Electronic Supplementary Material (ESI) for Nanoscale.

Supplementary Information for “Protein-Coated Nanoparticles Exhibit Lévy Flights on Model Cell Membrane”

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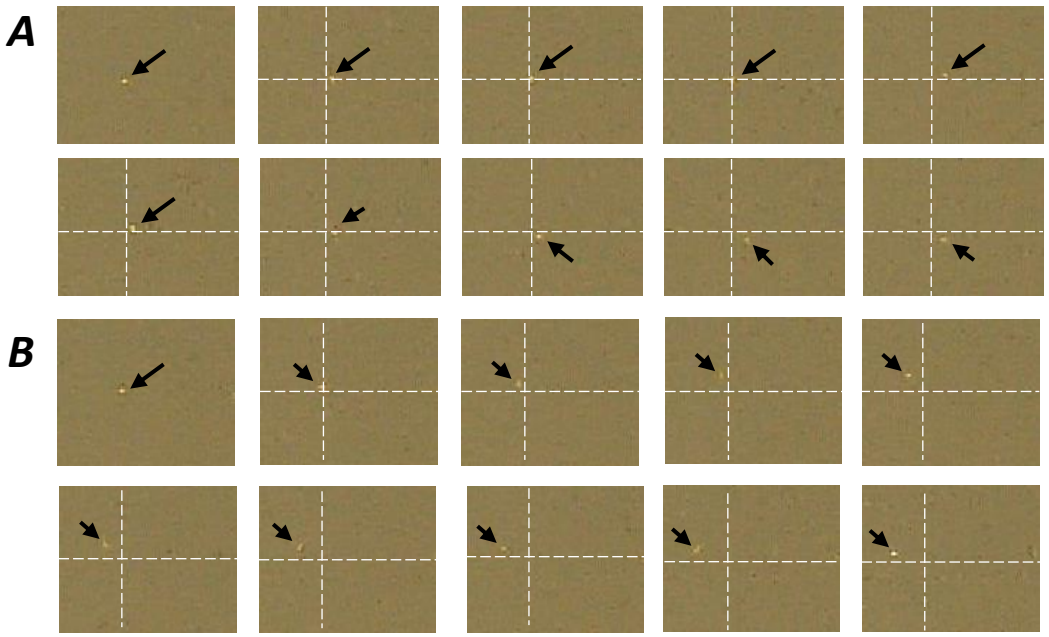
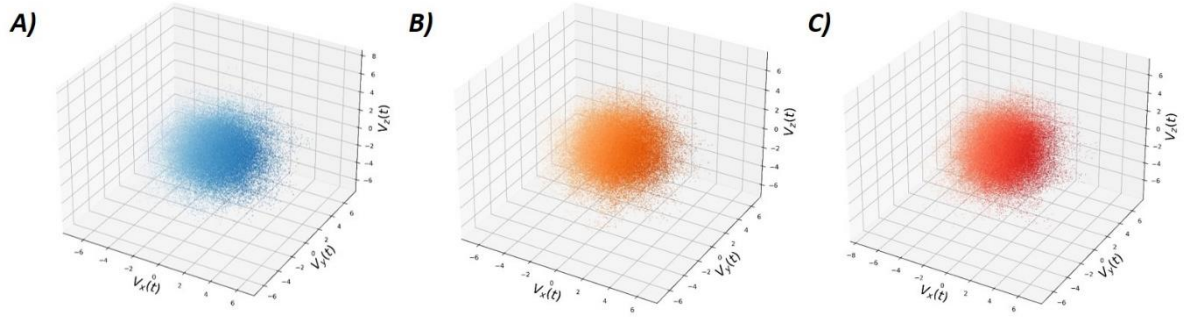
S1. Series of microscopic pictures of a single BSA-coated 100 µm NP with a ZwBuEt ligand. The black arrow indicates the NP position. A) In this series, the NP stays close to the observation plan as the NP is clearly visible with no optical aberrations (due to an escape in the third dimension). The origin position of this motion is indicated by the white line dashed. B) In this series, the NP are starting to escape the observation plan as the NP present optical aberrations (due to an escape in the third dimension). The origin position of this motion is indicated by the white line dashed. The relative motion of the NP is larger when the NP is starting the escape to bilayer (situation present in panel B), and smaller when the NP is in contact with the bilayer (situation present in panel A).



S2. Velocities distribution of as single particle calculated from the Langevin equation by numerical simulations (see methods). A) A blue particle is moving around a repulsive surface with no adhesive attraction between the surface and the particle (see methods). The corresponding motion is a standard Brownian motion. B) An orange particle is moving around a solid surface with a strong adhesive attraction between the surface and the particle (see methods). The corresponding motion is quasi 2D only. C) A red particle is moving around a repulsive surface with a weak adhesive attraction between the surface and the particle (see methods). In that case, the particle is hopping along the surface.



S3. Other examples of 3D-Trajectories of as single particle calculated from the Langevin equation by numerical simulations (see methods). A red particle is moving around a repulsive surface with a weak adhesive attraction between the surface and the particle (see methods). In that case, the particle is hopping along the surface.