

Cerebroporomechanics in neurological disorders with aquaporin-4 effect

Abstract

For many common neurological disorders, cerebral oedema plays an critical role associated with morbidity and death. The typical options of current treatments regimes mainly involve hyperosmolar agents and surgical decompression; these therapies have been utilised for 80 years. Modulating brain water transport via AQP4, which ultimately reduces cerebral oedema, was proposed by Manley et al. in 2000 and was published with experimental results (via a mouse model) in Nature Medicine. Since AQP4 on glial cells is highly related with the glymphatic system due to the end-feet regulating water via AQP4 channels, the water mobility in the glymphatic system/ PVS/ ISF compartment and AQP4-deficient expression in the glymphatic system/PVS/ISF compartment are manipulated as well in order to confirm this alleviated cerebral oedema hypothesis.



Prof. Dean Chou

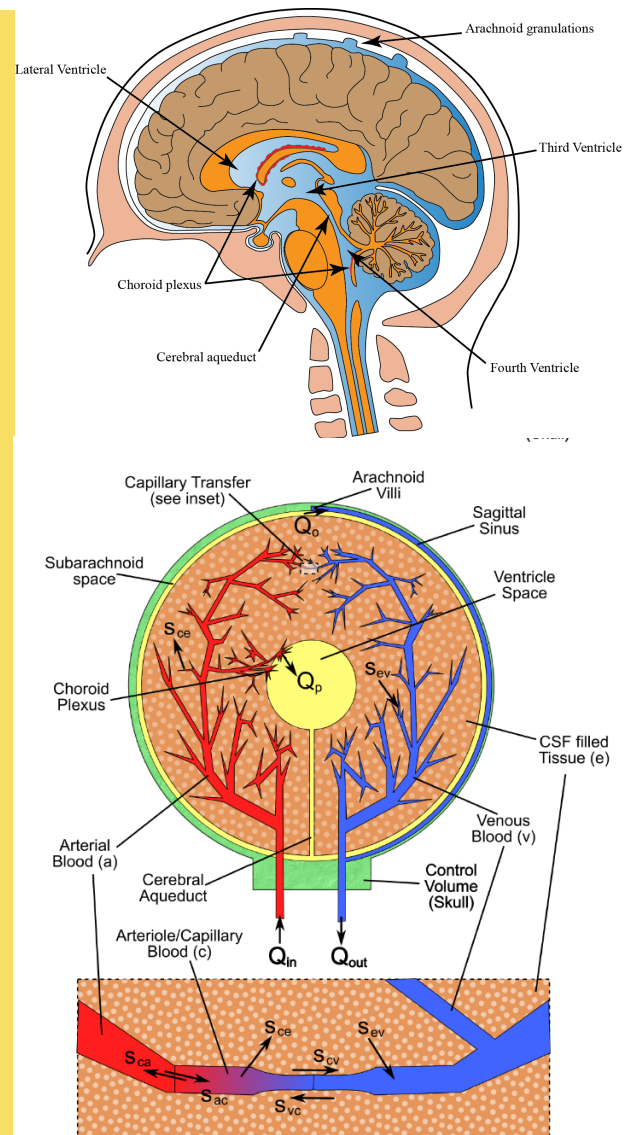
Department of Mechanical Engineering
National Central University

Contact Details

E-mail: dean@ncu.edu.tw

Short CV

Dr Dean Chou is an assistant professor at the Department of Mechanical Engineering in National Central University. He awarded his D.Phil. degree from the University of Oxford (2011-2017). His research topic focuses on poromechanics and computational fluid dynamics. He received his first MSc. degree at the Department of Engineering Science and Ocean Engineering at the National Taiwan University (2002-2005). His second MSc. degree was awarded from the Department of Chemical and Material Engineering from the University of Alabama in Huntsville (2009-2010), where he received funding by CFD-ACE+ to aid the development of its macro-particle module. He is involved in the VPH-DARE@IT project since 2013.



Research Interests

- Computational Fluid Dynamics
- Neurohydrodynamics/Cerebrospinal Fluid Dynamics
- Computational Biophysics
- Multiscale Problems
- Fluid-Structure Interaction (FSI)
- Porous Media

Seminar & mPAM Lecture series

Place: 工科系大樓地下一樓越生講堂

Day: 25 April 2019

Time: 14:10-15:30

