

Supplemental Information for manuscript:

Nanomechanics of full-length nebulin:

An elastic strain gauge in the skeletal muscle sarcomere

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Empirical Mode Decomposition

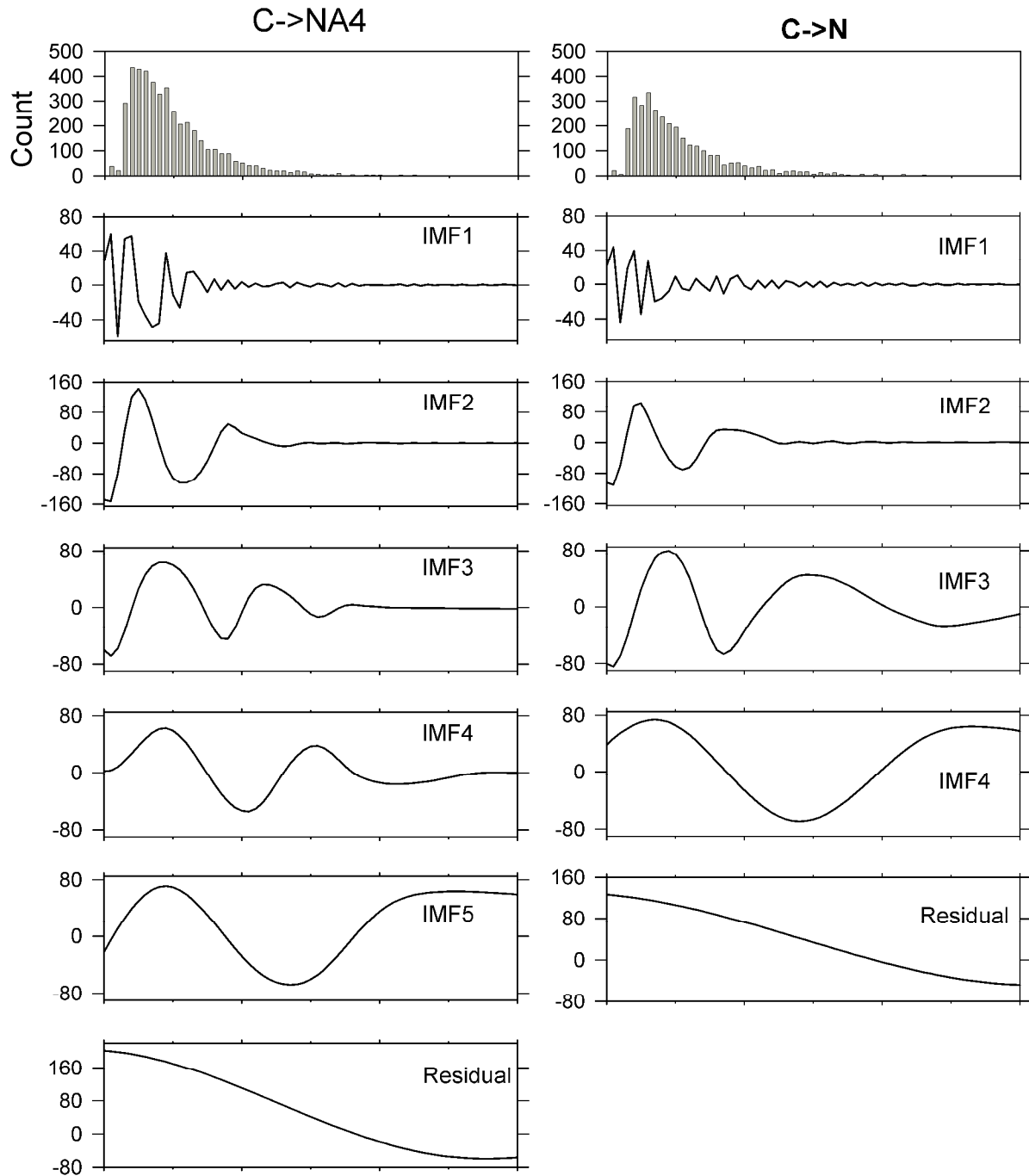


Figure S1: Complete set of intrinsic mode functions from the empirical mode decomposition of histograms of peak-to-peak distance histograms.

AFM Control experiments

Two types of control experiments were performed to validate the experimental design. First, AFM tips, either unmodified or antibodies-attached, were used to probe mixed SAMs after complete hydrolysis or quenching of the NHS reactive groups. Non-specific sticking near low extension was observed in less than 5% of the curves, indicating minimal tip-surface interactions. Second, the antibody-attached tip was used to probe antibody-modified SAM to demonstrate the absence of protein adhesion in the absence of nebulin. Overall, the absence of interfering tip-surface interaction at the low force/low extension region of the force curves greatly facilitates the detection of force signatures.

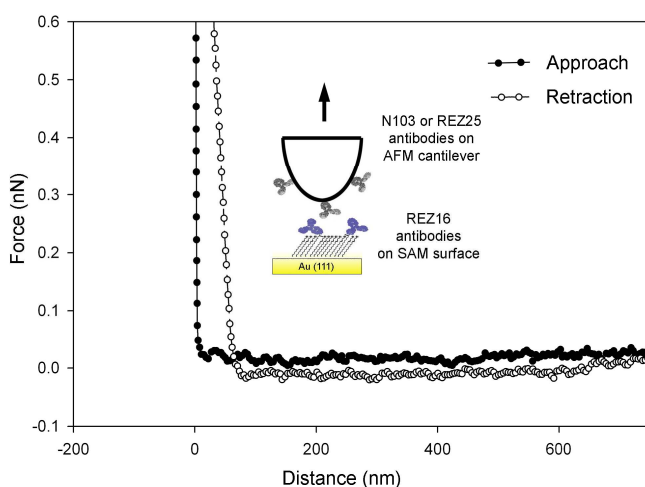


Figure S2: The absence of tip-surface interaction between antibody-attached AFM tip and antibody-attached SAM/gold surface. As the cantilever approached and retracted from a surface spa