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Carbon nanostructures for Biomedical applications

The vast family of carbon nanostructures (such as nanotubes, graphene and their derivatives) has captured the interest and the imagination of an increasing number of scientists working in different fields, ranging from composites to flexible electronics. In the area of biomedical applications, these nanomaterials are especially involved in drug delivery, biosensing and tissue engineering, with strong contributions to the whole nanomedicine area. Besides the interesting results obtained so far and the evident success, there is still a long way ahead towards the manufacturing of biomedical devices. Control of size, aggregation state and surface chemistry is essential for the translation of these promising materials into clinical assays. In this talk some of the latest advances of carbon nanomaterials into the biomedical field will be presented and discussed. A critical viewpoint on the promises, facts and challenges of the growing discipline of nanomedicine will be explained, while making a journey through its most critical aspects, namely toxicity, drug delivery, theranostics and tissue engineering.