



Jolanda Spadavecchia
CR1
Equipe SBMB - CSPBAT- UMR
7244
UFR Santé, Médecine, Biologie
Humaine Université Paris 13 (Bureau
307)
74 rue Marcel Cachin
93017 Bobigny Cedex (France)
Tel: 01 48 38 **8566**
Courriel : jole23@libero.it

Biographie

Jolanda Spadavecchia, is senior researcher (CR1) at CNRS since 2010. Her research activities are focused on the realisation of nanoparticles and biosensors. In particular, she is interested in the processes responsible for the bioconjugation of protein, macromolecules or DNA oligonucleotides onto gold nanoparticles and substrates for the creation of optical biosensors (SPR and Raman). Jolanda Spadavecchia begin her scientific formation at the Chemical Faculty of the Bari University in Italy under the supervision of the Prof. Francesco Naso. During her thesis of bachelor she has been involved in the asymmetric synthesis of amines, chiral epoxides and sulfoxides learning all the spectroscopy techniques fundamental for the organic compounds characterization like GC-MS; spectrophotometry UV-VIS; FT-IR analysis and H-NMR. During the thesis, she has adopted some reactions that used not racemic chiral amminonaphtol structurally correlates with the base of Betti, like chirality inducers; these last ones have provoked the interest of the Novartis from the moment that has been possible to find structural analogies for some of they and the chinine employed in the industrial processes; that has had to the fact that numerous composed of drug interest introduces one considerably various biological answer to the different absolute configurations. In 2000 she has achieved the bachelor Pharmaceutical Chemistry and Technology and in the same month, has begun an activity of search in the laboratory of preparation and organic macromolecule synthesis like active layers of chemical gas sensors under the supervision of Prof. Giuseppe Vasapollo. In February 2001 she obtains the admission to the school of doctorate in "Engineering of the Materials". During the period of doctorate, she has been involved in the synthesis of lattons and functional phthalocyanines by using cardanol derivative. During 3 years of post Doc at the institute d'optique in Paris, she has studied the monitoring of DNA Biochip for Genetic Detection involved in Cystic Fibrosis Disease in collaboration with the Henri Mondor hospital (Creteil-Paris). She has carried out new Chemical Functionalisation onto Gold Surface in order to detected Dna oligonucleotides, protein, PCR and she is specialized in the synthesis of Hybrid gold Nanoparticles and cromophore hybrid nanoparticles for biomedical applications. She has realised a new synthesis of TiO₂ nanoparticles (2 World Patents and 1 Italian Patent) for photovoltaic systems and Optochemical sensors . She is currently involved in the synthesis of Polymeric nanoparticles and the development of Nano-hybrid materials for Nanomedicine. She

is co-director of a 2 PhD student (Title: Study of interaction between TiO₂ nanoparticles and protein: Nanotoxicity; Bioconjugation of enzyme and proteins on multifunctional nanostructured solid materials for Biomolecular interaction monitoring) and bachelor Thesis (Title: Synthesis and characterization of Gold and Titanium Dioxide Nanoparticles. Applications on biosensors as model for drug delivery of Doxorubicin). Actually she has an active collaboration with Berlin and Louvre Museum in order to establish the mechanism responsible of the AuNP formation at the surface of ancient ivory objects from different archaeological and historical contexts (e.g. Skulpturensammlung, Staatliche Museen zu Berlin). She is used to develop his own research projects leading to a large number of results in collaboration with several international groups. She was then able to published 63 international publications, which have a large impact in the scientific community (h-factor = 21).

Thème(S) de recherche : Nano-hybrid materials for Nanomedicine
Chemical Gold Surface Functionalization
Synthesis of Polymeric nanoparticles.
Biosensors SPR

5 Publications Significatives :

- ❖ Angelica Sette, **Jolanda Spadavecchia**, Jessem Landoulsi, Sandra Casale, Bernard Haye, Olivia Crociani, Annarosa Arcangeli. Development of novel anti-Kv 11.1 antibody-conjugated PEG-TiO₂ nanoparticles for targeting pancreatic ductal adenocarcinoma cells. *J Nanopart Res.* **2013**; 15(12): 2111.
- ❖ **Jolanda Spadavecchia**, Emilande Apchain, Marie Albéric, Elisabeth Fontanand Ina Reiche. One-Step Synthesis of Collagen Hybrid Gold Nanoparticles and Formation on Egyptian-like Gold-Plated Archaeological Ivory. *Angewandte Chemie International Edition* [Volume 53, Issue 32](#), pages 8363–8366, August 4, **2014**
- ❖ Jolanda Spadavecchia, Ramesh Perumal, Alexandre Barras, Joel Lyskawa, Patrice Woisel, William Laure, Claire-Marie Pradier, Rabah Boukherroub, Sabine Szunerits, Amplified plasmonic detection of DNA hybridization using post-labelling with doxorubicin-capped gold particles. *Analyst*, **2014**, 139, 157–164
- ❖ Sabine Szunerits, **Jolanda Spadavecchia**, Rabah Boukherroub, Surface plasmon resonance: colloidal gold nanoparticles-based amplification for enhanced sensitivity. *Review Anal Chem* **2014**; 33 (3) : 153-164
- ❖ Kostiantyn Turcheniuk, Charles-Henri Hage, **Jolanda Spadavecchia**, Aritz Yanguas Serrano, Iban Larroulet, Amaia Pesquera, Amaia Zurutuza, d Mariano Gonzalez Pisfil, Laurent Heliot, Julie Boukaert Rabah Boukherrouba and Sabine Szunerits. Plasmonic Photothermal Therapy of uropathogenic *E. coli* with reduced graphene oxide and core/shell nanocomposites of gold nanorods/reduced graphene oxide. *J. Mater. Chem. B*, **2015**.

Brevet :2

Techniques : UV-VIS; FT-IR, GC-MS; UV-VIS, SPR