

# From synthesis and functionalization to safety and biodegradation: Recent developments of graphene-family nanomaterials for biomedical applications

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Graphene-based nanomaterials have exceptional electronic, mechanical and optical properties making them attractive for applications in many fields, including nanomedicine.[1] Their bidimensional morphology, high surface area associated to different possibilities for functionalization of their surface,[2] offers opportunities for their use as drug carriers and for phototherapies.

In this talk, I will show our latest developments on graphene-family nanomaterials, in particular the exfoliation of graphite to few-layer graphene using fluorescent dyes.[3] I will also explain a novel strategy for the covalent double functionalization of graphene oxide *via* the chemoselective derivatization of the epoxides and hydroxyl groups [4]. Finally, I will present the cellular impact of S- and N-doped graphene quantum dots on human immune cells and their biodegradability, confirming their potential in the biomedical field.[5,6]

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## References

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