Growth of carbon nanotubes from iron containing proteins

Carbon nanotubes were synthesized from the iron containing proteins such as hemoglobin, myoglobin, and cytochrome c. The proteins were immobilized to amine-terminated self-assembled monolayer (SAM) on the oxidized Si surface via peptide bond between amine group of SAM and carboxyl group of proteins. Only the proteins adsorbed onto SAM films were effective for the growth of well graphitized multi-walled carbon nanotubes.