



| SUPERVISOR INFORMATION   |   |
|--|---|
| First and Last name  | Joana Loureiro  |
| URL of supervisor webpage  | <a href="https://sigarra.up.pt/feup/pt/FUNC_GERAL.FORMVIEW?p_codigo=470541">https://sigarra.up.pt/feup/pt/FUNC_GERAL.FORMVIEW?p_codigo=470541</a> |
| Department   | Department of Mechanical Engineering  |
| Field(s) of research   | Nanotechnology; Biomaterials  |
| PROJECT PROPOSAL   |   |
| Title (optional)   | Incorporation of drug-loaded nanoparticles into nanofibers for biomedical applications  |
| Brief project description  |   |
| <p>Nanoparticles present a favorable environment for optimizing therapeutic efficacy by facilitating the encapsulation of active pharmaceutical ingredients at nanoscale dimensions. This unique attribute affords a mechanism for the gradual and regulated release of medicinal compounds, offering significant advantages over conventional methodologies. The capacity to modulate the kinetics and profile of drug release confers nanoparticles with a key role in enhancing clinical outcomes while mitigating undesired effects. Leveraging these capabilities facilitates surmounting biological barriers, enhancing drug bioavailability, and enabling targeted delivery, thereby fostering notable advancements in tailoring pharmacological interventions across diverse medical contexts, ranging from chronic pathologies to aggressive cancers.</p> <p>Moreover, the incorporation of nanoparticles into nanofiber matrices further refines the control of drug release kinetics.</p> <p>In this context, the present investigation advances the fabrication of polymeric nanofibers functionalized with nanoparticles, which, in turn, encapsulate pharmacologically active agents. Consequently, the resulting nanodrug formulation is poised to produce precise and controlled release of therapeutic compounds.</p> |   |