

Water-based, Defect-free and Biocompatible Graphene for Biomedical Applications

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The outstanding properties of graphene make this material very attractive for biomedical applications. However, these applications require the material to be stable in water and in the medium, to be biocompatible and able to penetrate the cellular membrane. Graphene oxide is therefore the most used graphene derivative for biomedical applications.

In this talk I will present an alternative approach, based on supramolecular chemistry [1], that enables to produce defect free, highly concentrated, stable, and biocompatible graphene dispersions in water [2]. Non-covalent functionalization enables to easy tune the surface chemistry of graphene, hence allowing to produce amphoteric, anionic and cationic graphene dispersions [3-6]. Amongst them, cationic graphene dispersions show excellent stability in the medium and the highest cellular uptake, making them very attractive for a wide range of biomedical applications.

References

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