Chemical multifunctionalization of carbon nanomaterials for biomedical applications

Cécilia Ménard-Moyon
CNRS, Immunology, Immunopathology and Therapeutic Chemistry, UPR 3572, University of Strasbourg, 67000 Strasbourg, France
c.menard@ibmc-cnrs.unistra.fr

The relatively low-cost production of graphene oxide (GO) and its dispersibility in various solvents, including water, combined with its tunable surface chemistry, make GO an attractive building block to design multifunctional materials. There are many applications for which it is fundamental to preserve the intrinsic properties of GO, for example in the biomedical field and for the development of fuel cells. As a consequence, the derivatization of GO to impart novel properties has to be well controlled and the characterization of the functionalized samples thoroughly done and unambiguous. Despite the great progress in the functionalization of GO, its chemistry is not always well controlled and not fully understood.[1] In this context, I will explain some strategies for the controlled functionalization of GO through the selective derivatization of the epoxides and hydroxyl groups without alteration of its properties and with biomedical perspectives for drug release and cancer therapy.[2-4] I will also give some examples of the multifunctionalization of carbon nanotubes for cancer diagnosis and therapy.[5]

References

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