

29 August 2017

## PureTech Health plc

### **PureTech Health Exclusively Licenses Glyph Technology from Monash University to Harness Lymphatic Biology**

*Novel approach designed to enable oral administration of medicines that traffic via the lymphatic system and selectively target the lymph nodes*

PureTech Health plc (“PureTech Health” or the “Company”, LSE: PRTC), an advanced, clinical-stage biopharmaceutical company, today announced an exclusive licensing agreement with Monash University for a lymphatic targeting platform (the Glyph technology) based on the pioneering research of Christopher Porter, PhD, Director of the Monash Institute of Pharmaceutical Sciences (MIPS) at Monash University in Australia. The Glyph technology is aimed at harnessing the biology of the lymphatic system to develop novel therapeutics, including those that selectively target certain lymph nodes. This programme further builds on PureTech’s leadership in identifying novel approaches to address dysfunctions of the brain, immune and GI systems.

“The lymphatic system is a vastly underexplored circulatory network that serves a fundamental role in maintaining physiological homeostasis and immune control,” said Dr Joseph Bolen, Chief Scientific Officer of PureTech Health. “The Glyph technology represents a major advancement in potentially enhancing transport and distribution of therapeutics via the lymphatic system and targeting of certain lymph nodes. By addressing the immune system at the sites of dysregulation and immune control, this novel approach has the potential to radically transform the treatment of serious disease.”

By virtue of its architecture and distribution throughout the body, the lymphatic system potentially represents a key conduit for communicating signals at the intersection of the immune-gut-brain axis. The Glyph technology is designed to harness the biology of the lymphatic system and the endogenous trafficking of compounds through this network to develop novel drugs that bypass first-pass metabolism, improve oral bioavailability, and significantly lower the risk of liver toxicity. In particular, the mesenteric lymph nodes, proximal to the gut, are exposed to a host of microbiome related species and serve an integral role in immune education and control. Targeting the lymphatic pathway potentially enables rational design of therapeutics to modulate the immune system, representing an innovative approach to treating a broad range of serious immunological disorders, such as cancer and autoimmune diseases. The Glyph technology will be developed by PureTech Health through its subsidiary, Glyph Biosciences, in collaboration with Dr Porter’s laboratory.

“Through our work at Monash University, we have designed chemistries that potentially enable drugs to be preferentially and effectively transported through the endogenous pathways of lipid transport via the intestinal lymphatics in a controlled manner,” said Dr Porter. “Our technology has been shown in pre-clinical experiments to achieve significant oral bioavailability of compounds through the avoidance of first-

pass metabolism, and has the potential to significantly mitigate liver toxicity and to alter systemic drug disposition. I am excited to be working with PureTech Health to rapidly advance this potentially disruptive technology platform toward the development of novel therapeutics.”

“This new programme builds on PureTech’s unique expertise and approach to utilize novel biology, such as the lymphatic distribution network, to treat serious diseases,” said David Steinberg, Chief Innovation Officer and a Co-founder of PureTech Health. “We look forward to a great partnership with Dr Porter and building on his work at Monash University to drive advancements in immunomodulation.”

PureTech Health has gathered a group of leading expert collaborators and advisors around this programme, including:

**Ulrich von Andrian, M.D., PhD**, is the Mallinckrodt Professor of Immunopathology at Harvard Medical School. He received his medical degree from the Ludwig-Maximilians University in Munich, Germany, where he also conducted doctorate research on blood-brain barrier dysfunction following brain injury. In 1989, he joined the La Jolla Institute for Experimental Medicine and UCSD as a postdoctoral fellow working with Dr Karl-E. Arfors. His postdoctoral research involved the development of intravital microscopy techniques that led to the discovery of the multi-step leukocyte adhesion cascade in vivo. After a second postdoctoral fellowship in the laboratory of Dr Eugene C. Butcher at Stanford University, Dr von Andrian joined the Faculty of Harvard Medical School in 1994. His scientific research is focused on the regulation and function of immune cells in health and disease.

**William Charman, PhD**, is the Dean, Faculty of Pharmacy and Pharmaceutical Sciences, at Monash University. He received his B Pharm from the Victorian College of Pharmacy (now Monash University) in 1981, his PhD in pharmaceutical chemistry from the University of Kansas in 1985, and a DSc (honoris causa) from the University of London in 2011. He was appointed as the eighth Sir John Monash Distinguished Professor in 2011. His research has been characterised by a multidisciplinary and collaborative approach to address major issues in drug discovery, drug delivery and the pharmaceutical sciences. He has published more than 350 scientific papers and communications and is a Clarivate Analytics Highly Cited researcher.

**Christopher Porter, PhD**, is Director of the Monash Institute of Pharmaceutical Sciences (MIPS) at Monash University, Melbourne and Professor of Pharmaceutics. Dr Porter’s research program is broadly focussed on the challenges of drug absorption and, in particular, the oral absorption of poorly water soluble, highly lipophilic drugs. In recent years, his group has sought to harness endogenous lipid transport pathways as a means to enhance oral drug bioavailability and to stimulate lymphatic drug transport. He has parallel interests in better understanding the mechanisms of intracellular drug transport and the utility of dendrimers as targeted drug delivery systems. Dr Porter has published more than 200 peer reviewed papers in these areas and is a Clarivate Analytics Highly Cited researcher. He is a previous member of the Board of Scientific Advisors of CRS and is a fellow of the American Association of Pharmaceutical Scientists and the Royal Australian Chemical Institute. Dr Porter completed his undergraduate and graduate studies at the University of Nottingham in the UK before moving to Australia in 1992.

**Melody Swartz, PhD**, is the William B. Ogden Professor in Molecular Engineering and Professor of Immunology at the University of Chicago. Dr Swartz's research focuses on how lymphatic vessels, and their transport functions, contribute to adaptive immunity. She is trying to build a new picture of the lymphatic function, namely, that not only are fluid and cell transport functions of the lymphatic vessels strongly coupled, but that the fluid transport functions are very important in regulating immune responses. Dr Swartz's team also is trying to target lymphatic vessels for improved cancer immunotherapy because this is one aspect of the tumour microenvironment that seems to contribute to therapeutic failure. She received her undergraduate degree from John Hopkins University. She then pursued her PhD in Chemical Engineering at Massachusetts Institute of Technology.

**Patrick Tso, PhD**, is the Mary M. Emery Chair of Pathology, Director Cincinnati Mouse Metabolic Phenotyping Center. The goal of his research is to gain a better understanding of the mechanisms and factors regulating intestinal lipid absorption and the assembly and secretion of chylomicrons and very low density lipoproteins by the small intestine. The techniques employed consist of conscious intestinal lymph fistula rats, lymph fistula mouse, intestinal epithelial cell culture, and also molecular biology. His group is currently studying how bile salts are involved in the absorption of lipids as well as the factors regulating the synthesis and secretion of apolipoproteins by the small intestine. The apolipoproteins being studied include: apo AI, apo AIV, apo B, and apo CIII.

### **About PureTech Health**

PureTech Health (PureTech Health plc, PRTC.L) is an advanced, clinical-stage biopharmaceutical company developing novel medicines targeting serious diseases that result from dysfunctions in the immune, nervous, and gastro-intestinal systems by intervening early and addressing the underlying pathophysiology of disease. The Company is advancing a rich pipeline that includes two pivotal or registration studies expected to read out in 2017, multiple human proof-of-concept studies and a number of early clinical and pre-clinical programmes. PureTech Health's growing research and development pipeline has been developed in collaboration with some of the world's leading scientific experts, who along with PureTech's experienced team and a stellar Board identify, analyse and advance very selectively the opportunities the Company believes hold the most promise for patients. This experienced and engaged team places PureTech Health at the forefront of ground-breaking science and technological innovation and leads the Company between and beyond existing disciplines. For more information, visit [www.puretechhealth.com](http://www.puretechhealth.com) or connect with us on Twitter [@puretechh](https://twitter.com/puretechh).

### **Forward Looking Statement**

This press release contains statements that are or may be forward-looking statements, including statements that relate to the company's future prospects, developments and strategies. The forward-looking statements are based on current expectations and are subject to known and unknown risks and uncertainties that could cause actual results, performance and achievements to differ materially from current expectations, including, but not limited to, those risks and uncertainties described in the risk factors included in the regulatory filings for PureTech Health plc. These forward-looking statements are based on assumptions regarding the present and future business strategies of the company and the



environment in which it will operate in the future. Each forward-looking statement speaks only as at the date of this press release. Except as required by law and regulatory requirements, neither the company nor any other party intends to update or revise these forward-looking statements, whether as a result of new information, future events or otherwise.

**Contact:**

**PureTech Health**

Allison Mead Talbot  
+1 617 651 3156  
[amt@puretechhealth.com](mailto:amt@puretechhealth.com)

**FTI Consulting**

Ben Atwell, Rob Winder  
+44 (0) 20 3727 1000