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Supplementary Materials for

Label-free imaging of amyloid plaques in Alzheimer's disease with stimulated Raman scattering microscopy

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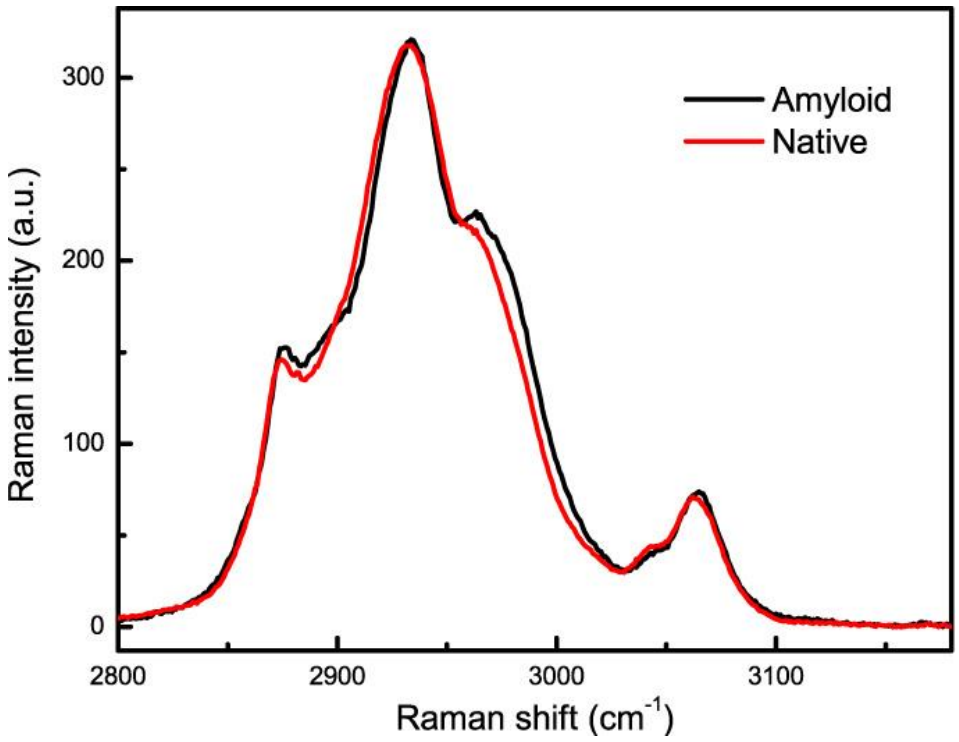

Fig. S1. Spontaneous Raman spectra of Aβ in the CH stretching region.

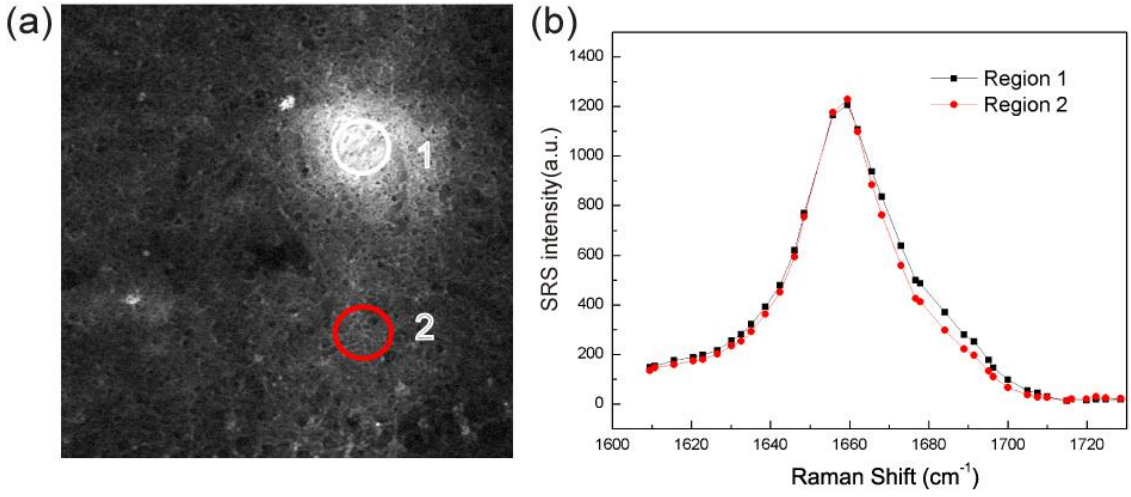

Fig. S2. SRS images of a fixed AD brain section. (**A**) SRS image including an amyloid plaque. (**B**) SRS spectra of the amyloid and normal tissue regions look similar.

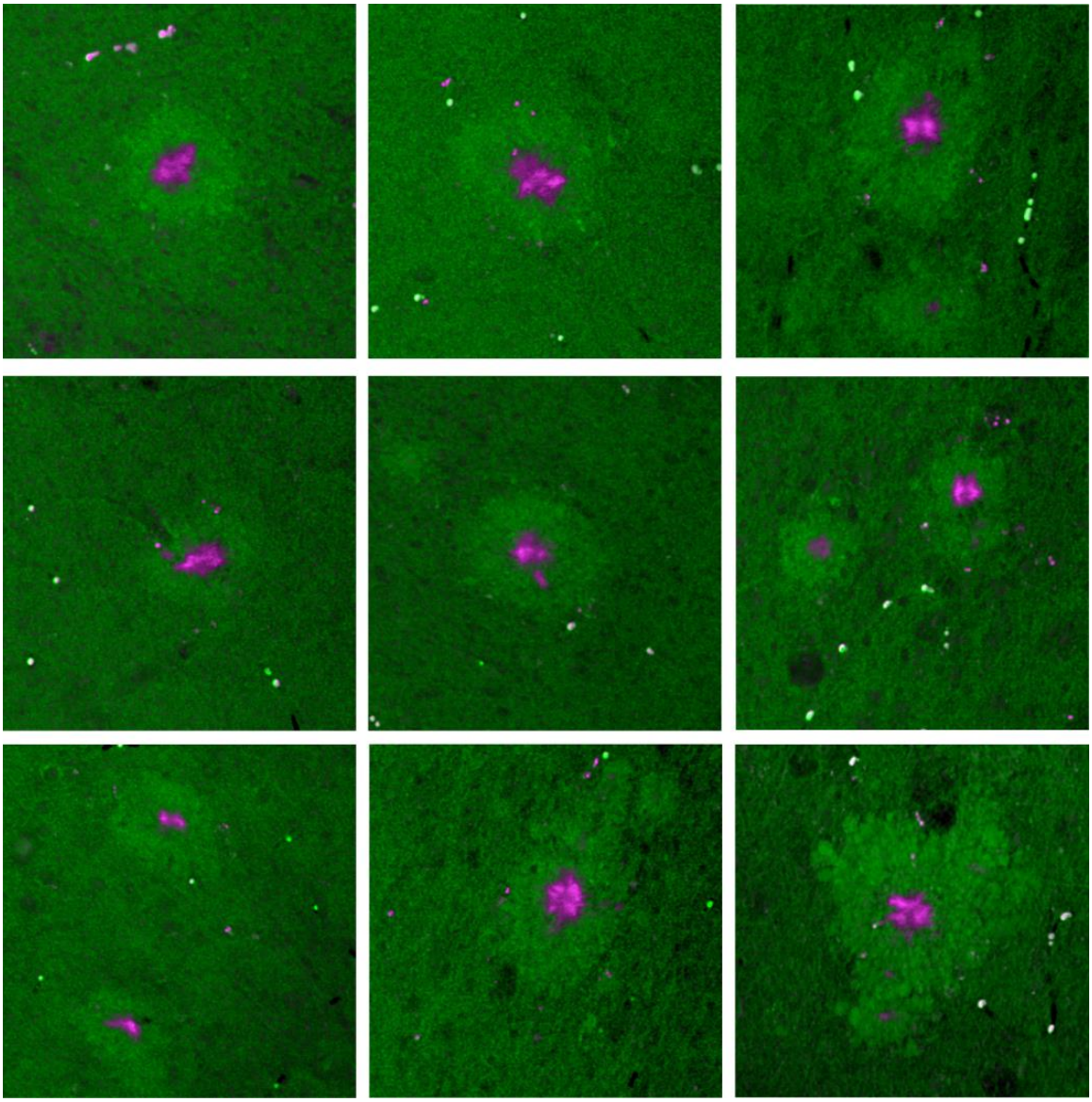

Fig. S3. More SRS images of SPs in fresh brain tissues. Each plaque could be seen with surrounding “halo” structures. The chemical compositions of these “halos” is analyzed in the text and Fig. S4.

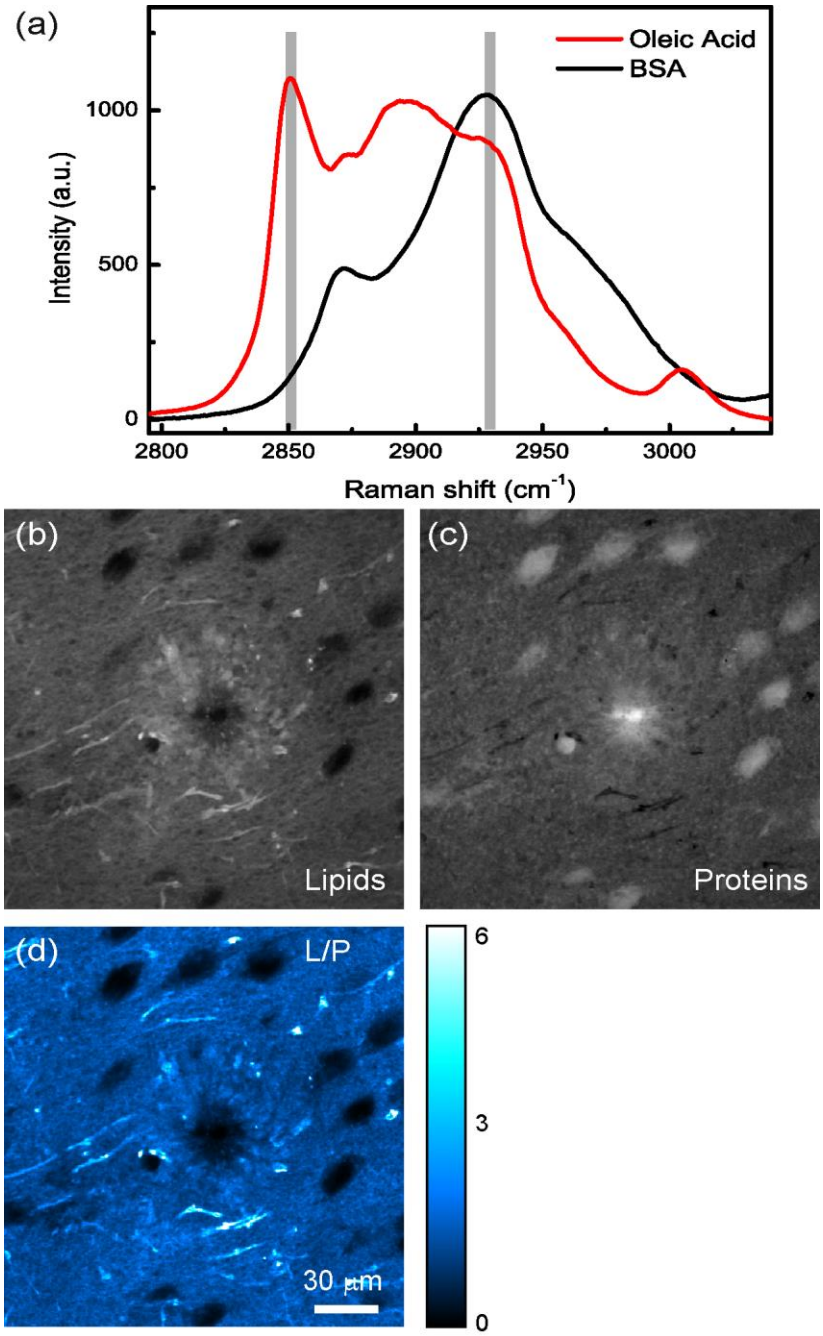

Fig. S4. Lipid/protein analysis of the plaque and surrounding tissue. (**A**) Spontaneous Raman spectra of standard lipid (oleic acid) and protein (BSA). Decomposed lipids (**B**) and proteins (**C**) distribution of the same tissue imaged in Figure 6. (**D**) Lipid/protein ratio mapping of the tissue. We can see that the core of the plaque is mostly protein, and the "halo" region has higher concentration of lipids than the surrounding normal tissues.