



Università degli Studi di Roma “Tor Vergata”

Dipartimento di Scienze e Tecnologie Chimiche

Via della Ricerca Scientifica, 1 - 00133 Roma (IT) - Tel +39 06 72594337 Fax +39 06 72594328

AVVISO DI SEMINARIO

*Giovedì 27 Aprile alle ore 15.00
in aula Seminari la*

Prof.ssa Anita Scipioni

Dipartimento di Chimica, Università di Roma ‘La Sapienza’

Terrà un seminario dal titolo:

Peptide-based biomaterials for applications in nanomedicine

Proponente: Prof. Mariano Venanzi

Peptide-based biomaterials for applications in nanomedicine

Abstract:

In the last decades, peptides have been extensively used as building blocks to obtain bio-inspired nanomaterials. The structural elements encoded in each peptide sequence, which rule the biorecognition-based self-assembly, provide efficient methods for building new materials with predictable architectures and functionalities. Peptide-based nano-architectures offer surfaces that can be chemically modified or act as templates for the growth of organized nanostructures to be used in diverse fields from electronics to nanomedicine [1].

Peptide-polymer conjugates and lipopeptides are emerging classes of soft matter composed of natural and synthetic building blocks. Such hybrid conjugates have the potential to combine the advantages of the precise chemical structure and various functionalities of peptides and the processability of synthetic polymers or lipids to generate hybrid materials with properties that cannot be realized with either component alone such as the ability to respond to external stimuli (pH and temperature). Furthermore, lipopeptides are interesting species of low molecular weight hydro-gelators with various applications in drug delivery and tissue engineering.

Here, design, self-assembling properties and the potential use in nanomedicine of various peptide-polymer conjugates and lipopeptides will be discussed [2,3].

1. Hamley I. W. PEG-Peptide conjugates *Biomacromolecules* **2014**, *15*, 1543-1559.
2. Punzi, P.; De Santis, S.; Giordano, C.; Diociaiuti, M.; Novelli, F.; Masci, G.; Scipioni, A. Bioinspired Nanotubes from Self-Assembly of a Linear L,D-Oligopeptide-Poly(ethylene glycol) Conjugate. *Macromol. Chem. Phys.* **2015**, *216*, 439-449.
3. Novelli, F.; De Santis, S.; Punzi, P.; Giordano, C.; Scipioni, A.; Masci, G. Self-assembly and drug release study of linear L,D-oligopeptide-poly(ethylene glycol) conjugates. *New Biotechnology*, **2017**, *37*, 99-107.