

Nanoparticles Interaction with Lipid Bilayers and Amyloids

Francesco Stellacci

¹*Institute of Materials and Interfaculty Bioengineering Institute, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland – francesco.stellacci@epfl.ch*

²*Department*

Abstract

In this talk the interaction of gold nanoparticles coated with a self-assembled monolayer of ambiphilic molecules will be discussed. In particular it will be shown that gold nanoparticles (from ~3 to ~6 nm in diameter) coated with mercapto-undecane sulfonic acid (MUS) and –at times- octanethiol (OT) in various mixtures interact strongly with lipid bilayers. This can be shown using black-lipid membrane experiments as well as cryo-TEM on vesicles. It will be shown that the same particles have specific interaction with cells and are able to penetrate in the cytosol of the cells in an energy independent way. Theory and experiments on these particles will be compared critically.