Supporting information

Amyloid-β Peptide Triggers Membrane Remodeling in Supported Lipid Bilayers Depending on Their Hydrophobic Thickness

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Figure S1. QCM-D recording of the frequency and dissipation energy shifts dependent on time upon the administration of Aβ peptide 10 µM (a), 3 µM (b), 1 µM (c) to DOPC lipid bilayers; 1 indicates on vesicles injection followed by buffer rinse, 2 indicates on Aβ injection, 3 indicates on buffer injection.
Figure S2. QCM-D recording of the frequency and dissipation energy shifts dependent on time upon the administration of Aβ peptide 10 µM (a), 3 µM (b), 1 µM (c) to POPC lipid bilayers; 1 indicates on vesicles injection followed by buffer rinse, 2 indicates on Aβ injection, 3 indicates on buffer injection.
Figure S3. QCM-D recording of the frequency and dissipation energy shifts dependent on time upon the administration of Aβ peptide 10 µM (a), 3 µM (b), 1 µM (c) to DLPC lipid bilayers; 1 indicates on vesicles injection followed by buffer rinse, 2 indicates on Aβ injection, 3 indicates on buffer injection.
**Figure S4.** The dependence of dissipation energy shifts on frequency shifts following 30 min of continuous administration of Aβ (µM). $R^2 > 0.98$ for all linear regression fits.

**Figure S5.** Lateral diffusivity coefficients of DOPC, POPC, and DLPC SLBs before introducing Aβ peptide (-Aβ), and following 30 min of continuous administration of Aβ and buffer rinse (+Aβ).
Figure S6. Morphological changes in DOPC, POPC, and DLPC SLBs induced by 3 μM Aβ, following different incubation periods in buffer. Membrane remodeling remained stable for at least 24 h.
Figure S7. Relative fluorescence intensity of DOPC, POPC, and DLPC SLBs following 30 min of continuous flow of Aβ peptide and buffer rinse. Initial fluorescence intensity, i.e., prior to peptide injection, was normalized to 1.

Figure S8. Size and number of lipid aggregation events, i.e., tubules or buds, dependent on time: a) DOPC SLB upon injection of 10 µM Aβ peptide; b) DOPC SLB upon injection of 3 µM Aβ peptide; t =0 represent the Aβ injection time.
Figure S9. MS analysis of Aβ monomers, before (blue) and after (red) their disaggregation [m/z = 4348.8]. Characterization was achieved using Shimadzu Biotech Axima Performance MALDI TOF-TOF Mass Spectrometer.
**Movie S1.** A representative Time-Lapse Epifluorescence of FRAP experiment of DOPC SLB; length: 1.67 min; image size 80x80 μm².

**Movie S2.** A representative Time-Lapse Epifluorescence of FRAP experiment of POPC SLB; length: 1.67 min; image size 80x80 μm².

**Movie S3.** A representative Time-Lapse Epifluorescence of FRAP experiment of DLPC SLB; length: 1.67 min; image size 80x80 μm².

**Movie S4.** A representative Time-Lapse Epifluorescence of FRAP experiment of DOPC SLB, following the administration of 20 μM Aβ; length: 3 min; image size 60x60 μm².

**Movie S5.** A representative Time-Lapse Epifluorescence of FRAP experiment of POPC SLB, following the administration of 20 μM Aβ; length: 3 min; image size 60x60 μm².

**Movie S6.** A representative Time-Lapse Epifluorescence of FRAP experiment of DLPC SLB, following the administration of 20 μM Aβ; length: 3 min; image size 60x60 μm².

**Movie S7.** A representative Time-Lapse Epifluorescence of bud formation on DOPC SLB, upon administration of 20 μM Aβ; length: 30 min; image size 110x110 μm².

**Movie S8.** A representative Time-Lapse Epifluorescence of tubulation on POPC SLB, upon administration of 20 μM Aβ; length: 30 min; image size 120x120 μm².

**Movie S9.** A representative Time-Lapse Epifluorescence of DLPC SLB, upon administration of 20 μM Aβ; length: 30 min; image size 120x120 μm².