Multi-functional carbon nanotubes for biomedical applications

Fact Sheet

Project Information

CARBIO
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Funded under
FP6-MOBILITY

Overall budget
€ 0

EU contribution
€ 3 050 500

Coordinated by
LEIBNIZ-INSTITUT FUER FESTKOERPER- UND WERKSTOFFFORSCHUNG DRESDEN E.V.
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Start date
1 October 2006
End date
30 September 2010

Objective

We will exploit the potential of multi-functional carbon nanotubes (CNT) for biomedical applications, in particular to act as magnetic nano-heaters, drug-carrier systems and sensors for diagnosis and therapy at a cellular level. CNT are hollow tubes (with 1, 2 or more walls) which can be filled with suitable materials and also be bio-functionalised, i.e. made compatible to biological environment. The long-term objective of the RTN is to develop and optimise multi-functional CNT for human medical applications " with a focus on anti-tumour therapy " which allow targeted release of heat or drugs in diseased cells. For this aim, combined multidisciplinary efforts are necessary ranging from the synthesis, thorough investigation and biofunctionalisation of CNT to studies of their interaction (toxicity, biocompatibility) with biological environments and their diagnostic/therapeutic usability. Hence, a broad multidisciplinary approach in the crossovers between physics, chemistry, and biology is required.
broad multidisciplinary approach in the crossover between physics, chemistry, biology, biochemistry, biophysics, engineering and medicine has to be applied and a new generation of scientists has to be trained. We will do this by addressing 11 strongly interacting work packages which cover all aspects of experimental biomedical nanoscience on the basis of targeted research on multi-functional CNT. Additional local and network-wide training activities, training in complementary skills dedicated to research in biomedical nanoscience (ethical and safety aspects, patents etc.), and the cooperation with industrial partners will guarantee the complete education in this innovative field of applied science. The RTN addresses major objectives of FP6 by combatting a global disease whilst involving nanobiotechnology and creating a new multidisciplinary training structure. The possible application of CNT in tumour therapy highlights the fact that by addressing the combat of a major global disease basic research can find direct applications concerning wider parts of society.

Programme(s)
Topic(s)

Call for proposal
FP6-2005-MOBILITY-1

Funding Scheme
RTN - Marie Curie actions-Research Training Networks

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