

Protein detection with carbon nanotubes

Lucas McKown

Nuclear & Radiological Engineering and Medical Physics, Georgia Institute of Technology

Abstract

Single-walled carbon nanotubes (SWCNTs), given their high surface-area-to-volume ratio, near-infrared fluorescence, photobleaching resistance, and minimal blinking, carry immense potential to enhance the efficiency and accuracy of medical diagnostics. Functionalizing SWCNTs with a chitosan polymer matrix incorporating a Na,Na-bis(carboxymethyl)-L-lysine (NTA) chelator is a label-free detection system that exploits proximity-quenching effects.