Highly efficient and ultrasensitive nanosensor of proteins

Nekane Guarrotxena
Spanish National Research Council (CSIC), Juan de la Cierva 3, Madrid-Spain

Surface Enhanced Raman Spectroscopy (SERS) is attributed primarily to the enhancement of the incident and scattered electromagnetic fields near metal surfaces through excitation of localized surface plasmons. This condition requires positioning the reporting molecule within special sites in nanostructured metal surfaces (hot spots) where the enhancement is greatest. A readily available and reliable hot spot is found in the junction between two metal NPs. In this sense, our current work hasengineered a successful nanostructured tool for developing sensory materials that incorporate important improvements in SERS-tags sensitivity (femtoMolardetection level) by properly managing the interaction between Ag-nanoparticles within nanoassemblies; making dimer-like nanostructures ideal in a wide range of tagging, sensing, and analysis applications.

Biography:

Nekane Guarrotxenais a PhD from the University of Complutense, Madrid-Spain in 1994 and has been post-doctoral research at the Ecole Nationale Superieured´Arts et Metiers, Paris-France (1994-1995) and the University of ScienceII, Montpellier-France (1995-1997). From 2008-2011, she was visiting professor in the Department of Chemistry, Biochemistry and Materials at University of California, Santa Barbara-USA and the CaSTL at University of California, Irvine-USA. She is currently Research Scientist at the Institute of Polymers Science and Technology, CSIC-Spain. Her research interest focuses on the synthesis and assembly of hybrid nanomaterials, nanoplasmonics, and their uses in nanobiotechnology applications (bioimaging, drug delivery, therapy and biosensing).