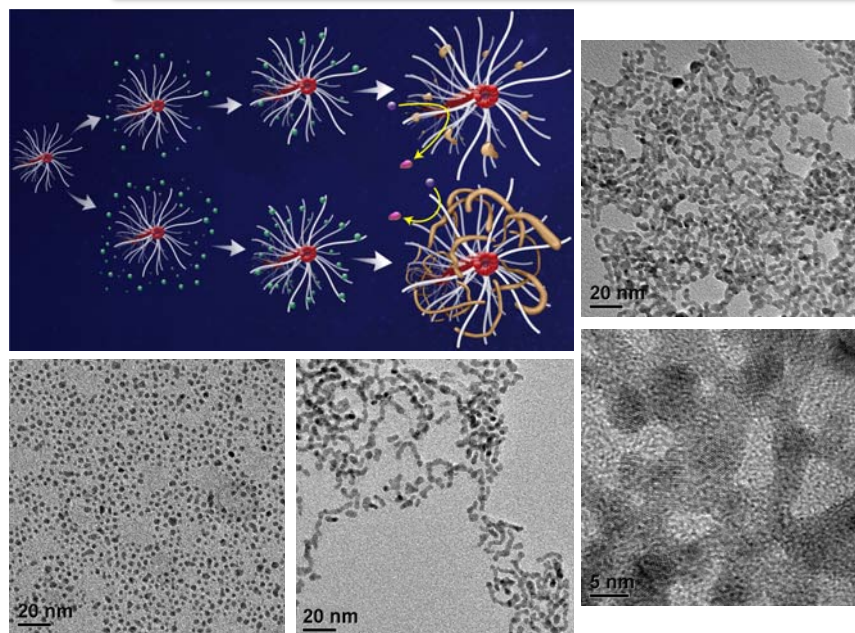


# Biomimetic Synthesis of Nanoparticle Catalysts

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Synthesis of non-spherical Pd nanostructures was achieved using a peptide template. In this event, selective loading of the scaffold with low concentrations of Pd resulted in spherical particles (bottom left); however, higher loadings resulted in linear nanoribbons (bottom center) and nanoparticle networks (right). The materials were catalytically active for a variety of reactions including C-C couplings and nitrate reduction.

Catalysis was employed to elucidate the effects of the peptide surface on the activity of biomimetic Pd nanocatalysts. Here, selected sequence changes were employed to demonstrate that peptide binding and surface arrangement significantly alter the activities and serve as points to control the final functionality. In this specific study, a >two fold enhancement in catalytic activity was observed from a single residue substitution.

