

2911 Preparation of Individually Dispersed Single-Walled Carbon Nanotube-Protein Conjugates

Sandeep S. Karajanagi, Prashanth Asuri, Ravi Kane, and Jonathan S. Dordick

Solubilization and functionalization of carbon nanotubes without compromising their excellent physicochemical properties is a challenge that needs to be addressed for realizing many applications of carbon nanotubes. Here we report the design of individually dispersed single-walled carbon nanotube-protein conjugates in aqueous solutions. The conjugates were characterized using absorption spectroscopy, atomic force microscopy, and Raman spectroscopy. Spectroscopy and atomic force microscopy revealed the presence of protein-functionalized, individually dispersed SWNTs in water. Furthermore, the proteins immobilized onto the SWNTs also retained their bioactivity. Applications of these water-soluble SWNT-protein conjugates will also be discussed.