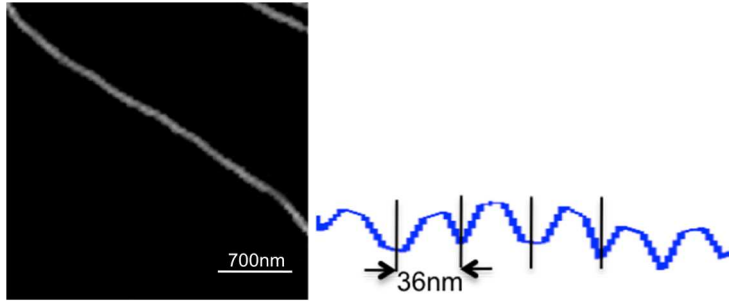


## SUPPORTING INFORMATION



**Fig S1. AFM topographic image of bare actin filament (left) and helical pitch shown in right**

### **Apparent width increase of the formin molecules in AFM images**

Because an image obtained from AFM represents the convolution of the cantilever tip shape, which is not infinitely sharp, lateral dimensions of objects can be significantly exaggerated. Vertical distances can be precise to less than 0.5 nm, when measured as center-to-center distances of objects in close packed arrays. Thus, formin dimers imaged over mica surface that appear as ~30 nm in diameter may actually be several nanometers smaller. The apparent width measured ( $W$ ) by tip of radius similar to the dimensions of the sample can be estimated as the distance between the 1<sup>st</sup> and last tip/sample contact. Thus smaller the tip ( $R_{tip}$ ), the smaller the measured width.

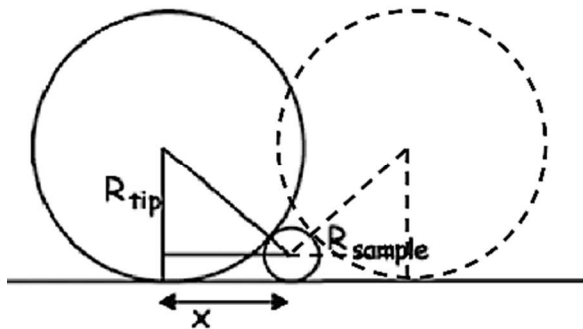
When  $R_{tip} \sim \frac{1}{4} R_{sample}$ , measured width =  $2R_{sample}$

$$X^2 = (R_{tip} + R_{sample})^2 - (R_{tip} - R_{sample})^2$$

$$X = 2\sqrt{R_{tip} R_{sample}}$$

$$W = 2X = 4 \sqrt{R_{tip} R_{sample}}$$

Thus, the observed dimensions for formin dimers are within the expected higher range limits for a 10nm feature ( ~ formin molecule), imaged with a nominal tip size of 5-7nm.



P. Grütter, W. Zimmermann-Edling, and D. Brodbeck, "Tip artifacts of microfabricated force sensors for atomic force microscopy," *Appl. Phys. Lett.* 60, 2741–2743 (1992)

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For further details on AFM image calibration, see: S. Sharma, K. Das, J. Woo and J. K. Gimzewski, *Journal of the Royal Society, Interface / the Royal Society*, 2014, 11, 20131150 (supplemental information).