



PureTech's Alivio Granted Two US Patents Broadly Covering Compositions of Matter for Inflammation-Targeting Technology Platform

May 22, 2018

PureTech Health plc (LSE: PRTC) ("PureTech Health"), an advanced, clinical-stage biopharmaceutical company, announced today that its affiliate, Alivio Therapeutics, has been granted two key patents broadly covering its inflammation-targeting technology platform.

Alivio's newest patents issued by the United States Patent and Trademark Office (USPTO), Nos. 9,962,339 and 9,974,859, broadly cover compositions of matter and other aspects of the inflammation-targeting microfiber materials with embedded molecules of interest. These patents lay a strong foundation for Alivio to expand its intellectual property portfolio for this unique technology platform. Both patents are exclusively licensed by Alivio from Brigham and Women's Hospital and the Massachusetts Institute of Technology.

Eric Elenko, PhD, Chief of Research and Strategy at PureTech Health, said: "PureTech's mission is to pioneer new categories of medicine that address serious chronic diseases in a highly targeted manner. One area of focus for us is autoimmune disease, such as inflammatory bowel disease and other inflammatory conditions, and Alivio is pioneering inflammation-targeting technology to offer safe and effective treatment options for patients living with these challenging disorders. These new patents validate the uniqueness of Alivio's approach and are foundational to this affiliate's growing pipeline of targeted immunomodulation opportunities."

In April 2018, a preclinical study of Alivio's technology platform was published in *Nature Communications*, demonstrating proof-of-concept that an immunomodulatory drug, administered locally using the Alivio inflammation-targeting technology, substantially reduced measures of arthritis disease activity, with a 5.7-fold improvement in the disease clinical score vs control, as compared to only 1.4-fold for the free drug. In July 2017, Alivio presented data for product candidate ALV-107 showing durable pain control throughout a 24-hour study period, lasting at least 12 times longer than lidocaine at a comparable dose, in a validated preclinical model for the treatment of interstitial cystitis/bladder pain syndrome (IC/BPS).

The full text of the announcement from Alivio is as follows:

Alivio Therapeutics Announces Issuance of Two U.S. Patents Broadly Covering Compositions of Matter for Inflammation-Targeting Technology Platform

Boston, Massachusetts, May 22, 2018 — Alivio Therapeutics, an affiliate of PureTech Health plc (LSE: PRTC) developing therapies to treat inflammatory disorders through targeted disease immunomodulation, today announced that the United States Patent and Trademark Office (USPTO) issued U.S. Patent Nos. 9,962,339 and 9,974,859, related to the Company's inflammation-targeting technology platform. The patents, among other aspects, broadly cover compositions of matter of the inflammation-targeting microfiber materials with embedded molecules of interest. The platform is being evaluated for use across a variety of diseases, including inflammatory bowel disease and pain.

The now patented technology is designed to administer therapeutically-relevant molecules, such as small molecules, biologics (e.g., antibodies, peptides, and proteins), and nucleic acids, directly to site of inflammation, bypassing healthy tissue. The Alivio technology is also engineered to respond dynamically to the disease site, releasing the embedded therapeutics based on the degree of inflammation present. This novel approach has the potential to enable new paradigms for treating inflammatory disease – both orally and via other administration routes – while simultaneously minimising the risks of exposing healthy tissue to potent immunomodulators.

"The USPTO's allowance of these broad claims is an independent acknowledgment of the uniqueness of the technology and lays a strong foundation for our intellectual property portfolio," said Aleks Radovic-Moreno, PhD, PureTech Health Vice President and Alivio programme lead. "Based on compelling preclinical data in several independent disease models, we are developing potentially important new drugs for a range of chronic and acute inflammatory diseases, such as inflammatory bowel disease, arthritis, and interstitial cystitis/bladder pain syndrome."

The relevant intellectual property is exclusively licensed to Alivio Therapeutics and is based on technology developed by Jeffrey Karp, PhD, Brigham and Women's Hospital (BWH), Harvard Medical School (HMS), and Robert Langer, ScD, Massachusetts Institute of Technology (MIT). The pioneering work of Dr Karp, Dr Langer, and their colleagues has demonstrated selective modulation of the immune system at the site of disease in relevant preclinical models using therapeutic agents embedded in the Alivio microfibers. Alivio is now advancing this promising inflammation-targeting technology platform and building a robust pipeline with the goal of achieving targeted disease immunomodulation to address a number of targeted therapies for treating chronic and acute inflammatory diseases.

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About Alivio

Alivio Therapeutics, an affiliate of PureTech Health (PRTC.L), is pioneering targeted disease immunomodulation as a novel strategy to treat a range of chronic and acute inflammatory disorders. Targeted disease immunomodulation involves tuning the immune system exclusively at the site of disease in the body, with minimal impact on the rest of the immune system. This long sought-after approach has potential to treat a range of chronic and acute

inflammatory disorders including ones that would otherwise be difficult to treat. Alivio's proprietary inflammation-targeting technology, based on the research of Dr Karp and Dr Robert Langer, David H. Koch Institute Professor at MIT, is the first technology to reproducibly show the ability to target immunomodulatory compounds to inflamed tissue, which can lead to dramatic improvements in treatment efficacy with major reductions in systemic effects. The platform has been validated in multiple labs and in eight different animal models of inflammation where the inflammation occurred in different parts of the body (e.g., the GI system, the bladder, joints, skin, etc.). The technology could potentially be used with a variety of medications (e.g., small molecules, biologics, and nucleic acids) both independently or in combination, and is designed to be administered orally or via other routes. With this platform, Alivio aims to address the dozens of conditions where inflammation is a central part of the underlying disease pathology, but where targeted and effective treatment options are lacking.

Alivio is developing its proprietary technology in collaboration with several of the world's leading experts in biomaterials and immunology. Expert advisors include: [Jeffrey Karp, PhD](#), Professor of Medicine at Brigham and Women's Hospital and Alivio co-founder; [Robert Langer, ScD](#), Co-Alivio Founder and Non-Executive Director at PureTech Health and David H. Koch Institute Professor at MIT; Michael B. Brenner, M.D., Chief of the Division of Rheumatology, Immunology and Allergy at BWH; [Ulrich H. von Andrian, MD, PhD](#), Mallinckrodt Professor of Immunopathology at Harvard Medical School; and [Ralph Weissleder, MD, PhD](#), Director of the Center for Systems Biology at Massachusetts General Hospital.

About PureTech Health

PureTech Health (PRTC.L) is an advanced, clinical-stage biopharmaceutical company developing novel medicines targeting serious diseases that result from dysfunctions in the nervous, immune, and gastrointestinal systems (brain-immune-gut or the "BIG" axis), which together represent the adaptive human systems. PureTech Health is at the forefront of understanding and addressing the biological processes and crosstalk associated with the BIG axis. By harnessing this emerging field of human biology, PureTech Health is pioneering new categories of medicine with the potential to have great impact on people with serious diseases. PureTech Health is advancing a rich pipeline of innovative therapies that includes two pivotal stage programmes, multiple human proof-of-concept studies and a number of early clinical and pre-clinical programmes. PureTech's research and development pipeline has been advanced in collaboration with some of the world's leading scientific experts, who along with PureTech's team of biopharma pioneers, entrepreneurs and seasoned Board, identify, invent, and clinically de-risk new medicines. With this experienced team pursuing cutting edge science, PureTech Health is building the biopharma company of the future focused on improving and extending the lives of people with serious disease. For more information, visit 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.