CMaT

NSF Engineering Research Center
for Cell Manufacturing Technologies

Working Together to Advance Cell Manufacturing

Cell therapies are revolutionizing the way we treat devastating and chronic diseases. They hold great promise to “cure the incurable,” but access to cell therapies is currently limited to a small number of patients at a high cost.

Addressing this need, the National Science Foundation (NSF) Research Center for Cell Manufacturing Technologies (CMaT) has been established to create new integrated manufacturing innovations and advanced bioprocessing technologies to enable robust, scalable, low-cost biomanufacturing of high-quality therapeutic cells.

Vision:

To become a visionary and strategic international resource and an exemplar for developing new knowledge, innovative technologies, a diverse workforce, and enabling standards for cell production and characterization processes.

Research:

A range of cellular test-beds and synergistic research thrusts have been developed by the CMaT multidisciplinary team comprised of university and industry partners.

The cellular test-beds include:

- Mesenchymal stem cells (MSCs) to repair, regenerate, and restore diseased tissues and organs
- Engineered T cells to cure cancer
- Induced pluripotent stem cell (iPSC)-derived cardiomyocytes to treat heart diseases

CMaT will focus on these research thrusts for each cell type above:

- Cell-omics for biomarker discovery
- Monitoring and predicting cell potency and safety
- Systems optimization for scalable manufacturing

Georgia Tech

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