

eXoZymes Advances Commercial Readiness With Profound Production Metrics From Initial NCT Pilot Run

The pilot run achieved approximately 99% reaction conversion, 90% isolated yield, and 535 grams of NCT at 99.6% pharma-grade purity.

LOS ANGELES, CA, UNITED STATES, January 31, 2026 /EINPresswire.com/ -- Today, [eXoZymes Inc.](https://www.exozymes.com) (NASDAQ: EXOZ) ("eXoZymes") - a pioneer of AI-enhanced enzymes that can transform sustainable feedstock into nutraceuticals and new medicines - reported detailed downstream performance results from its recently completed 100-liter pilot production run of NCT. The results expand upon the previously announced 100× scale-up milestone and provide new data demonstrating manufacturability, material recovery, and product quality at a commercially relevant scale.



N-trans-caffeoyltyramine (NCT) is an interesting naturally occurring compound that has attracted scientific attention in exploratory studies related to lipid metabolism and energy utilization pathways.

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What makes this initial NCT pilot run profound is how counter to conventional experience these results are.”

Paul Opgenorth, PhD, Co-founder and VP of Development of eXoZymes

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Following completion of the pilot run and product isolation and purification, eXoZymes achieved approximately 99% reaction conversion, 91% process recovery, and a 90% isolated yield, resulting in 535 grams of isolated NCT. Final product purity was measured at 99.6%, based on post-isolation analytical characterization. Together, these metrics provide a full, end-to-end view of process

performance spanning reaction, isolation, and purification.

“What makes this initial NCT pilot run profound is how counter to conventional experience these

results are. In most biological systems, performance typically degrades as you scale - reactions become harder to control, yields drop, and variability increases. With our AI-enhanced enzymes - exozymes - we see the opposite trend,” states co-founder of eXoZymes and VP of Development, Paul Opgenorth, PhD, and continues, “At very small laboratory scale, where cell-free reactions are usually developed and optimized, performance can actually be the weakest. It improves at the one-liter scale, and this scaled run at 100 liters further reinforces that the system benefits from operating at larger volumes. Seeing that behavior carry through to high recovery, isolated yield, and pharma-grade purity supports that exozymes represent a fundamentally different and more scalable biomanufacturing paradigm compared to existing approaches.”

Using an NCT tech transfer package, the pilot production was executed by Cayman Chemical, which independently operated the cell-free reaction, downstream processing, isolation, and analytical confirmation. This marks the first time the exozyme-based biomanufacturing process has been run end-to-end by an external partner, demonstrating protocol transferability and operational robustness.

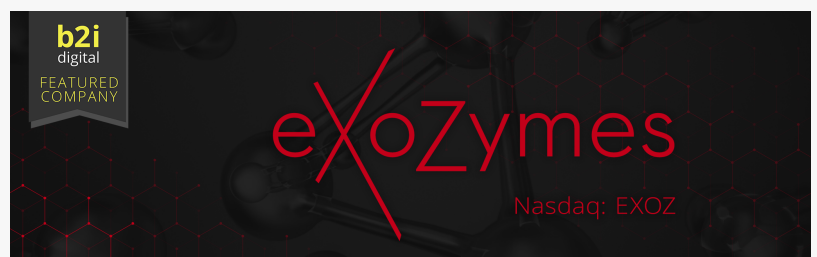
Team Lead of Biosolutions and R&D Services, Adrian Brückner, PhD, adds, “What stood out to me in this run was not just the impressive final performance numbers, but how straightforward and reliable the process proved to be under real operating conditions. The reaction was executed using a written, step-by-step protocol by an external team, and it performed exactly as intended. From a process perspective,



The production was executed by an external partner under pilot-scale conditions using standardized protocols.



Reaction performance was observed to improve at increased operating scale.



High-purity NCT now available for formulation development with commercial partners.

that level of consistency - combined with high recovery, isolated yield, and purity at this scale - gives us confidence that the system is not only scalable, but operationally robust and well suited for continued manufacturing development. Importantly, this successful production of more than half a kilogram of pharma-grade purity NCT means that we're now ready to share formulation samples with relevant partners."

NCT has historically been difficult to supply at scale in purified form. Cell-based production methods commonly co-produce N-trans-feruloyltyramine (NFT), a closely related compound that has been reported in the scientific literature to exhibit different activity profiles from NCT in certain in-vitro and preclinical research settings, which can complicate interpretation when both compounds are present. Because of their close structural similarity, separating NFT from NCT is also costly. The exozyme-based process avoids these limitations, enabling direct production of highly pure NCT without co-production challenges.

Looking ahead, eXoZymes expects 2026 to focus on establishing a commercial NCT supply chain, expanding production volumes, forming strategic partnerships, and finalizing commercial technology-transfer packages. These efforts are expected to focus on improving manufacturing efficiency and scalability as eXoZymes and NCTx evaluate pathways toward sustainable commercial economics.

Formulation can be shipped to partners

With isolated high-purity NCT now produced at pilot scale, eXoZymes is actively engaging with partners interested in formulation development, product validation, and application-specific testing. The availability of high-purity material enables partners to move beyond feasibility studies and into hands-on evaluation under relevant conditions. Companies seeking to explore potential use cases, assess performance, or initiate collaborative development discussions are invited to contact eXoZymes to request samples and discuss next steps, right here:

<https://exozymes.com/partners>

About Cayman

Cayman Chemical helps make research possible by providing products and services to scientists worldwide. Cayman's collection includes high-quality biochemicals, assay kits, antibodies, and proteins, empowering researchers to understand the biological mechanisms of health and disease and develop new therapies. Cayman's scientists are experts in the synthesis, purification, and characterization of biochemicals ranging from small drug-like heterocycles to complex lipolipids, and fatty acids, and is highly skilled in all aspects of assay and antibody development, protein expression, crystallization, and structure determination. In addition, Cayman offers a wide range of analytical services using LC-MS/MS, HPLC, GC, and many other techniques. Cayman performs generic drug development and production in both Ann Arbor, Michigan, and Neratovice, Czech Republic. Learn more at www.caymanchem.com

About eXoZymes

Founded in 2019, the company has developed a biomanufacturing platform that - as a historic

first - offers the tools and insights to design, engineer, control, and optimize nature's own natural processes to produce highly valuable natural products, via a commercially scalable, sustainable, and eco-friendly alternative: exozymes.

Exozymes are advanced enzymes enhanced through AI and bioengineering to thrive in a bioreactor without using living cells. Exozymes can replace toxic petrochemical processes and inefficient biochemical extraction with sustainable and scalable biosolutions that transform biomass into essential chemicals, nutraceuticals, and medicines.

By freeing enzyme-driven chemical reactions from the limitations imposed by cells, exozyme biosolutions eliminate the scaling bottleneck that has hampered commercial success in the synthetic biology (SynBio) space, making exozymes the next generation of biomanufacturing. While the company, eXoZymes Inc., has introduced "exozymes" as a scientific concept, they are not trademarking the concept, as they view it as a new nomenclature for wide adoption for this next generation of biomanufacturing that eXoZymes aims to pioneer and be the market leader of. Learn more at exozymes.com

eXoZymes Safe Harbor

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