ALMA MATER STUDIORUM
UNIVERSITÀ DI BOLOGNA

DIPARTIMENTO
DI FARMACIA
E BIOTECNOLOGIE

AVVISO DI SEMINARIO

Il giorno **5 Luglio 2024**
alle ore **14:30**

Dr. Carla Vitorino

Assistant Professor at the University of Coimbra, Portugal
(ospite di Prof. Manuela Bartolini)

terrà un seminario dal titolo:

Insights and Lessons Learned from Solid Lipid based Nanoparticles in Drug Delivery

Area tematica: Drug discovery and development

in presenza:
Aula 1, via Belmeloro 6, Bologna BO

e/o in streaming:
https://teams.microsoft.com/l/meetup-join/19%3aN09c0NIyEssBnF7ObCyDOQwkgDWm1qdd9f7F2nJV9fw1%40thread.tacv2/1631519544944?context=%7b%22Tid%22%3a%22e99647dc-1b08-454a-bf8c-699181b389ab%22%2c%22Oid%22%3a%225a941351-ef41-4aa4-8771-fa50a6d62ca1%22%7d

Colleghi e studenti sono cordialmente invitati

ABSTRACT

Lipid nanoparticles have contributed significantly to a paradigm shift in drug delivery. In 1991, solid lipid nanoparticles (SLN) were introduced as a new, cutting-edge carrier system for drugs. These nanoscale (40 to 1000 nm) carriers are composed of biodegradable and biocompatible solid lipids, stabilized with aqueous emulsifiers. SLN can be made from pure lipids or a mixture of different lipids and emulsifiers, and are chosen based on the desired administration route to prevent particle clumping. In the early 2000s, a new generation of lipid nanoparticles, called nanostructured lipid carriers (NLC), were developed to address limitations of SLN, such as low drug loading and stability. NLC are made of a blend of solid and liquid lipids, resulting in a more flexible and smart matrix that allows for higher drug loading and stability. With excellent tolerability, low toxicity, stability, drug targeting capabilities, and affordability, lipid nanoparticles are a highly attractive option for improved drug delivery.

Our research focuses on developing nanosystems based on solid lipid matrix nanoparticles for drug administration through various routes, including dermal, transdermal, oral, and intravenous, with the goal of overcoming biological barriers and improving targeted drug delivery. Specifically, we are exploring innovative strategies such as peptide conjugates, inorganic (gold and iron) decoration, and biomimetic membranes to enhance the targeted delivery of repurposed drug and gene material to address several unmet medical needs

BIOGRAPHICAL SKETCHES

Carla Vitorino is Assistant Professor at the Faculty of Pharmacy of the University of Coimbra in the Pharmaceutical Technology area and is an integrated researcher at the Coimbra Chemistry Centre, currently a part of the associate laboratory Institute of Molecular Sciences (IMS).
Her research and development activities have been fundamentally directed towards three interrelated focal points:
(i) Scientific: The primary emphasis here pertains to the formulation of more effective strategies in conjunction with drug nanodelivery systems, tailored to address multipurpose requisites within unmet medical needs. Specifically, she has been working on the application of nanotechnology in drug permeation enhancement strategies for transdermal, dermal, oral, and drug delivery systems to brain targeting. Under the projects she has coordinated and co-coordinated, she has contributed to the development of advanced nanotechnological formulations.
(ii) Industrial: This has been grounded on the systematic deployment of frameworks driven by a quality by design (QbD) philosophy, along with process analytical technology (PAT) tools. The central tenet lies in the application of structured approaches to the development of specific drug products, including but not limited to semi-solids and injectables.
(iii) Regulatory: This has been directed to the development of analytical protocols, addressing in vitro skin permeation methodologies for bioequivalence assessment of topical product