

# Nanotechnology Congress & Expo

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### Multiplex targeted disease biomarker detection using SERS probes

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Nowadays, the scientists are faced with the challenging development of highly sensitive multiple protein detection methods. The outstanding physicochemical properties of noble metal nanoparticles enable to envisage them as robust and versatile support to developing nanotags encapsulated in an antibody-functionalized nanostructure that is active in surface enhanced Raman scattering (SERS). This optical sensing technology allows single molecule detection with high potential to simultaneous recognition of closely related targets based on the narrow bandwidths of the vibrational Raman spectra of the reporter molecules. In this presentation, we will demonstrate how one-spot detection of multiple proteins in parallel can be efficiently achieved by using SERS encoded probes consisting of noble metal NPs each reporting unique Raman code and antibody-tagging entities. Further, this study may contribute to the development of targeting, tracking, and imaging systems for labelling cells..

#### Biography

Nekane Guarrotxena is a PhD from the University of Complutense, Madrid-Spain and Post-doctoral researcher at Ecole Nationale Supérieure d'Arts et Métiers, Paris-France and the University of Sciencell, Montpellier-France. From 2008-2011, she was visiting professor in the Department of Chemistry, Biochemistry and Materials at the University of California, Santa Barbara (USA) and the CaSTL at the University of California, Irvine (USA). She is currently Research Scientist at the Institute of Polymer Science and Technology, CSIC-Madrid (Spain). Her research interest focuses on the synthesis and assembly of hybrid nanomaterials, nanoplasmonics, and their uses in nanobiotechnology applications (bioimaging, biosensing, drug delivery and therapy).

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