[P1] Super-Resolved Nanostructure of Intercellular Nanotubes

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Intercellular nanotube has been known as a fragile structure after its first discovery on 2004, but recent studies report rigid nanotubes that maintain the structures for up to few hours. Thin (50~200nm) and long-ranged (up to few hundreds micrometer) tubes hover freely above the surface, but sustain themselves stably. We resolved the nanostructure of nanotubes by fluorescently visualizing F-actins inside the tubes using super-resolution microscopy (dSTORM and two-color PALM). We also exploited fluorescence imaging-combined force spectroscopy to study the dynamics of the nanobute formation in living cells. Taken together with a single-particle tracking of membrane receptors on nanobubes, we propose a physical model of the formation of intercellular nanotubes.