

*Flowfect*TM Tx Revealed

The future in non-viral delivery for cell therapy manufacturing

October 28, 2020 - Kytopen, an MIT spin-out company, and Cambridge Consultants, part of Capgemini, announce the initial release of the *Flowfect*TM Tx System, representing a leap forward in non-viral delivery of genetic material into cells. This breakthrough will speed the manufacture of cell therapies, an exciting category of living medicines where engineered cells tackle diseases. Kytopen will now make the *Flowfect*TM Tx System available to select bio-pharma partners and collaborators to accelerate their engineered cell therapy production.

Emerging cell therapies open up new and effective ways of treating disease, but difficulties in manufacturability, scalability and cost have slowed progress. Cambridge Consultants collaborates with visionary clients such as Kytopen to solve these issues, ultimately working to deliver the full promise of cell therapies to patients around the globe.

The *Flowfect*TM technology virtually eliminates these challenges, providing an effective, gentle process that produces billions of healthy, high-quality engineered cells in minutes. The *Flowfect*TM Tx System enables both process optimization and manufacturing at scale, faster and more efficiently than ever before.

The *Flowfect*TM Tx System features an automated, single use closed system for maximum ease of use and flexibility. This non-viral delivery technology uses continuous fluid flow combined with electric fields for high efficiency delivery of payloads such as mRNA, DNA, and CRISPR RNP complexes. The *Flowfect*TM technology is compatible with a variety of cells, including iPSCs, primary T cells, and other human hematopoietic cells being developed for immuno-oncology and gene editing applications. High-quality engineered cell products will ultimately translate into more effective and more accessible cell therapies for patients.

The *Flowfect*TM Tx System is part of a broader discovery, optimization, and manufacturing platform that also includes the *Flowfect*TM Array, a high throughput system that enables evaluation of hundreds of programmable configurations for identification and optimization of delivery parameters. The proprietary *Flowfect*TM technology delivers identical transfection parameters across platforms, enabling immediate translation from discovery to process development and manufacturing scale-up, with minimal technical risk.

Cambridge Consultants is renowned for breakthrough innovations with the potential to change the world – in this case widening access to new therapies with curative potential. The company brought its deep expertise in engineering, human factors, cell therapy manufacturing and rapid prototyping to the *Flowfect*[™] Tx System design and build process. With a track record of working with ambitious start-ups to commercialize core technology, Cambridge Consultants is also forging a strong reputation in the fast-growing bioinnovation space, applying radical innovation across biology, process development and analytics.

These strengths were recognized by Kytopen when it engaged Cambridge Consultants in 2019 to help accelerate the engineering of its standalone *Flowfect*[™] Tx System. Kytopen's core technology was originally developed in Professor Cullen Buie's laboratory at MIT before he and Kytopen CEO and Co-Founder Paulo Garcia were backed by 'The Engine'. The "tough tech" ecosystem at The Engine and the world-class team at Kytopen have driven significant technological advances since spinning out of MIT in 2017. With an ambition to revolutionize cell engineering and widen patient access to next-generation treatments, Kytopen is working to enable efficient and cost-effective manufacture of cell therapies in days rather than weeks.

Commenting on the announcement, Paulo Garcia said: "It's been a pleasure to collaborate with the Cambridge Consultants team to realize the vision for the *Flowfect*[™] Tx System. The existence of a physical product that can be used at our partners' facilities is a major milestone that will allow for powerful therapeutic collaborations. We're excited to explore the capabilities of our *Flowfect*[™] technology to unlock next-generation therapies requiring healthy and functional engineered cells at scale. Gene-modified cell therapies have already demonstrated curative potential and we are honored to empower our partners to help patients suffering from devastating diseases worldwide."

Bethany Grant, Senior Vice President of R&D at Kytopen, added: "Cambridge Consultants has enabled us to expand our capabilities and team, helping us to achieve this exciting product release in a very short timeframe. The *Flowfect*[™] Tx System is an excellent first implementation of our transformative technology."

Mike Dunkley, Senior Vice President at Cambridge Consultants, said: "We've really appreciated the opportunity to work alongside the team at Kytopen in developing *Flowfect*[™] Tx. The focus on simplicity of setup, single touch operation and intuitive UI, combined with engineering rigor and robust process control has been key. In this way we've delivered a system with unrivaled performance in the engineering of cells via non-viral transfection. This deliberate focus on both performance and ease of use will provide Kytopen's bio-pharma partners with a powerful new tool to advance their cell-based therapies."

ENDS

Notes for editors

Cambridge Consultants develops breakthrough products, creates and licenses intellectual property, and provides business consultancy in technology-critical issues for clients worldwide. For more than 50 years, the company has been helping its clients turn business opportunities into commercial successes, whether they are launching first-to-market products, entering new markets or expanding existing markets through the introduction of new technologies. With a team of more than 850 staff, including engineers, scientists, mathematicians and designers, in offices in Cambridge (UK), Boston (USA), Tokyo and Singapore, Cambridge Consultants offers solutions across a diverse range of industries including medical technology, industrial and consumer products, digital health, energy and wireless communications. For more information, visit: www.cambridgeconsultants.com

Cambridge Consultants is part of Altran. Altran is the undisputed world leader in engineering and R&D services. Altran offers its clients a unique value proposition to meet their transformation and innovation challenges. Altran supports its clients, from concept to industrialization, to develop the products and services of tomorrow and has been working for more than 35 years with major players in many sectors: Automotive, Aeronautics, Space, Defence & Naval, Rail, Infrastructure & Transport, Industry & Consumer Products, Life Sciences, Communications, Semiconductor & Electronics, Software & Internet, Finance & Public Sector. Today, Altran counts more than 50,000 employees and operates in over 30 countries. Altran is an integral part of Capgemini, a global leader in consulting, digital transformation, technology, and engineering services. The Group is at the forefront of innovation to address the entire breadth of clients' opportunities in the evolving world of cloud, digital and platforms. Building on its strong 50-year heritage and deep industry-specific expertise, Capgemini enables organizations to realize their business ambitions through an array of services from strategy to operations. A responsible and multicultural company of 265,000 people in nearly 50 countries, Capgemini's purpose is to unleash human energy through technology for an inclusive and sustainable future. With Altran, the Group reported 2019 combined global revenues of €17 billion.

Visit us at www.altran.com

Kytopen is an MIT spin-out pioneering a novel and non-viral delivery process to engineer human cells (e.g. T cells, NK cells, B-cells, Monocytes/Macrophages, CD34+ stem cells, and iPSCs) for therapeutic applications in immuno-oncology and genetic disorders. The company has demonstrated the ability to successfully deliver genetic material encoded in mRNA, DNA, and CRISPR RNP complexes to a vast array of human cells with high efficiency and high viability. The *Flowfect*TM System being developed can process billions of cells in minutes while maintaining health and function of the engineered cells. The *Flowfect*TM technology carefully synchronizes continuous fluid flow with electric fields to eliminate the harmful effects of traditional delivery via static electroporation. Kytopen is unique in that it is determined to improve patients' lives by enabling therapeutic partners to accelerate discovery with an automated platform with a goal of reducing the manufacturing time of these cell therapies from weeks

to days. High-quality engineered cell products will ultimately translate into faster and more cost-effective cell therapy access for a range of patients around the world. Kytopen has developed significant traction since it spun out from MIT in 2017, with seed funding from The Engine, Horizons Ventures, and angel investors. Additionally, the company has secured non-dilutive federal and state funding from NSF SBIR phase I/II and MassVentures START grants. The Kytopen team has grown to eight full time members, encompassing a broad range of expertise. This dedicated and multidisciplinary team has enabled the rapid demonstration of the potential impact that the *Flowfect*TM platforms will have in the practice of future medicine by accelerating time to clinic, reducing manufacturing cost, and providing access to patients suffering from devastating diseases. For more information, visit: www.kytopen.com

Cambridge Consultants

Richard Leyland

Media Relations Manager

+44 1223 392002

richard.leyland@cambridgeconsultants.com**USA PR Agency**

Hanah Johnson

March Communications

+1 617 960 8892

hanah@marchcomms.com**UK PR Agency**

Josh Salisbury

Ketchum

+44 20 3755 6400

cambridgeconsultants@ketchum.com**Kytopen**

Paulo Garcia

CEO & Co-Founder

+1 617 299 1688

press@kytopen.com