**Video S1.** **Time-lapse movie displaying the spontaneous actin nucleation.** The actin concentration is 0.75 μM. Images were taken every 10 sec for 500 sec and were compressed into a 5 sec movie. Scale bar = 10 μm.



**Video S2.** **Time-lapse movie displaying the spontaneous actin nucleation in the presence of 1.5 μM PRF5.** The actin concentration is 0.75 μM. Images were taken every 10 sec for 500 sec and were compressed into a 5 sec movie. Scale bar = 10 μm.



**Video S3.** **Time-lapse movie displaying the spontaneous actin nucleation in the presence of 0.9 μM FH5 and 1.5 μM PRF5.** The actin concentration is 0.75 μM. Images were taken every 10 sec for 500 sec and were compressed into a 5 sec movie. Scale bar = 10 μm.

