Supporting Information

Spider Silk Fusion Proteins for Controlled Collagen Binding and Biomineralization

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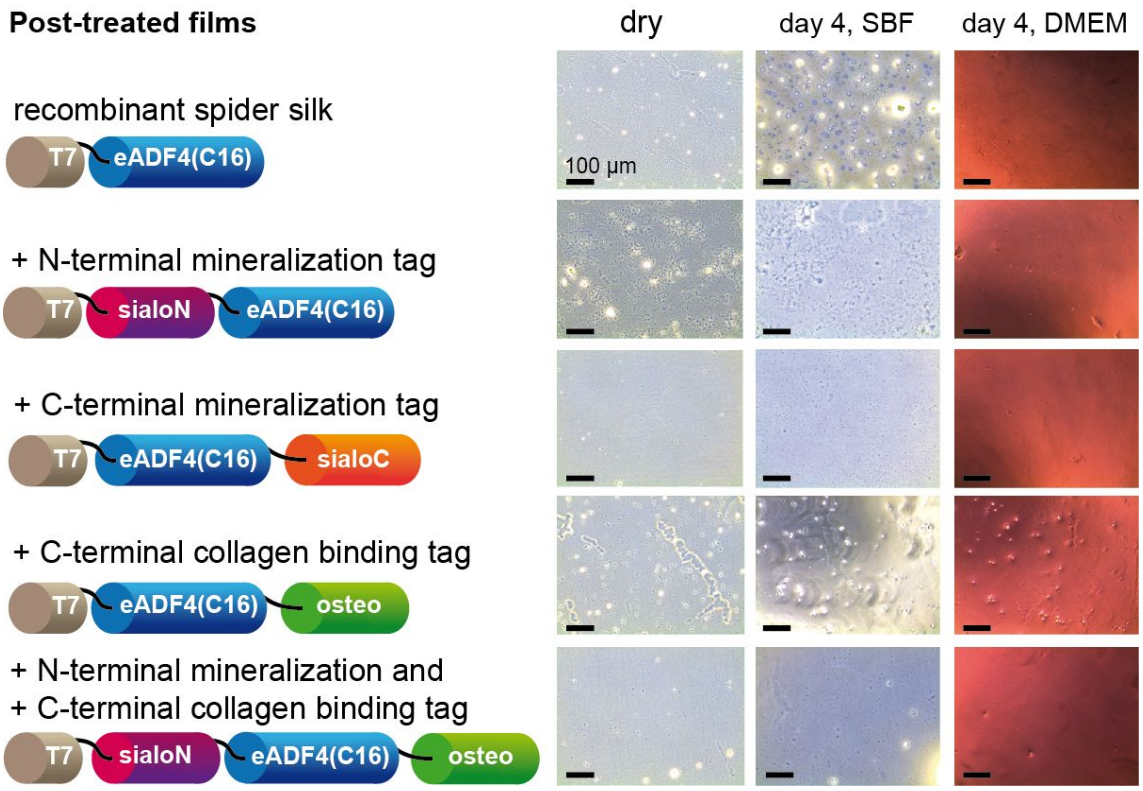
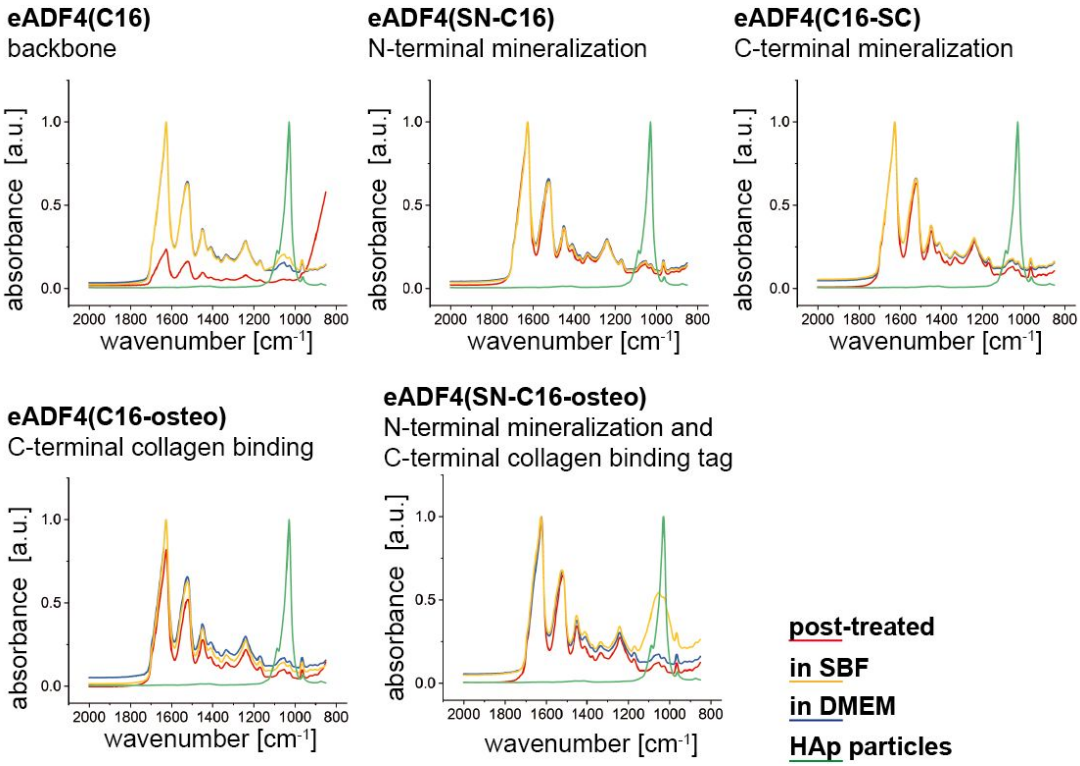
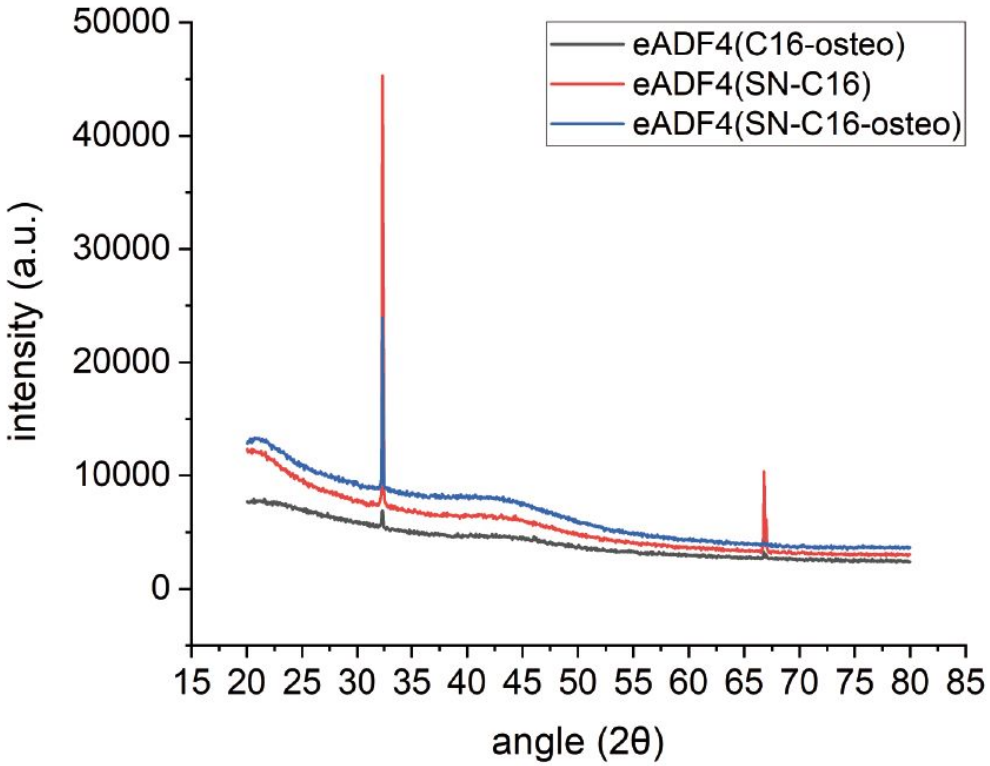
Content on pages S1-S5



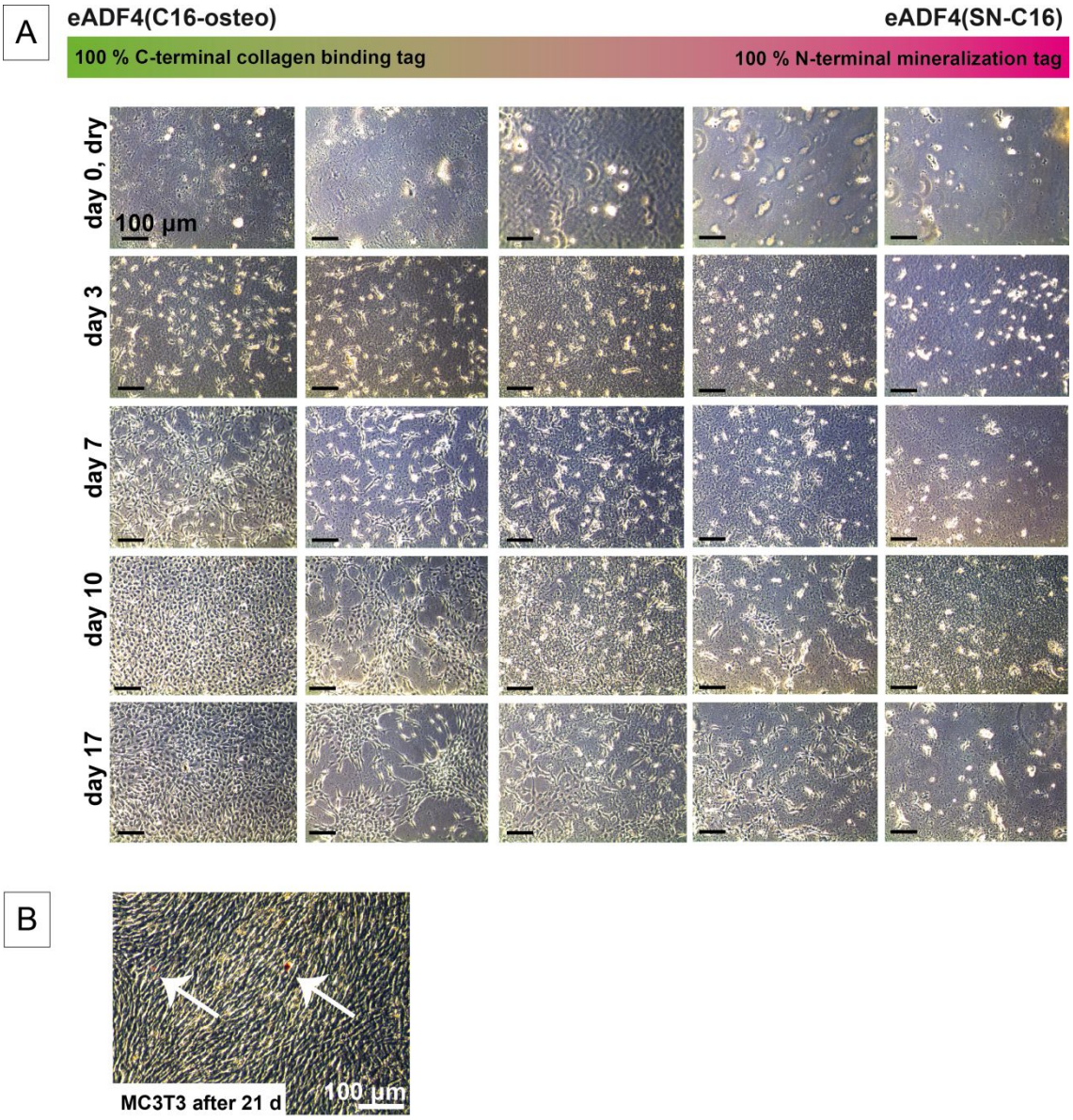
S1: Illustration of recombinant spider silk variants with peptide tags ("sialoN" = N-terminal mineralization tag from sialoprotein; "sialoC" = C-terminal mineralization tag from sialoprotein, "osteo" = C-terminal collagen binding tag from osteopontin) and light microscopy images of dry recombinant spider silk films post-treated in MeOH followed by incubation in Simulated Body Fluid (SBF) for 4 d at 37 °C, or after incubation in Dulbecco's Modified Eagle Media (DMEM) with supplements for 4 d at 37 °C / 5 % CO_2 / 95 % relative humidity; scale bars: 100 µm.



S2: Mean ATR-FTIR spectra of eADF4(C16), eADF4(SN-C16), eADF4(C16-SC), eADF4(C16-osteo) post-treated films (red), followed by incubation in Simulated Body Fluid (SBF, yellow) for 4 d, or followed by incubation in Dulbecco's Modified eagle Media (DMEM) with supplements (blue) for 4 d. Spectra of hydroxyapatite particles are implemented as internal control (green).



S3: XRD diffractograms for mineralized spider silk variants in SBF for 4 d at 37 °C, in dry state after washing.



S4: (A) Light microscopy images of five equally distanced locations of a 100 % eADF4(C16-osteo) to 100 % eADF4(SN-C16) gradient as-cast film in dry state, and after 3, 7, 10 and 17 d of cultivation of MC3T3 osteoblasts on top; scale bars: 100 µm. (B) Light microscopy images of Alizarin red stained MC3T3 cells grown on tissue-culture-treated plates after 21 d of culture as control, arrows indicate the presence of stained minerals.