

## Code B\_2740

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| <b>Department</b>   | Life and Environmental Sciences  |
| <b>UniCa reference person</b>                               | Sergio Murgia  |
| <b>Project title in English</b>                             | Nanoparticles in Nanomedicine and their fate after administration  |
| <b>Project title in Italian</b>                             | Nanoparticelle in Nanomedicina e loro destino dopo la somministrazione   |
| <b>Subject area of reference (World University Ranking)</b> | PHYSICAL SCIENCES (inc. Mathematics, Chemistry, Geology, Earth & Marine Sciences)  |
| <b>Project summary and VPS' profile</b>                     | <p>Nanotechnology is playing a crucial role in bridging together diagnostics, imaging, and therapeutic approaches, paving the way for the advancement of personalized medicine. Notably, nanoparticles (NPs) have been extensively explored in the realm of nanomedicine, and applied for drug delivery or imaging, usually following systemic administration. After administration, NPs reach different organs, ultimately either accumulating or being eliminated. Issues such as NP size, charge, and stability influence NP distribution in the body and cellular internalization and, consequently, the therapeutic efficacy of the nanoformulations. Efforts have been substantial in engineering stable nanocarriers capable of reaching specific organs or tissues and effectively entering cells. Nevertheless, despite their relevance in nanomedicine, there is still much to unravel regarding the cellular uptake and the fate of NPs post-internalization. Furthermore, there is a notable scarcity of studies on the biodistribution and stability of nanoparticles in vivo in the existing literature. During the sabbatical activity, lectures will focus on comprehending NPs from a fundamental perspective, shedding light on how the rationalization of their physical properties guides their application in cutting-edge bio-nanotechnologies. An ideal candidate for this role should possess a strong background in self-assembled colloidal systems with applications in nanomedicine and be well-versed in both in vitro (cytotoxicity, internalization, and intracellular localization) and in vivo characterization methods (e.g., positron emission tomography or single photon emission computed tomography).</p> |
| <b>Proposed length of stay</b>                              | Long visit of 1 month  |
| <b>Expected period of activity</b>                          | June-July 2024   |
| <b>Academic or professional position of the VPS'</b>        | Other  |
| <b>Course of Study</b>                                      | Laurea magistrale (2nd cycle University Degree), Laurea magistrale a ciclo unico (5-6-year Master Degree), Dottorato di ricerca (PhD Course)   |
| <b>Language of instruction</b>                              | English  |