

Supporting Information (SI)

Lipid Extraction by α -Synuclein Generates Semi-transmembrane Defects and Lipoprotein Nanoparticles

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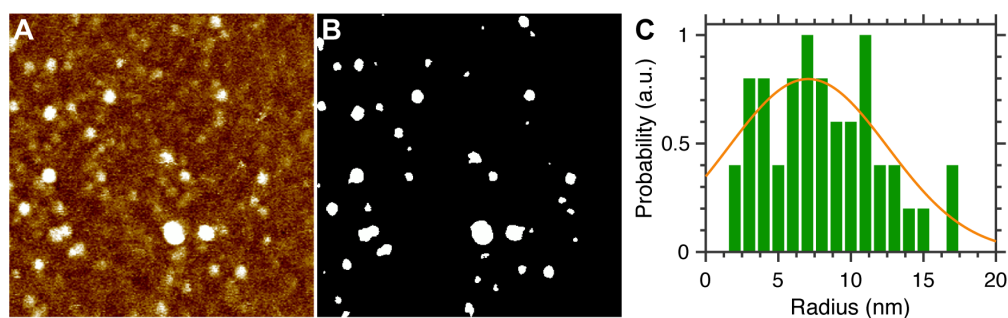


Figure S1 Image analysis of nanoscale particles observed in a POPC/POPG 4:1 bilayer after treatment with 1 μ M α Syn. (A) AFM height image. (B) Binary image with determined particles shown in white pixels. Particle size (area) is obtained by counting the number of white pixels for each particle. The determined particle size is converted into an equivalent particle radius assuming that particles have circular shapes. (C) Probability distribution of the particle radius calculated from (B). The solid line is a Gaussian curve fitting to the radius distribution. The most probable radius is 7 nm.

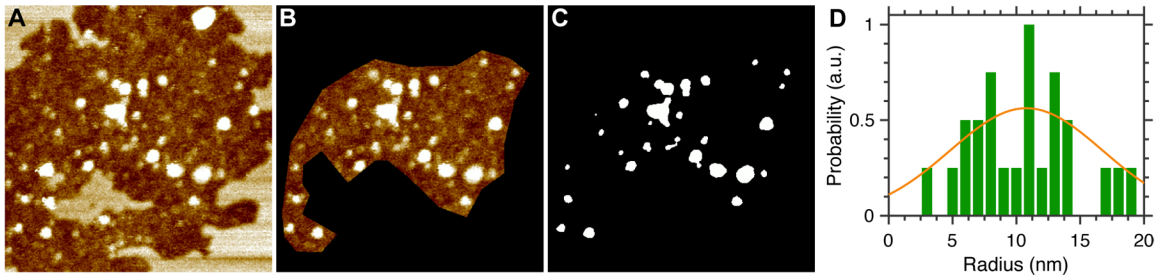


Figure S2 Image analysis of circular particles observed in a POPC bilayer after treatment with 1 μM αSyn . (A) AFM height image. (B) A selective region containing circular particles. (C) Binary image with determined particles shown in bright color. (D) Probability distribution of the particle radius calculated from (C). The solid line is a Gaussian curve fitting to the radius distribution. The most probable radius is 11 nm.

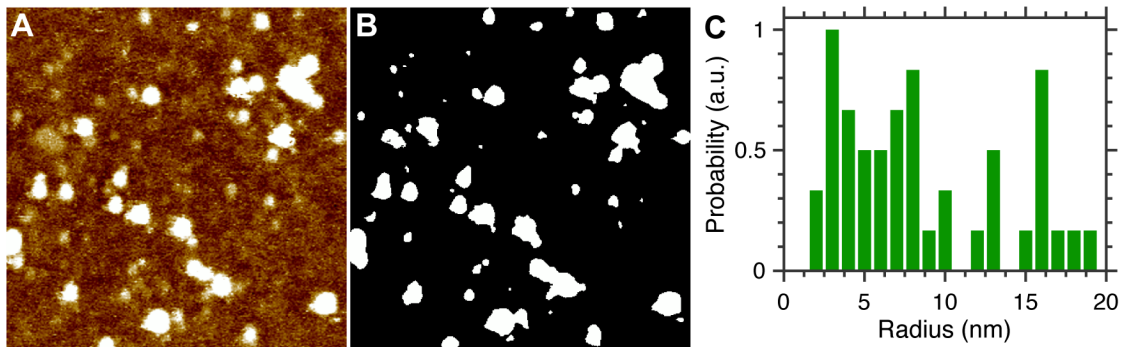


Figure S3 Image analysis of circular particles observed in a POPC + 30%Chol bilayer after treatment with 1 μM αSyn . (A) AFM height image. (B) Binary image with determined particles shown by the bright color. (C) Probability distribution of the particle radius calculated from (B).

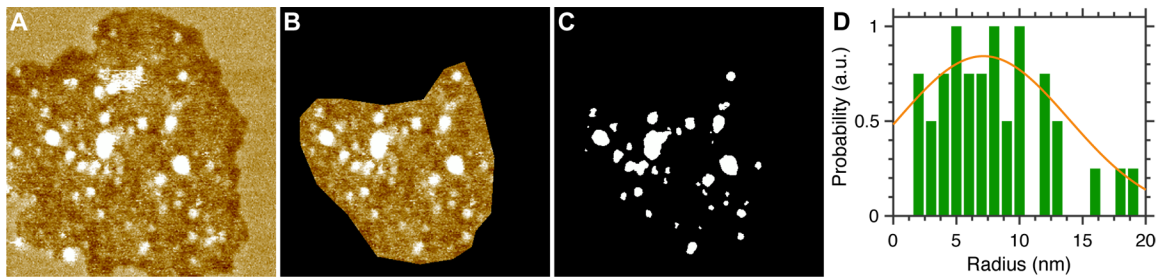


Figure S4 Image analysis of circular particles observed in a POPC + 15%POPE bilayer after treatment with $1 \mu\text{M}$ αSyn . (A) AFM height image. (B) Selective region with circular particles. (C) Binary image with determined particles shown by the bright color. (D) Probability distribution of the particle radius calculated from (C). The solid line is a Gaussian curve fitting to the radius distribution. The most probable radius is 7 nm.

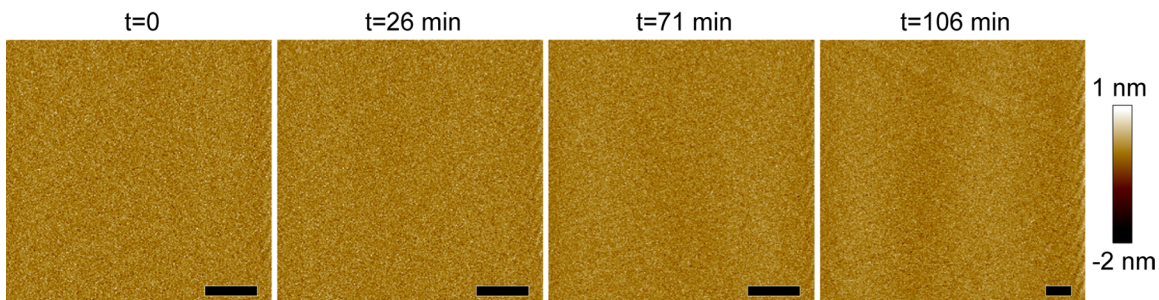


Figure S5 AFM images of a POPC + 40%POPE bilayer exposed to $1 \mu\text{M}$ αSyn as a function of the incubation time. Color scale is indicated by the color bar on the right. Scale bars are $2 \mu\text{m}$.

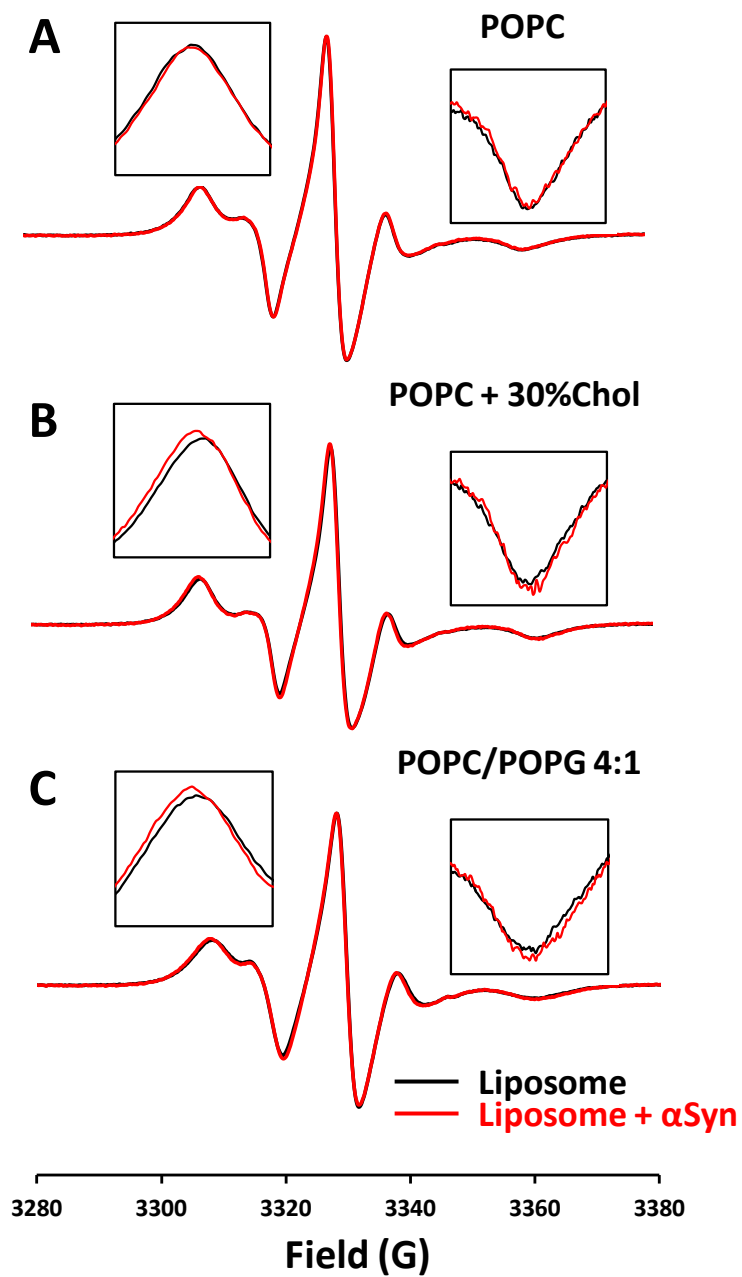


Figure S6 EPR spectra of liposomes labeled with 5-SASL for (A) POPC, (B) POPC + 30% Chol, and (C) POPC/POPG 4:1. The spectra were recorded at 295 K at P/L =1/100. EPR spectra of bare vesicles (black) are overlaid with the spectra in the presence of α Syn (red).