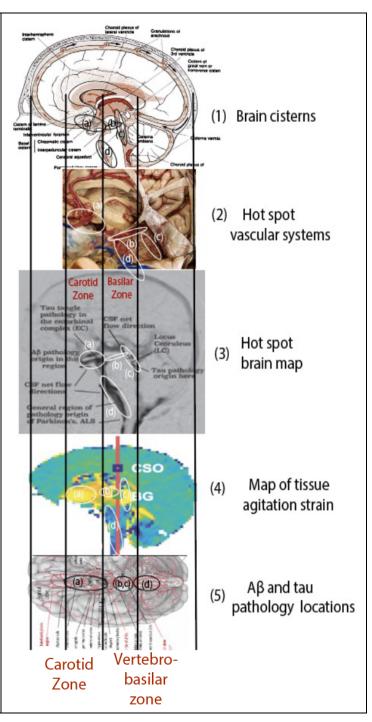
Supplementary Material

An Alzheimer's Disease Mechanism Based on Early Pathology, Anatomy, Vascular-Induced Flow, and Migration of Maximum Flow Stress Energy Location with Increasing Vascular Disease

The figure to the right shows a comparison of different maps of the brain in the paper in which there is a correlation between the CSF hot spots and certain regions of the vascular system and disease pathology. The five vertical lines in this figure mark the rough boundaries of the two glymphatic systems designated in red lettering in (3). "Carotid Zone" is serviced by carotid arteries and "Basilar Zone" by the vertebrobasilar arteries, although these two arterial systems are weakly connected through the circle of Willis. The migration and arrival times of the MSPEL through each of these systems are proposed to be quasi-independent, with the basilar system the one with the slower MSPEL migration speed. This difference is proposed to be responsible for the different times for the early $A\beta$ and later tau pathology times. White and black ellipses represent: (a) the chiasmatic and interpeduncular cisterns; (b) the arteries surrounding the midbrain; (c) the cerebral canal (CA); (d) the region surrounding basilar the artery, including the pontomedullary cistern. In the (b) midbrain, signals in maps (3) and (4) are either missing or weak because they are outside the MRI sampling fields. Correlations between vascular power pulse densities (2), CSF hot spots (3), tissue strain (4) and pathology (5) locations are high.



References and Legends for Supplementary Material

Fig. (1) https://ranzcrpart1.fandom.com/Fandom communities (known as "wikis") is licensed under the Creative Commons License 3.0 (Unported) (CC-BY-SA).

Fig. (2) Lamina terminalis floor (center left) and basal cisterns (center to lower right). Used by permission from the *Neurosurgical Atlas* by Aaron Cohen-Gadol, MD.

Fig. (3) Zones of chaotic/"turbulent" CSF motion in black (most intense) and shades of gray (less intense). These zones are found mainly around the brainstem, cisterns, third ventricle, spinal cord, and to a lesser extent, cortex SAS. This MRI study was on a healthy human subject. Source: licensed under Creative Com- mons Attribution-Non-Commercial-No Derivative International. Alteration permission granted by authors from: Atsumi H, Horie T, Kajihara N, Sunaga A, Sakakibara Y, Matsumae M (2020) Simple identification of cerebrospinal fluid turbulent motion using a dynamic improved motionsensitized driven-equilibrium steady-state free precession method applied to various types of cerebrospinal fluid motion disturbance. *Neurol Med Chir (Tokyo)* **60**, 30-36.

Fig. (4) Whole brain tissue mechanical strain at the peak systole maximum in comparison with that at early systole. Yellow is maximum strain in the direction of the head and blue is strain at the same time in the direction of the feet. Strain intensity regions in this figure correlate spatially with chaotic flow region data in Fig. 3. Licensed under Creative Commons 4.0. Source from: Sloots JJ, Biessel GJ, Zwanenburg JM (2020) Cardiac and respiration-induced brain deformations in humans quantified with high-field MRI. *Neuroimage* **210**, 116581.

Fig. (5) The underlying figure is Fig. 1 in the main paper.