



PureTech Health Collaborator Publishes in Nature Neuroscience Highlighting Key Role of Brain Lymphatics in Neuroinflammatory Conditions Like Multiple Sclerosis

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Work identifies junction between brain and lymphatics system, offering new insights into disease pathology

Novel therapeutic approach to target neuroinflammation enabled by a deeper understanding of pathogenic immune cell trafficking between the CNS and the brain lymphatics

Underlying intellectual property is exclusively licensed by PureTech Health and is being developed internally

PureTech Health plc (LSE: PRTC) ("PureTech Health"), an advanced biopharmaceutical company developing novel medicines for dysfunctions of the Brain-Immune-Gut (BIG) Axis, today notes the publication of research in [Nature Neuroscience](#) that identifies the physical connection between the brain's fluid reservoirs and the meningeal lymphatics, through which immune cells traffic out of the central nervous system (CNS). The publication also demonstrates that modulation of this trafficking pattern has the potential to improve symptoms in many neuroinflammatory conditions, such as multiple sclerosis (MS). These new insights build on foundational science published as the cover story of [Nature](#) in August 2018, and the underlying intellectual property is being developed within PureTech's [Internal division](#).

The new research was conducted by PureTech Health collaborator Jonathan Kipnis, PhD, Harrison Distinguished Teaching Professor and Chair, Department of Neuroscience, and Director, Center for Brain Immunology and Glia, at the University of Virginia School of Medicine. Dr Kipnis' latest work shows the trafficking of pathogenic T cells between the cerebrospinal fluid and the meningeal lymphatics in a preclinical model of MS, making it the first to identify the role of the meningeal lymphatic system in the context of neuroinflammatory conditions.

Joseph Bolen, PhD, Chief Scientific Officer at PureTech Health, said: "The latest discovery is the third chapter in the brain lymphatics narrative that began in 2015 when Dr Kipnis' laboratory first reported the existence of the meningeal lymphatics. The second chapter, published just a few weeks ago in [Nature](#), revealed that the meningeal lymphatics are the principal fluid drainage mechanism of the brain and that this function is critical for brain health. This latest research identifies the direct connection – or 'hot spot' – between the brain and the meningeal lymphatic system, which offers a novel therapeutic approach for potentially addressing these debilitating and devastating neurological diseases."

Dr Kipnis commented on this announcement, "This work further suggests that the lymphatic system plays a critical role in the central nervous system, specifically, the regulation of meningeal immunity and neuroinflammation. I look forward to working with PureTech Health as they further advance these findings to potentially improve intervention and treatment of neuroinflammatory disease."

About the CNS Lymphatics Technology

The central nervous system (CNS) was previously thought to be devoid of lymphatic vasculature; however, research published in [Nature](#) in 2015 identified the meningeal lymphatic and glymphatic systems as key maintenance organs within the brain. The biological crosstalk at the CNS-immune interface has been further supported by evidence published as the cover story in [Nature](#) in August of 2018, which demonstrated that modulation of lymphatic function in the brain may potentially prevent or delay diseases associated with neurodegeneration, including Alzheimer's disease, Huntington's disease, and age-associated cognitive decline. This CNS-immune interface has also been supported by evidence published in [Nature Neuroscience](#) in September 2018, which identifies a direct connection between the cerebrospinal fluid (CSF) and the meningeal lymphatic system, suggesting that modulation of the meningeal lymphatic vessel network has the potential to ameliorate symptoms in CNS disorders, such as multiple sclerosis. These insights underlie PureTech's approach to designing novel categories of therapeutics to address debilitating and devastating CNS disorders, and the related IP has been exclusively licensed to PureTech Health from the University of Virginia Licensing & Ventures Group.

About PureTech Health

PureTech Health (LSE: PRTC) is an advanced biopharmaceutical company developing novel medicines for dysfunctions of the Brain-Immune-Gut (BIG) Axis. The Company has developed deep insights into the connection between the individual components of these systems and the resulting role in many chronic diseases, which have proven resistant to established therapeutic approaches. By harnessing this emerging field of human biology, PureTech Health is developing new categories of medicines with the potential to have great impact on people with serious diseases.

PureTech Health is advancing a rich pipeline of innovative therapies across two divisions: the Affiliates division and the Internal division. Its Affiliates division includes two product candidates that have been filed with the US Food and Drug Administration (FDA) for review and several other novel clinical and pre-clinical programmes. These affiliates are developing ground-breaking platforms and therapeutic candidates in collaboration with some of the world's leading experts.

PureTech's Internal division is advancing a pipeline fuelled by recent discoveries in lymphatics and immune cell trafficking to modulate disease in a tissue-specific manner. These programmes leverage the transport and biodistribution of various immune system components for the targeted treatment of diseases with major unmet needs, including cancers, autoimmune diseases, and neuroimmune disorders.

For more information, visit www.puretechhealth.com or connect with us on Twitter [@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.