

Nanoimaging with nanoengineered particles

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Abstract

Carbon nanotubes have been advocated as promising agents for in vivo imaging, tumour targeting and drug delivery systems. When carbon nanotubes are combined with inorganic compounds, the resulting hybrid materials benefit not only from the properties of their constituent nanomaterials but also from synergistic effects. The most explored approach consists on the external decoration of carbon nanotubes with inorganic nanoparticles. One advantage of using carbon nanotubes though is that their inner cavity can be employed for the encapsulation of a chosen payload. The outer surface remains available and can be subsequently modified to attach biomolecules with the aim of improving the dispersability and biocompatibility of the developed hybrids. Even for targeting agents can be anchored to the external surface. In this talk we will see some examples on both the external decoration of carbon nanotubes with inorganic nanoparticles and the encapsulation of a variety of inorganic payloads. The resulting hybrid materials find application in biomedical imaging and are being explored as therapeutic agents.

Biography

Gerard Tobias obtained the degree in Chemistry (with Honours) from the Autonomous University of Barcelona (2000), Master in Materials Science and PhD with European mention (UAB, ICMAB, 2004). He was a research visitor at Ames Laboratory (USA) and EMAT (Belgium). Between 2004-2009 he was a postdoctoral researcher at the University of Oxford (UK). Since 2009 he leads research on “Nanoengineering of Carbon and Inorganic Materials” at the Materials Science Institute of Barcelona (ICMAB-CSIC). He has coordinated the FP7 European network RADDEL and has been recently granted an ERC Consolidator Grant (NEST, 725743).



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