

NCTM

NATIONAL CENTER FOR
THERAPEUTICS MANUFACTURING



Texas A&M Engineering
Experiment Station

PERFORMANCE REPORT

2023

*Advancing workforce education and applied
research for the biopharmaceutical industry.*

“IT IS NOT OFTEN THAT A MAN CAN MAKE OPPORTUNITIES FOR HIMSELF. BUT HE CAN PUT HIMSELF IN SUCH SHAPE THAT WHEN OR IF THE OPPORTUNITIES COME HE IS READY.”

THEODORE ROOSEVELT

It is with great pride that we share this recap of our 2023 activities and historical journey from our inception in 2012. I am exceedingly proud of our team for their tireless efforts to train more than 200 individuals in upstream and downstream bioprocessing and analytical methods this year alone. Our activities this year included a major facility renovation, the development of a new mRNA training course in collaboration with Pfizer, and a continued partnership with vaccine companies in Africa, helping to build up the biomanufacturing workforce globally. Additionally, we have begun to ramp up our contract research services, and have multiple successful projects completed and ongoing. We are excited to expand our capacities to serve our clients with these initiatives in the future.

- Baley Reeves, PhD, NCTM Interim Director

ABOUT OUR CENTER

The National Center for Therapeutics Manufacturing (NCTM) is an interdisciplinary workforce education and research center serving the global biopharmaceutical and vaccine manufacturing industries. A member of the Texas A&M Engineering Experiment Station, the NCTM develops and delivers customizable instructor-led, computer-based, and hands-on learning to expose the student to various aspects of cell culture and basic molecular biology, aseptic processes and microbiology, upstream and downstream processing of biological materials including viruses, monoclonal antibodies and other recombinant proteins, as well as industrial bioanalytical methods.

NCTM also provides enabling technologies to academic and industrial researchers ranging from media screening to improve cell line productivity through protein expression and purification. We offer a variety of expression systems including bacteria, yeast, mammalian, and insect lines and can perform process development and optimization, as well as analytical methods development and characterization.

2023



A female scientist wearing a black hijab, safety glasses, and a white lab coat is working in a laboratory. She is focused on adjusting a piece of glassware, possibly a condenser or part of a distillation setup, which is connected to various tubes and a large white reservoir. The background shows a typical laboratory setting with shelves and equipment. The entire image has a semi-transparent reddish-brown overlay.

MAJOR MILESTONES

214 TRAINEES

consisting of industry professionals, college students, African vaccine manufacturers, governmental representatives, and biomanufacturing educators completed NCTM's online and hands-on training courses.

6 New Partnerships

were formed allowing NCTM to increase its training presence. New licensing partners include North Carolina Central University, University of Maryland Baltimore County, Xavier University of Louisiana, University of Delaware, and the Oklahoma City Innovation District.

1 NEW COURSE

"Hands-on Manufacturing of mRNA Vaccines & Therapeutics" is a continuing education course which combines the manufacturing unit operations and quality control assays performed for mRNA vaccine manufacturing.

OUR VISION FOR 2024

NCTM will continue to offer customizable training modules to fit any company's needs, from technical onboarding programs to advanced continuing education courses. Our curricula provides hands-on experience in every unit operation from cell culture to purification, including analytics throughout.

A new course, Advanced Upstream Processes: Design and Optimization, will be launched in February of 2024. In addition, NCTM hopes to continue its workforce development efforts both domestically with the launch of regional biomanufacturing certification and registered apprenticeship programs, and globally with continued partnerships with low and middle income country vaccine manufacturers.



**PROGRAMS
& ACTIVITIES**

COLLABORATION

NCTM is proud to be the curriculum provider for the new BioTC training lab in Oklahoma City. The BioTC is the latest site to license NCTM curriculum to fast-track their training offerings. NCTM provides bespoke, customizable services to aid in facility design, equipment procurement, and curriculum development to drastically reduce start up time for new training facilities.

RESEARCH & INNOVATION

Our major 2023 research projects included:

- Collaboration with a client to support gene therapy training
- Fermentation scale-up for the manufacture of a bioindustrial product
- Fermentation optimization for a startup company
- Purification optimization for a novel purification modality
- Cell line development for the production of toxic products

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The National Center for Therapeutics Manufacturing is a member of the Texas A&M Engineering Experiment Station (TEES). TEES is a state research agency that solves problems through applied engineering research and development and collaboration with industry, government and academia. As part of The Texas A&M University System, TEES is connected with world-class researchers and facilities throughout the Texas A&M System.



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