Testing to Begin of Radiology Endohedral Fullerenes, a Milestone in Nanotechnology & Drug Development

written by Raj Shah | June 11, 2024

June 11, 2024 (Source) – **Voyageur Pharmaceuticals Ltd**. (TSX.V: VM) (USA: VYYRF) ("Voyageur" or the "Company") announces that in an innovative endeavor, Voyageur and Rain Cage Carbon Inc. ("Rain Cage") are following up on the first commercial creation of a **V@C60** endohedral fullerene (Vanadium atom inside a **C60** molecule). Rain Cage is now embarking on the next phase of radiology drug development, by utilizing their cutting-edge technology. Rain Cage will begin testing to create on a commercial scale, the encapsulation of gadolinium, bismuth, and iodine within endohedral fullerenes. The pioneering work, set to begin later this month, with the objective to develop a process to create **Gd@C60, Bi@C60, and I@C60** endohedral fullerenes, targeting the development of highly advanced radiology contrast agents for Magnetic Resonance Imaging (MRI) and CT scans. These novel compounds, known for their rarity and complex synthesis, hold the promise of transforming medical imaging by significantly enhancing the precision and clarity of radiological scans.

"We are thrilled to be at the forefront of this groundbreaking initiative that marries cutting-edge nanotechnology with pharmaceutical innovation. Our collaboration with Rain Cage in my view marks a pivotal moment in medical science, where the development of endohedral fullerenes promises not just advancements in radiology, but a paradigm shift in how we

approach diagnostic imaging. I believe this is just the beginning of a transformative journey towards revolutionizing healthcare solutions for the benefit of patients worldwide," stated Brent Willis, CEO of Voyageur.

Endohedral fullerenes are a class of fullerenes that enclose an additional atom, ion, or cluster within their inner sphere, exhibiting superior physical and electronic characteristics compared to regular fullerenes. In the context of radiology drugs, endohedral metallofullerenes offer a distinct advantage through exceptional stability and bioavailability, an amplified signal that leads to better image clarity and resolution, targeted delivery and reduced toxicity. These properties have garnered interest in applications such as MRI contrast agents. One notable example is gadolinium endohedral fullerene, featuring gadolinium enclosed in a carbon cage, which displays high proton relaxivity and low toxicity, showing great promise for MRI contrast agents. (https://pubmed.ncbi.nlm.nih.gov/?term=gadolinium+fullerene+contrast+agent)

Endohedral fullerenes show potential in radiology contrast applications such as X-ray and CT scans, including acting as MRI contrast agents for superior imaging resolution, aiding in radiopharmaceutical stability and bioavailability, and serving as platforms for targeted drug delivery through functionalization with specific targeting molecules.

Endohedral fullerenes are incredibly rare for commercial applications due to the complex and precise conditions required for their synthesis, making them one of the most valuable materials in nanotechnology. Rain Cage Carbon has developed a method to create these high value molecules at scale, an industry first.

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 (API) and offers high-performance, cost-effective imaging contrast agents. With a strategic focus on vertically integrating the barium and iodine contrast market, Voyageur aims to become a key player by producing its own barium, iodine, and fullerene minerals.

Voyageur's business plan is set to generate cash flow by partnering with established third-party GMP pharmaceutical manufacturers in Canada, 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, further expanding its revenue streams.

Voyageur is committed to sustainability and environmental stewardship. Voyageur envisions a future where reducing carbon emissions is the norm, and to achieve this, it is building state-of-the-art carbon-capture infrastructure utilising the Rain Cage *EDEN™ system*. By investing in carbon capture energy sources and sustainable manufacturing practices, Voyageur aims to increase revenue from carbon captured "advanced carbon production" to accelerate growth. Voyageur's unwavering commitment to the environment sets it apart as a pioneer in the industry.

At the core of its operations, Voyageur owns a 100% interest in the Frances Creek barium sulphate (barite) project. This project boasts exceptional grade minerals suitable for the pharmaceutical marketplace.

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 the final production, Voyageur ensures 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 manufacturing practices.

About Rain Cage Carbon Inc

Rain Cage 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, EDEN™, it offers companies a groundbreaking solution to combat carbon pollution. Rain Cage'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

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This news release may contain certain forward-looking information and statements, including without limitation, statements pertaining to: the successful encapsulation of

gadolinium, bismuth, and iodine within endohedral fullerenes on a commercial scale, and whether these novel compounds will significantly enhance the process and clarity of radiological scans. All statements included herein, other than statements of historical fact, are forward-looking information and such information involves various risks and uncertainties. There can be no assurance that such information will prove to be accurate, and actual results and future events could differ materially from those anticipated in such information. A description of assumptions used to develop such forward-looking information and a description of risk factors that may cause actual results to differ materially from forward-looking information can be found in the Company's disclosure documents on the SEDAR+ website at www.sedarplus.ca. Voyageur does not undertake to update any forward-looking information except in accordance with applicable securities laws.