Voyageur Advances MRI Drug Development Using Next Generation Endohedral Fullerenes

written by Raj Shah | February 18, 2025

February 18, 2025 (Source) – Voyageur Pharmaceuticals Ltd. (**TSX.V:VM**) (OTC Pink:VYYRF) ("Voyageur" or the "Company") is pleased to announce the launch of its next generation MRI contrast agent development program in collaboration with Applied Pharmaceutical Innovations (**API**) and Rain Cage Carbon Inc (**RC**). This program aims to create novel, high performance MRI contrast drug formulations utilizing advanced nanotechnology.

Under this collaboration, API will leverage the unique vanadium endohedral fullerene molecule developed by RC and announced by Voyageur on June 11, 2024 (V@C60). The goal is to formulate multiple innovative MRI contrast agents, which will undergo rigorous testing for relaxivity, sensitivity and imaging performance. Pending positive results, the project will advance to the pre-clinical development phase.

Leading this ambitious program is Dr. Iryna Saranchova, M.D., Ph.D., Chief Science Officer at Voyageur, who will oversee drug discovery, pre-clinical studies and phased clinical trials. API will conduct development work at its Edmonton, Alberta facilities and manage each stage of the program. Dr. Daniel Trepanier, Executive Scientist, Discovery & Early Development at API, and Dr. Daren Ure, Executive Scientist, Preclinical Development at API, bring extensive experience in advancing novel medicines toward clinical trials and market launch. Their leadership will be pivotal in developing Voyageur's next-

generation MRI contrast agents with the goal of achieving clinical readiness.

Voyageur remains committed to bringing its barium contrast products to market and leveraging partnerships with third-party GMP manufacturers to ensure regulatory validation and market entry. The ongoing drug development initiatives, including the next-generation MRI contrast agents, are strategically aligned to complement and enhance Voyageur's core focus on barium contrast, without diverting attention from its primary objectives.

Potential Breakthrough in MRI Contrast Agent Technology

Voyageur's research aims to demonstrate that V@C60 based contrast agents may provide key advantages over traditional gadolinium-based contrast agents (GBCAs), including:

Feature	Gadolinium-Based Contrast (GBCAs)	V@C_{60}-Based Contrast Agent Targeted Properties
Paramagnetic Element	Gadolinium (Gd^{3+})	Vanadium (V) inside C_{60}
Magnetic Properties	Strong T_1 shortening	Stronger T_1 & T_2 enhancement due to electron delocalization
Stability	Requires chelation (can degrade over time)	Highly stable inside C_{60} cage
Toxicity Risk	Gd^{3+} leakage can cause NSF in kidney patients	Zero leakage from C_{60}, reducing toxicity
Targeting Ability	Passive diffusion	Active targeting via folic acid receptors
Excretion Pathway	Renal (kidney)	Hepatobiliary (liver & intestines)
Circulation Half-Life	1–2 hours	4–6 hours (longer retention time)
Multi-Use Applications	MRI only	MRI + Drug Delivery + Cancer Therapy

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Brent Willis, President, CEO, and Director of Voyageur,

commented, “We are thrilled to embark on this transformative phase of MRI drug development. Our goal is to pioneer the use of endohedral fullerenes to create next-generation contrast agents that offer superior imaging quality, enhanced safety and broader medical applications. Successfully demonstrating the potential of these advanced molecules will position Voyageur as a significant player in the nano-biotechnology and radiology markets. Looking ahead, our second phase of development will focus on creating new enhanced barium contrast formulas, new CT contrast agents and Theranostics for targeted drug delivery for enhanced treatment outcomes”.

“This collaboration among three Alberta-based innovators underscores the strength of our life sciences sector and its capacity to deliver impactful healthcare solutions on a global scale,” said Andrew MacIsaac, CEO of API. “By harnessing cutting-edge nanotechnology, Voyageur is poised to transform diagnostics and treatments—ultimately offering safer and more effective patient care. Together, we’re accelerating the journey from discovery to real-world impact.”

The Power of Endohedral Fullerenes in Medical Imaging

Endohedral fullerenes are believed by management of Voyageur to be a breakthrough in nanomedicine due to their exceptional stability, bioavailability and enhanced imaging properties. These structures have the potential to revolutionize MRI contrast agents by enhancing image clarity, reducing toxicity and enabling precision targeted diagnostics and treatments. RC’s ability to produce endohedral fullerenes at scale marks a significant technological milestone, unlocking new possibilities for advance medical imaging and drug delivery solutions. Mark Blake, CEO of RC commented, “We believe the endohedral fullerenes we create have the capacity to revolutionize the diagnostic imaging industry and Voyageur is the ideal partner to

work with to bring these advances to the market.”

About Rain Cage Carbon Inc

RC is a pioneering private Canadian company dedicated to decarbonizing industries by capturing CO2 and other emissions and transforming them into advanced carbon. Through its proprietary technology, the EDEN™ Carbon Capture and Reuse System, it offers companies a new method to combat carbon pollution. RC’s unique approach not only helps mitigate emissions but also harnesses contaminating energy and converts it into a recyclable technology with countless applications.

https://raincagecarbon.com

About Applied Pharmaceutical Innovations

API stands as one of Canada’s largest life sciences commercialization organizations, dedicated to enhancing the quality-of-life sciences. As an industry-funded not-for-profit, API provides end-to-end support to life sciences researchers, businesses and innovators on their journey from idea to commercialization. With scientific leadership from Nobel Laureate Sir Michael Houghton, API provides access to facilities and experts that help pharmaceutical projects reach the market. With a commitment to sharing expertise, resources and infrastructure, API aims to build an unparalleled life sciences sector driving prosperity for all. **https://appliedpharma.ca/**

About Voyageur Pharmaceuticals Ltd.

Voyageur, a Canadian public company trading under the symbol VM on the TSXV, is in development of barium and iodine Active Pharmaceutical Ingredients and intends to offer high-performance, cost-effective imaging contrast agents. With a strategic focus on vertically integrating the barium and iodine

contrast markets, Voyageur aims to become a key player by producing its own barium, iodine and new endohedral fullerene drugs (C60). Voyageur has developed five barium contrast products that have Health Canada licenses.

Voyageur's business plan is set to generate cash flow by partnering with established third-party GMP pharmaceutical manufacturers in Canada thereby ensuring the validation of its products by regulatory agencies worldwide. As Voyageur solidifies its presence in the market, it plans to transition into a high-margin domestic manufacturer of radiology drugs, complementing the planned revenue streams.

At the core of its operations, Voyageur owns 100% interest in the Frances Creek barium sulphate (barite) project. Currently, the world's pharmaceutical barium sulphate is almost entirely synthetically produced which management believes results in a less effective imaging quality product. Voyageur's Frances Creek resource boasts a rare and exceptional grade mineral suitable for the pharmaceutical marketplace that Voyageur believes will replace the current synthetic products with higher quality lower cost imaging products.

Voyageur's ambitious vision is to become the first vertically integrated company in the radiology contrast media drug market. By controlling all primary input costs, from the sourcing of raw materials to final production, Voyageur intends to ensure quality and cost efficiency. With its approach, it embodies the motto of "**From the Earth to the Bottle**," highlighting Voyageur's commitment to responsible sourcing and sustainable manufacturing practices.

For Further Information:

Brent Willis, CEO	**Albert Deslauriers, CFO**

Brent@vpharma.ca, 403-923-5944	**Albert@vpharma.ca**
info@vpharma.ca	**https://voyageurpharmaceuticals.ca**

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Cautionary Statement Regarding “Forward-Looking” Information

This news release may contain certain forward-looking statements and forward-looking information (collectively, “forward-looking statements”), including without limitation, the Company’s business plan and the success of the Corporation’s next generation MRI contrast agents development program. Forward-looking statements normally contain words like “will”, “intend”, “anticipate”, “could”, “should”, “may”, “might”, “expect”, “estimate”, “forecast”, “plan”, “potential”, “project”, “assume”, “contemplate”, “believe”, “shall”, “scheduled”, and similar terms. Forward-looking statements are not guarantees of future performance, actions, or developments and are based on expectations, assumptions, and other factors that management currently believes are relevant, reasonable, and appropriate in the circumstances. Although management believes that the forward-looking statements herein are reasonable, actual results could be substantially different due to the risks and uncertainties associated with and inherent to Voyageur’s business. Additional material risks and uncertainties applicable to the forward-looking statements herein include, without limitation, the impact of general economic conditions, and unforeseen events and developments. This list is not exhaustive of the factors that may affect the Company’s forward-looking statements. Many of these factors are beyond the control of Voyageur. All forward-looking statements included in this news

release are expressly qualified in their entirety by these cautionary statements. The forward-looking statements contained in this news release are made as at the date hereof, and Voyageur undertakes no obligation to update publicly or to revise any of the included forward-looking statements, whether as a result of new information, future events, or otherwise, except as may be required by applicable securities laws. Risks and uncertainties about the Company's business are more fully discussed under the heading "Risk Factors" in its most recent filings. They are otherwise disclosed in its filings with securities regulatory authorities available on SEDAR+ at www.sedarplus.ca.