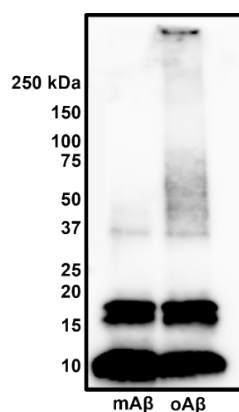
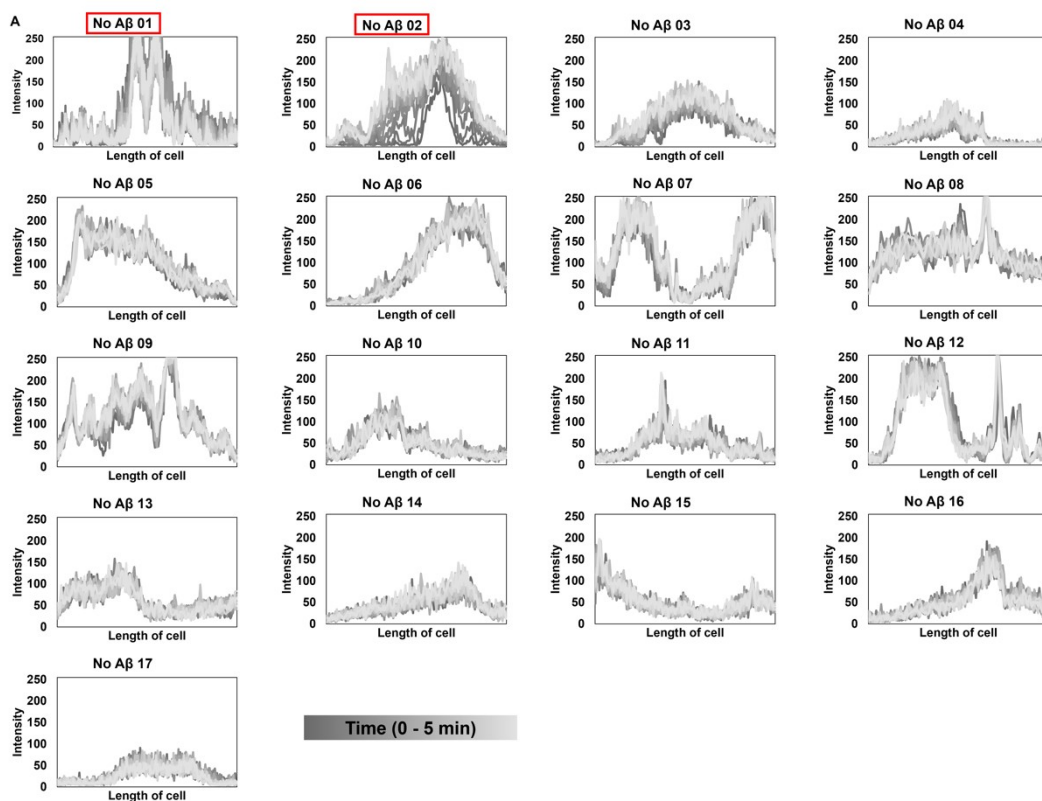


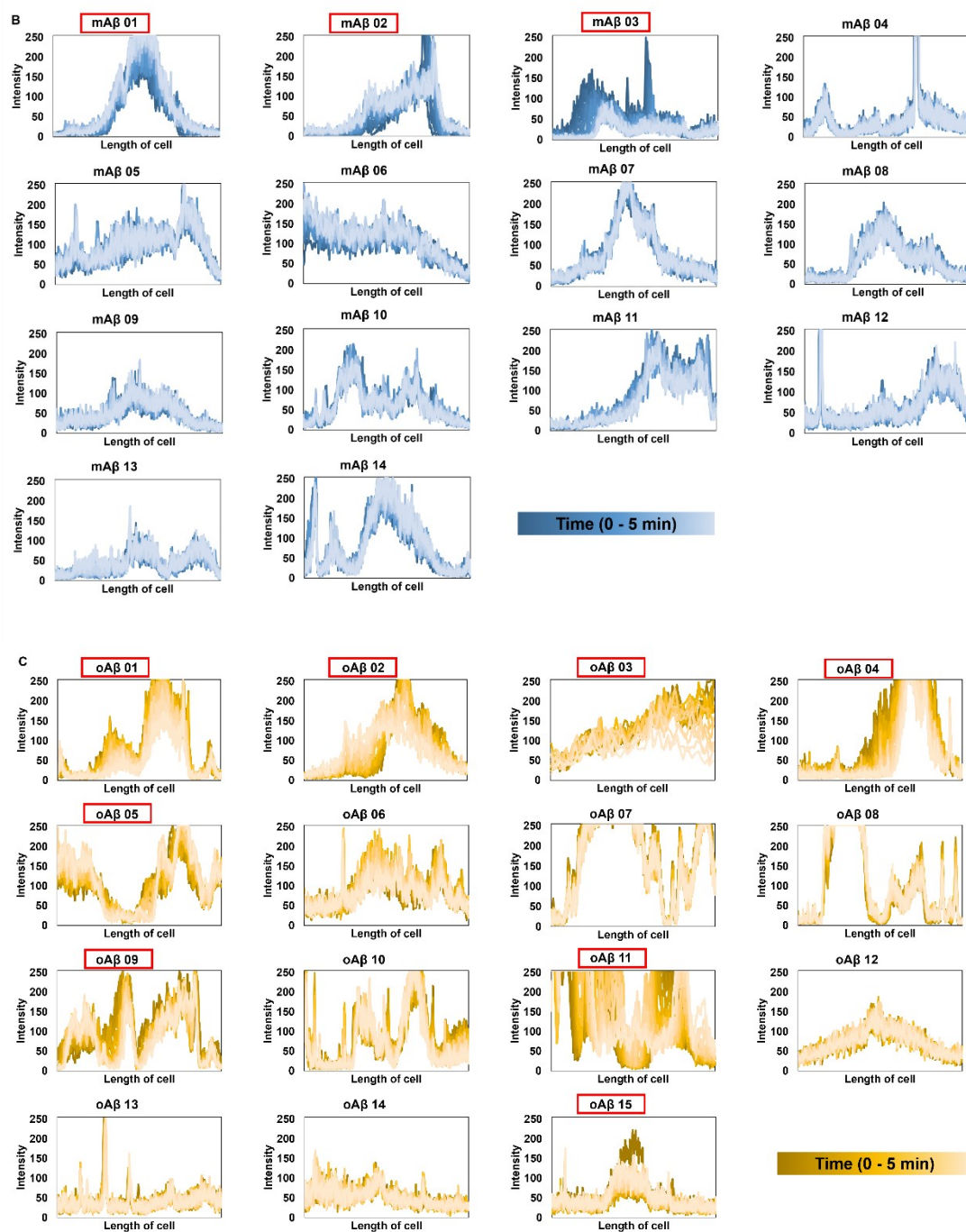
Supplementary Information: Monomeric and oligomeric amyloid- β cause distinct Alzheimer's disease pathophysiological characteristics in astrocytes in human lymphatics-on-chip models

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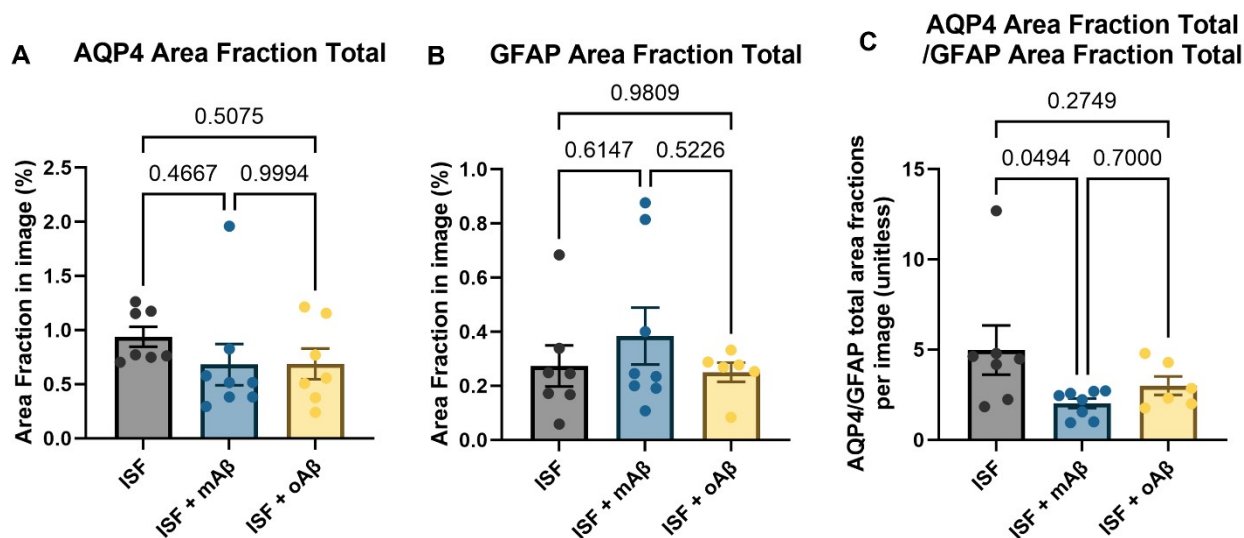


Supplementary Figure 1. Native WB of mA β and oA β . A native WB illustrating the mass differences between the prepared mA β and oA β . The prepared mA β consisted primarily of monomers, dimers, trimers, and tetramers with a maximum weight near 37kDa. The prepared oA β contains more species within the larger oligomer category (hexamers, dodecamers and 20-mers, 30-90kDa) and the soluble high-molecular weight species of 100-200kDa, with some species even more massive.

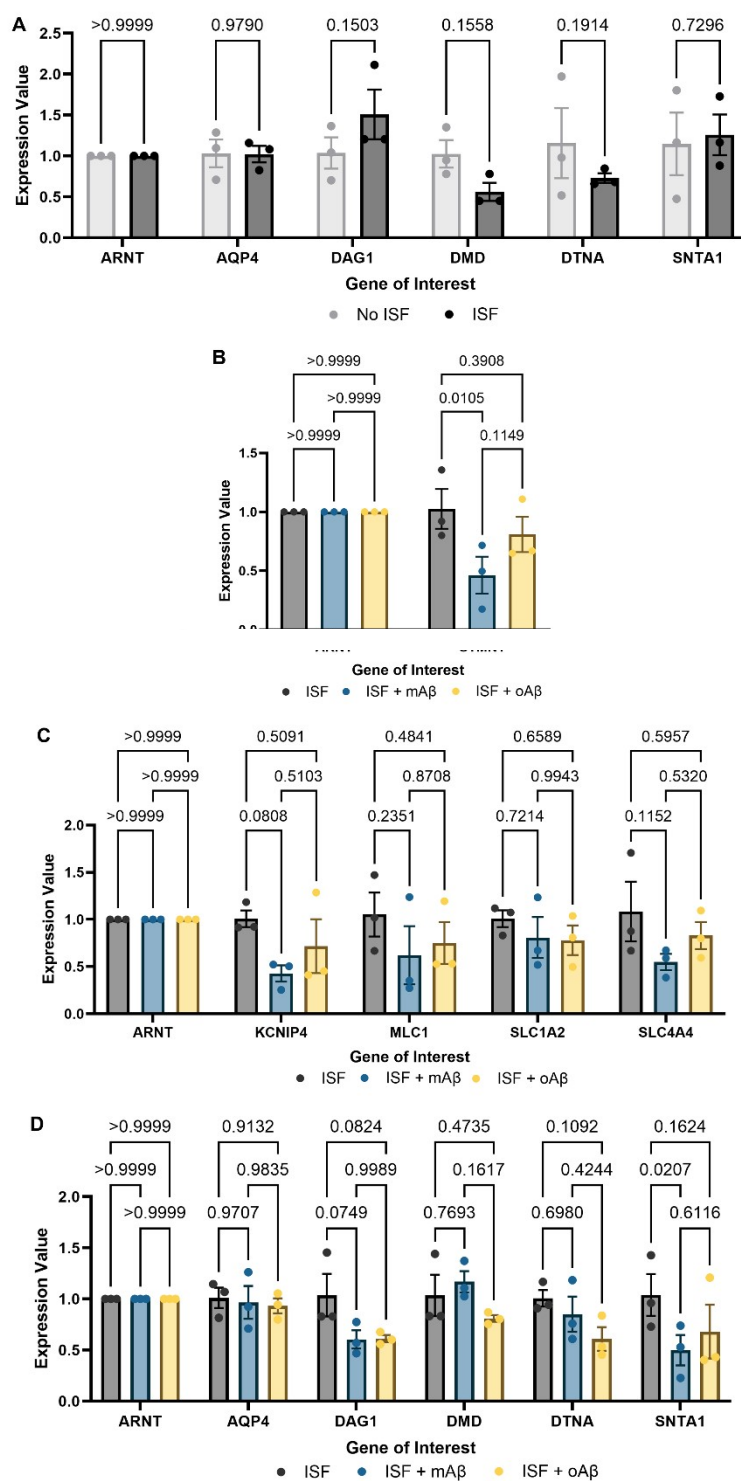




Supplementary Figure 2. Ca²⁺ signals traced throughout the cell over time. Full Ca²⁺ signal via Fluo-4AM traces of all cells measured in the three groups: (A) no Aβ exposure, (B) monomeric Aβ exposure, and (C) oligomeric Aβ exposure. In all figures, darker colors represent the beginning of the time period and lighter colors represent the end of the time period. Cells considered to have experienced transients are highlighted with a red box around the title.



Supplementary Figure 3. Glymphatics-on-chip system reveals spatial protein expression and RNA expression differences with the co-culture system. (A) The total fraction area of AQP4 expression was not statistically significantly different between any of the groups. (B) The total area fraction of GFAP was not statistically significantly different between any of the groups. (C) The ratio of the total area fractions of AQP4 and GFAP was only statistically significant between the no A β and mAb β groups with no statistically significant differences between the oA β group with either of the other groups.



Supplementary Figure 4. ANOVA results for the four RT-qPCR datasets. Each experiment was run three times ($N=3$, plotted) with triplicate in each experiment ($n=9$). The triplicates were averaged prior to processing with the Livak method, and then statistically evaluated via ANOVA ($N=3$). (A) Statistical results of Figure 3E. (B) Statistical results of Figure 3F. (C) Statistical results of Figure 3G. (D) Statistical results of Figure 4E. Statistical significance (p value) listed for each comparison.