Future applications for 2D materials: the immune system scenario

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Graphene and other 2D materials are opening new markets and even replacing existing technologies thanks to their amazing chemical and physical properties. An ever-growing number of graphene and 2D-enhanced products are already commercially available. However, despite the large efforts and an impressive number of research projects funded in Europe and worldwide, a "killer application" of 2D materials is not yet universally recognized.
What would happen if the future killer application of 2D materials arose from cell biology and immunology, the most unexpected fields for material scientists?
Our expertise on the immune system interaction with nanomaterials is focusing on this key aspect of 2D material properties.
The overall objective of our research group is to provide new insights on 2D materials immune system interactions and identify highly biocompatible nanomaterials with specific functionalizations. We here will share published and unpublished data on different pictures of graphene, graphene nanoribbons and other nanomaterials, e.g. from cancer therapy to bone regeneration.
In this talk I will provide key concepts aimed at transforming the current approach of 2D-based materials production, by shaping their chemical and physical parameters, on the basis of their intrinsic immune properties for a new application scenario.

References

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