Electronic Supplementary Material (ESI) for RSC Chemical Biology.

Supporting Information

Prevention of amyloid β fibrils deposition on the synaptic membrane in the precuneus by ganglioside nanocluster-targeting inhibitors

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Table S1 Synthetic peptide amides used in this study.

Code	Protein Line Notation[a)]	Structure (disulfide)
GCBP	H-VWRLLAPPFSNRLLP(bK)-NH_2	linear
cy5A	H-VWRLC(1)APPFC(1)NRLLP(bK)-NH_2	cyclic (5, 10)
cpVIII (control)	H-AETVESCLAKPHTEN(bK)-NH_2	linear

a) bK = Lys(biotin)

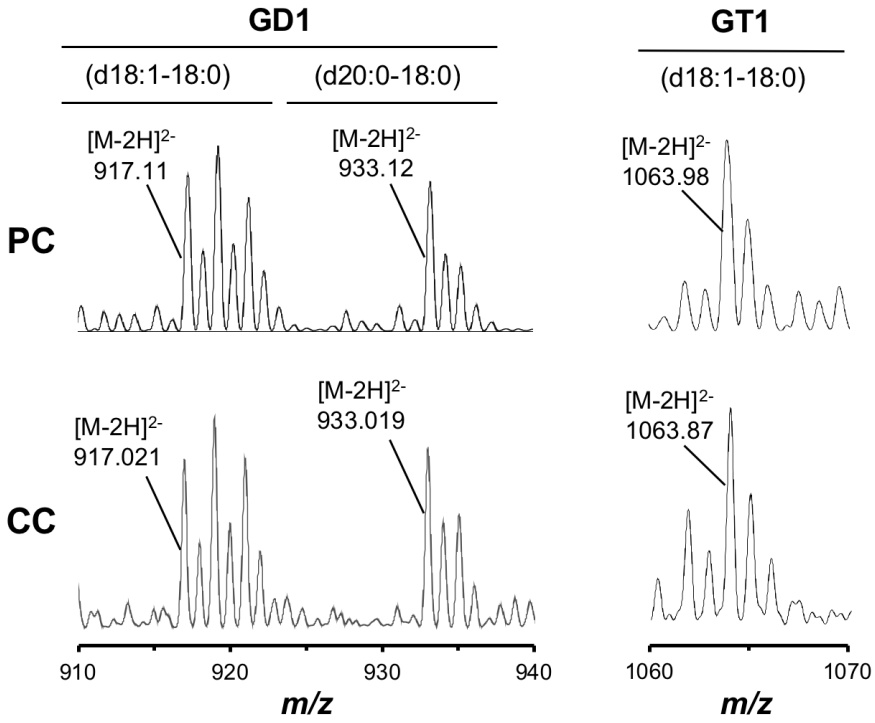

Figure S1 Detection of GD1 and GT1 in SPM lipids by MALDI-TOF/MS. GD1 (d18:1–18:0 and d20:0–18:0) and GT1 (d18:1–18:0) were detected from the SPM lipids of the PC and CC. GD1, GD1a and/or GD1b; GT1, GT1a and/or GT1b.

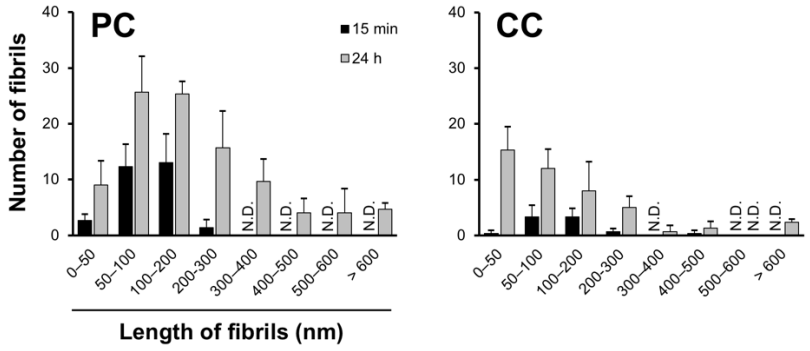

Figure S2 Distribution of $A\beta_{42}$ fibril lengths on the lipid membrane after 15 min and 24 h of interaction.

Seed-free $A\beta_{42}$ was interacted with the reconstituted lipid bilayer at 20 μM and 4 μM for 15 min and 24 h. The surface topography of the membrane was observed by AFM and the number and length of $A\beta_{42}$ fibrils were measured using ImageJ. Data are presented as average values ± standard deviation (n = 3). N.D., not detected.

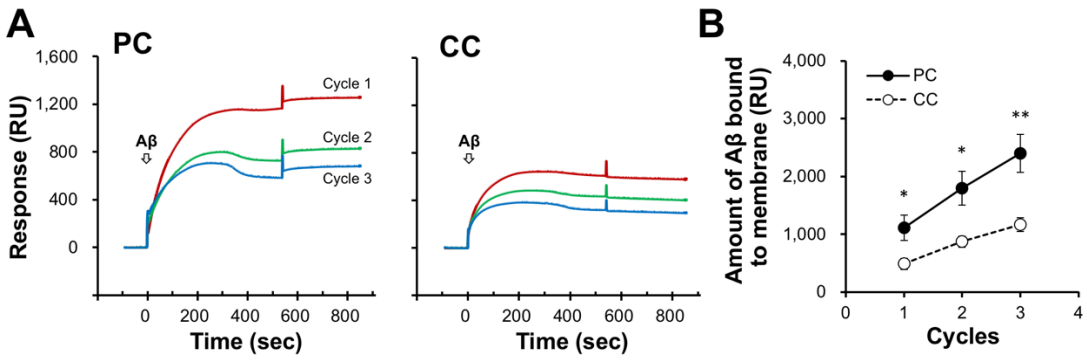

Figure S3 Preparation of the Aβ$_{42}$-accumulated lipid monolayer on a SPR sensor chip.

(A) Typical SPR sensorgram of the Aβ$_{42}$ (20 μM) interaction with the reconstituted SPM lipid monolayer. The set of the sensorgrams for the association phase (540 s) and the dissociation phase (300 s) is indicated (cycle). The Aβ$_{42}$ interaction was repeated three times to prepare the Aβ$_{42}$-accumulated lipid monolayer.

(B) Amount of Aβ$_{42}$ accumulated on the lipid membrane. The response value (RU) at 840 s of each cycle was obtained and the accumulated response (accumulated amount) was plotted against the number of cycles. The amount of Aβ$_{42}$ bound to the PC membrane was significantly greater than that bound to the CC membrane. *$p < 0.05$, **$p < 0.01$ compared with CC. Data are presented as average values ± standard deviation (n = 3).