Voyager Therapeutics' TRACER™ Capsids Demonstrate Enhanced CNS Transduction Across Species; New Preclinical Results Bolster GBA1, Tau, SOD1 ALS Gene Therapy Programs

May 19, 2022

VCAP-102 capsid achieved respective 60-fold and 50-fold improvements in brain transduction in non-human primates and mice compared to conventional AAV9 capsids with IV dosing

Data demonstrate potential of multiple TRACER capsids to target CNS disorders, including certain diseases that may benefit from glial cell targeting

Preclinical data demonstrate potential to ameliorate disease in models of GBA1, tauopathies, and SOD1 ALS

Results presented at the American Society of Gene and Cell Therapy 25th Annual Meeting

CAMBRIDGE, Mass., May 19, 2022 (GLOBE NEWSWIRE) -- Voyager Therapeutics, Inc. (Nasdaq: VYGR), a gene therapy company developing life-changing treatments and next-generation adeno-associated virus (AAV) capsids, today is scheduled to present new preclinical data on a family of AAV9-derived TRACER capsids demonstrating cross-species central nervous system (CNS) transduction. The Company is also scheduled to report updated results from preclinical gene therapy programs in GBA1, tauopathies, and SOD1 ALS. These results are being presented at the American Society of Gene and Cell Therapy (ASGCT) 25th Annual Meeting in Washington, D.C.

Family of AAV9-Derived Capsids Enhanced Brain Transduction Across Non-Human Primates and Mice
Voyager's TRACER capsid discovery platform has identified a novel AAV9-derived capsid, VCAP-102, which demonstrated 50-fold better transduction in mice and 60-fold better transduction in non-human primates (NHPs) versus conventional AAV9 capsids, following intravenous (IV) administration. While other TRACER capsids have shown strong neuronal delivery, preclinical data in this study also demonstrated that VCAP-102 and other TRACER capsids showed preferential tropism for glial cells in mice.

"These TRACER findings are important because demonstrating equivalent cross-species functionality is critical to increasing a capsid's potential for translation into humans," said Mathieu Nonnenmacher, Ph.D., Vice President of Capsid Discovery at Voyager. "Furthermore, the glial tropism observed in this AAV9-derived capsid family may allow us to address CNS indications that would benefit from non-neuronal cell transduction."

Key Results

- Top variants from the capsid family exhibited increased blood brain barrier (BBB)-penetrance across NHP species and mice.
- Top variants showed preferential transduction of glial cells in mice.
- Certain variants displayed significant detargeting from peripheral organs, including the dorsal root ganglia and liver.

Additional results are scheduled to be presented today at the ASGCT Annual Meeting at 11:00 a.m. ET in Ballroom A at the Washington, D.C. Convention Center. The Company intends to make full results available on the Investor page of the Voyager website following the conclusion of the oral presentation.

GBA1, Tau, and SOD1 ALS Gene Therapy Programs Ameliorate Disease in Animal Models
Voyager is scheduled to present preclinical data demonstrating improvements in physiologic parameters across pipeline programs involving CNS targets of interest: GBA1, tauopathies, and SOD1 ALS.

"The positive data scheduled to be reported at ASGCT support further development of Voyager's CNS gene therapy programs that have significant opportunity to provide patient benefit," said Todd Carter, Ph.D., Senior Vice President of Research at Voyager. "Voyager programs for GBA1, vectorized antibodies targeting tau, and SOD1 ALS leverage our expertise across payload modalities and differentiated delivery strategies to develop genetic medicines that safely achieve therapeutic benefit in preclinical models."

GBA1
Key Results

- Multiple transgenes for the optimal expression of glucocerebrosidase 1 (GBA1), the gene encoding the lysosomal enzyme glucoslyceramidase (GCase), were characterized in both in vitro and in vivo mouse models.
- GBA1 transgenes using a BBB-penetrant AAV capsid delivered therapeutically-relevant levels of GCase to multiple brain regions in mouse models, following a single IV dose.

The Company intends to make full results available on the Investor page of the Voyager website.

Tauopathies
Key Results

- Systemic dosing of a vectorized anti-tau antibody in mouse models resulted in reduced tau pathology and may represent a new single-dose IV therapeutic strategy for various tauopathies.
- The antibody demonstrated robust efficacy in vectorized (vTau) and passive forms in a hippocampal seeding mouse model of Alzheimer's Disease.
- Treatment with vTau resulted in significant reduction of tau pathology in CNS regions of a primary tauopathy mouse model.
- When delivered passively, the antibody exhibited a trend of reduction in tau pathology in CNS regions of an intrinsic mouse model.

The Company intends to make full results available on the Investor page of the Voyager website.

SOD1 ALS
Key Results

- IV delivery of a BBB-penetrant AAV9-derived capsid containing superoxide dismutase 1a (SOD1)-targeting RNAi gene therapy dramatically improved motor performance and survival in a SOD1- amyotrophic lateral sclerosis (ALS) mouse model.
- Robust knockdown of SOD1 in all levels of the spinal cord was observed in a SOD1-ALS mouse model.
- Data support preclinical development of an IV RNAi gene therapy using a novel BBB-penetrant capsid in primates.

The Company intends to make full results available on the Investor page of the Voyager website.

About the TRACER™ AAV Capsid Discovery Platform
Voyager's TRACER™ (Tropism Redirection of AAV by Cell-type-specific Expression of RNA) capsid discovery platform is a broadly applicable, RNA-based screening platform that enables rapid discovery of AAV capsids with robust penetration of the blood brain barrier and enhanced CNS tropism in multiple species, including non-human primates (NHPs). TRACER generated capsids have demonstrated superior and widespread gene expression in the CNS compared to conventional AAV capsids as well as cell- and tissue-specific transduction, including to areas of the brain that have been traditionally difficult to reach. Separate results have demonstrated the enhanced ability of certain capsids to target cardiac muscle and to de-target the dorsal root ganglia. Voyager is expanding its library of AAV capsids optimized to deliver diverse therapeutic payloads to address a broad range of CNS and other diseases.

About Voyager Therapeutics
Voyager Therapeutics (Nasdaq: VYGR) is leading the next generation of AAV gene therapy to unlock the potential of the modality to treat devastating diseases. Proprietary capsids born from the Company's TRACER discovery platform are powering a rich early-stage pipeline of new and second-generation programs and may elevate the field to overcome the narrow therapeutic window associated with conventional gene therapy vectors across neurologic disorders and other therapeutic areas. voyagertherapeutics.com LinkedIn Twitter

Forward-Looking Statements
This press release contains forward-looking statements for the purposes of the safe harbor provisions under The Private Securities Litigation Reform Act of 1995 and other federal securities laws. The use of words such as "may," "might," "will," "would," "should," "expect," "plan," "anticipate," "believe," "estimate," "undoubtedly," "project," "intend," "future," "potential," or "continue," and other similar expressions are intended to identify forward-looking statements.

For example, all statements Voyager makes regarding the presentation of preclinical data at ASGCT 2022, Voyager's ability to continue to identify and develop proprietary capsids from its TRACER AAV screening platform; Voyager's ability to identify and develop proprietary capsids from its TRACER AAV screening platform with enhanced CNS transduction across species, increased blood-brain barrier penetration and increased biodistribution compared to conventional AAV9 capsids; Voyager's ability to develop gene therapy approaches treating patients with Parkinson's disease, familial amyotrophic lateral sclerosis and tauopathies; Voyager's ability to discover AAV derived capsids with high transduction in CNS tissues via intravenous dosing in humans; Voyager's ability to progress its research and development programs; Voyager's ability to continue to develop preclinical data on its early pipeline programs relying upon its novel capsid discovery efforts; and Voyager's ability to utilize its novel proprietary capsids in its product development programs are forward looking.

All forward-looking statements are based on estimates and assumptions by Voyager's management that, although Voyager believes such forward-looking statements to be reasonable, are inherently uncertain. All forward-looking statements are subject to risks and uncertainties that may cause actual results to differ materially from those that Voyager expected. Such risks and uncertainties include, among others, the severity and length of the COVID-19 health crisis; the continued development of Voyager's technology platforms, including Voyager's TRACER platform; the ability to initiate and conduct of preclinical studies in more advanced pre-clinical animal models; the ability to attract and retain talented contractors and employees; the ability to create and protect intellectual property; and the sufficiency of cash resources.

These statements are also subject to a number of material risks and uncertainties that are described in Voyager's most recent Annual Report on Form 10-K filed with the Securities and Exchange Commission, as updated by its subsequent filings with the Securities and Exchange Commission. All information in the press release is as of the date of this press release, and any forward-looking statement speaks only as of the date on which it was made. Voyager undertakes no obligation to publicly update or revise this information or any forward-looking statement, whether as a result of new information, future events or otherwise, except as required by law.

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