

SUPPORTING INFORMATION

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Hybrid crystalline bioparticles with nanochannels encapsulating acemannan from *Aloe vera*: structure and interaction with lipid membranes

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Movie captions

Movie 1: Cubosomes without *Aloe vera* extract (PS-Cub, green) induce extensive budding and vesicle formation in POPC giant vesicle membranes (magenta). The timestamp is given in min: sec. The field of view is 246.5 x 246.5 μm .

Movie 2: PS-Cub (green) in contact with POPC giant vesicle membranes (magenta); same vesicle as in Movie 1. The excess area is used to generate multiple daughter vesicles. The timestamp is given in min: sec. The field of view is 246.5 x 246.5 μm .

Movie 3: PS-Cub, (green) in contact with POPC giant vesicle membranes (magenta). After some minutes, vesicles recover the sphericity, and nanotubes are formed. The timestamp is given in min: sec. The field of view is 246.5 x 246.5 μm .

Movie 4: Cubosomes with *Aloe vera* extract (AcPS-Cub, yellow) induce nanotube formation in POPC giant vesicle membranes (magenta). The directed motion is due to convection in the system. The timestamp is given in min: sec. The field of view is 246.5 x 246.5 μm .

Movie 5: AcPS-Cub (yellow) in contact with POPC giant vesicle membranes (magenta). Nanotubes are internalized and reorganized as buds. The timestamp is given in min: sec. The field of view is 246.5 x 246.5 μm .