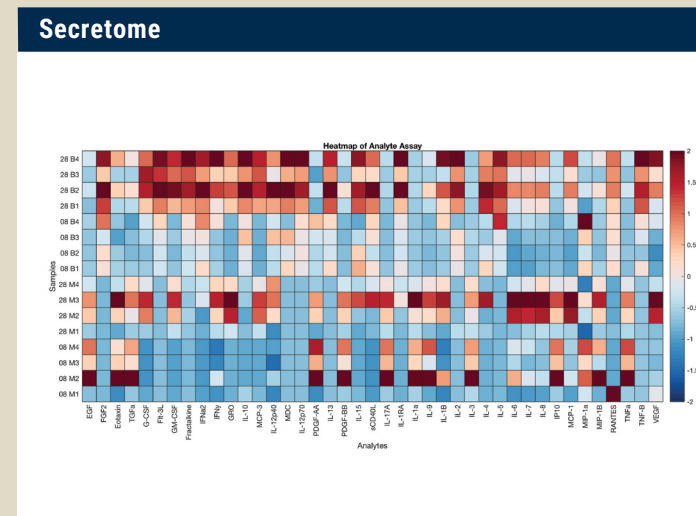
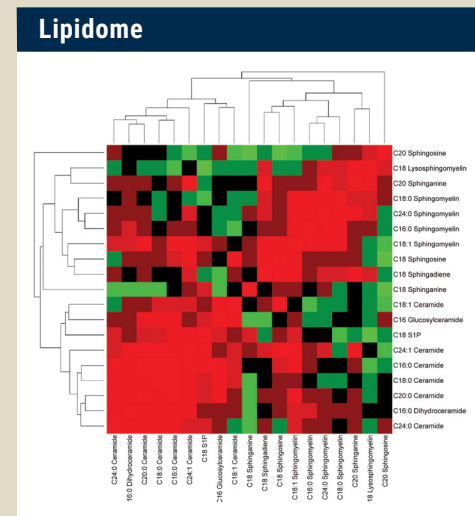
### PREDICT

Big data analysis of comprehensive characterization and performance outcomes build predictive models of efficacy and safety.



- Single-Cell Sequencing
- High Throughput Analyses
- Epigenetics
- Bioanalytical Mass Spectrometry
- Flow Cytometry
- High Content Imaging
- Lipidomics and Secretomics
- Biophysical Assessment

## Predictive Modeling



## ADVANCING QUALITY AND RELIABILITY

- Validate potency and safety of manufactured cells
- Monitor quality throughout manufacture
- Enable closed-loop automation

Projects are initiated with input from characterization outcomes to develop new analytical methods and process optimization approaches. As projects move from proof of principle to proof of concept, they are integrated into GMP-like processes in the controlled Marcus Center facility.

