

Bio-inspired nanotechnology: from protein engineering to functional nanomaterials

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In our laboratory we apply bio-inspired approaches for the design and fabrication of hybrid functional nanostructures and biomaterials. We use repeat proteins as building blocks to develop modular versatile platforms for the fabrication of multiple protein-based hybrid functional nanostructures and biomaterials for their use in different applications including molecular electronics, optical plasmonics, catalysis, and photoactive systems among others. We combine rational protein engineering, structural biology and biophysical approaches to generate and characterize functional nanostructures and materials.

In addition, we develop new methodologies for the generation of versatile functional nanomaterials for biomedical applications including novel therapies, diagnosis and imaging approaches. We pay special attention to functionalization with biomolecules and to the generation of final formulations with optimal properties including their biocompatibility and stability, selective drug release and targeting capabilities, for being used under clinically relevant conditions.

References

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Figures

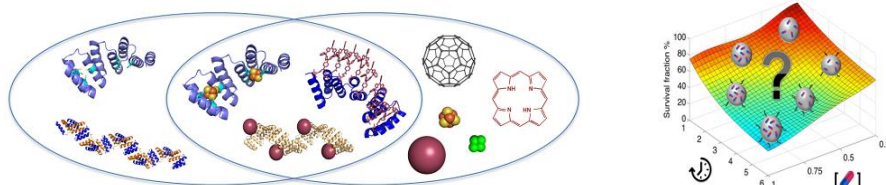


Figure 1. Biomolecular Nanotechnology: design of novel nanostructures and efficient nanomaterials.