

Abstract Submitted
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Multiscale peptide self-assembly JUSTIN BARONE, DEVIN RIDGLEY, Virginia Tech — Here, we demonstrate a hierarchical peptide self-assembly process from the nanometer to the micrometer scale. The process begins by mixing a short hydrophobic peptide and a longer α -helix peptide. Cross- β nanostructures spontaneously form that then aggregate into nanometer fibrils and then micron-sized fibers. FT-IR and Raman spectroscopy show unraveling of α -helices and packing of aliphatic side groups as the major events leading to β -sheet and large fiber formation. A thermodynamic model is presented that uses conformational change and hydrogen bond formation to describe free energy change.

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