



UNIVERSITÀ  
DEGLI STUDI  
DI BRESCIA

I SEMINARI DEL DIPARTIMENTO DI  
MEDICINA MOLECOLARE E TRASLAZIONALE

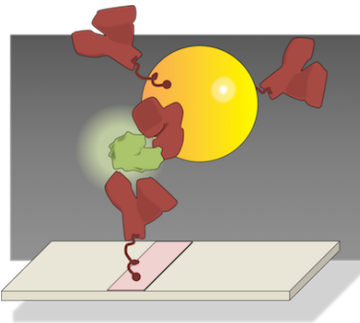
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## *Engineering the Nanoparticle-Biology Interface for Biomedical Applications*

Venerdì 23 Giugno 2017 ore 13:00  
Aula A1 Edificio Polifunzionale

Ospite: Prof. Paolo Bergese



**ABSTRACT.** The convergence of the fields of nanotechnology and medicine has resulted in innovative approaches for novel disease therapies, biomedical imaging and sensing, and numerous others. In particular, the use of gold nanoparticles in rapid diagnostics for infectious diseases has been emerging as an application with the potential to address some of the major challenges in global health. These assays are low-cost and can be used in rugged environments, so they are attractive for widespread deployment for disease surveillance, quarantining, and treatment. One of the biggest challenges for effectively using nanoparticles in biological applications is the physical interface between the nanoparticles and its biological environment. Surface fouling and non-specific adsorption can lead to undesirable side effects such as diminished targeting specificity and cell uptake, unfavorable biodistribution, and toxicity. However, non-specific adsorption can actually be exploited for biological applications. We show how the unique properties of the nano-bio interface can be utilized for different medical applications including disease diagnostics for dengue, zika, chikungunya, Ebola, and other pathogens. We will discuss the unique interface issues in lateral flow immunoassays, and also discuss how multicolored nanoparticles can add important new capabilities to the assays.

Tutti gli interessati sono invitati a partecipare.

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