

## Multidisciplinary Approach to Understand the Role of Nanoparticles

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The extraordinary and unique properties of nanoparticles have promoted a multitude of innovative applications in different fields, such as nutrition, plant biofortification or novel materials for prosthesis fabrication. In this last discipline, a multidisciplinary approach is required to understand and refine the steps of the process, including chemical synthesis, microbiological tests, role of osteoblast cells, and cellular viability, along with the fabrication of prototypes to evaluate the infiltration capacity of materials and their mechanical properties. Various perspectives will be discussed, highlighting the critical aspects for an optimal prosthesis fabrication such as osseointegration, prophylactic antibacterial coatings and mechanical behavior, focusing on mimicking bone tissue performance. Recent developments and ongoing projects will be grappled with the identification of best candidates, including 3D printing prosthesis manufacturing with proved antibacterial enhanced properties.

A detail overview of the synthesis, properties, and applications of various nanoparticles developed by our group will be tackled to display a complete picture of our interests in multidisciplinary areas.

## References

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