Reviewer's report

Title: Non-neuronal and neuronal BACE1 elevation in association with angiopathic and leptomeningeal beta-amyloid deposition in the human brain

Version: 1 Date: 20 February 2015

Reviewer: Zun-Ji Ke

Reviewer's report:

Dr. Zhi-Qin Xue, et al reported that BACE1 elevation in the endothelia and perivascular neurites involved in angiopathic Aβ deposition, while BACE1 elevation in meningeal cells contributed Aβ to leptomeningeal amyloidosis. BACE1 immunoreactivity (IR) increased locally at capillaries, arterioles and along the pia, localizing to endothelia, perivascular dystrophic neurites and meningeal cells, and coexisting with vascular iron deposition. The expression of BACE1 and other amyloidogenic proteins in the endothelial and meningeal cells also occurred in primary cultures prepared from human leptomeningeal and arteriolar biopsies.

1. As the control and dementia of the AD or vascular type are aged individuals, the final neuropathological diagnosis for the brains used in the study is important.

2. BACE1-IR at capillary and arteriole-like profiles was confirmed by double immunofluorescence for BACE1/6E10 (Fig. 1K-N) and BACE1/collagen IV (Fig. 2A, B). It is important to show BACE1 and beta-amyloid (6E10) in endothelial cell, or just in the perivascular area.

3. Small arteries and leptomeningeal samples are from leptomeningeal biopsy. Please indicate the amount of samples for western blot analysis in figure 5F.

Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:

I declare that I have no competing interests.