Electronic Supporting Information

Intracrystalline incorporation of nacre protein hydrogels modifies the mechanical properties of calcite crystals: A microcompression study.

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I. Comparison of nanoindentor probe size relative to mineral particle size (Figure S1)

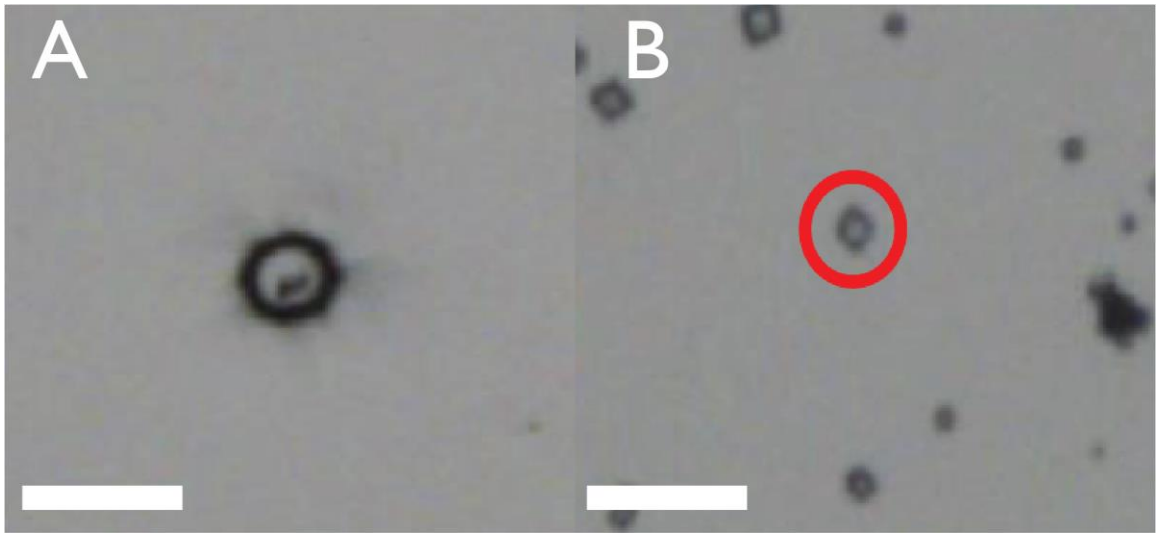

Figure S1. Representative light microscopic image of (A) aluminum metal substrate and (B) Si wafer containing mineral particles recovered from control micromineralization assay. Size of the flat punch probe in (A) relative to mineral particle size (red circle in B) was determined using aluminum metal substrate and compared to actual particle size. Scalebar = 80 microns.

II. Displacement controlled compression test (Figure S2).

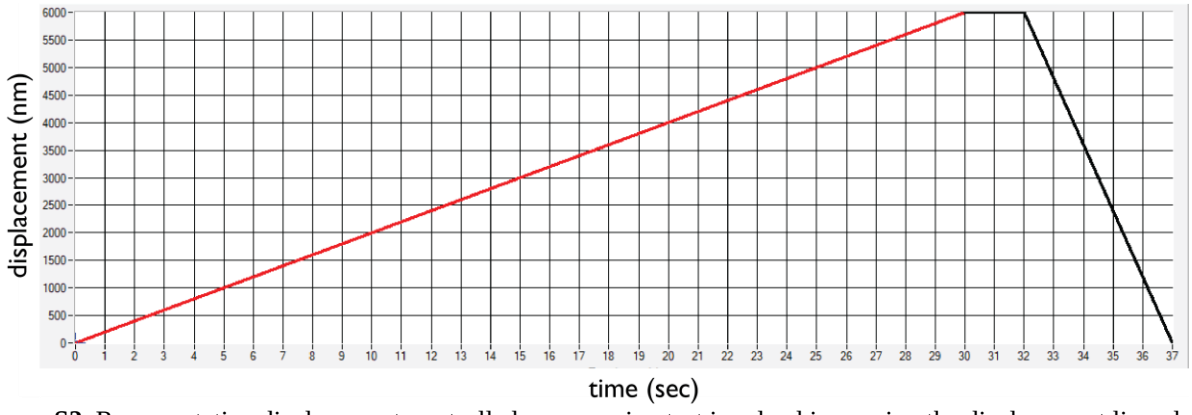

Figure S2. Representative displacement-controlled compression test involved increasing the displacement linearly at 200nm/sec until the particle failed or the substrate was contacted. The corresponding critical load and critical displacement to cause failure was recorded. Additionally, stiffness measurements were calculated for particles that showed linear force–displacement behavior before failure.

III. Expansion plots of microcompression stress-strain curves for control, r-AP7, and r-n16.3 crystal samples (Figure S3).

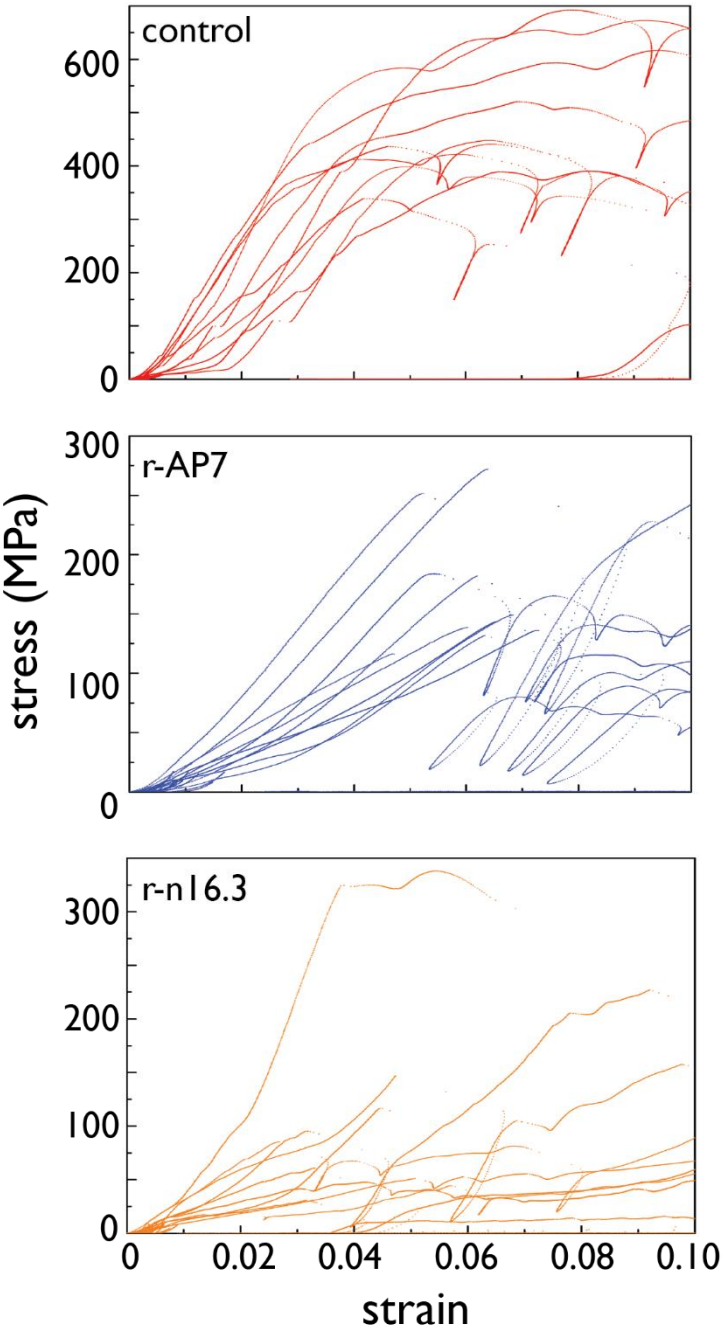

Figure S3. Expansion plots of microcompression stress-strain curves obtained for calcite crystals recovered from control, r-AP7, and r-n16.3 micromineralization assays (see Figure 2).