

# 4<sup>th</sup> International Conference on **Nanotek & Expo**

December 01-03, 2014 DoubleTree by Hilton Hotel San Francisco Airport, USA

## Guidelines proposal for nanomaterials hemocompatibility

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Nanosciences and nanotechnologies are in constant evolution. Development of new therapeutic and diagnostic agents using nanotechnologies for reach their pharmaceutical target require the knowledge of biocompatibility of nanoparticles with the blood compounds. The aim of this study is the evaluation of the biocompatibility of manufactured nanoparticles (NPs) (carbon based, silver, silicon dioxide, copper oxide and silicon carbide nanoparticles) on erythrocytes integrity, on platelets aggregation and on coagulation cascade. Hemostasis is the ensemble of physiological phenomena which prevent and lead to stop bleeding; it maintains the vascular integrity. A dysfunction of the hemostasis can lead to slow down or even to completely stop the circulation of the blood. It is therefore primordial to know what NPs can have an effect on coagulation. Various techniques assessing activation and aggregation of the platelets or the impact of NPs on coagulation cascade were investigated. An approach in transmission and in scanning electronic microscopy was also accomplished. The Impact-R' with scanning electronic microscopy support and the calibration thrombin generation tests were the reference method to investigate the potential impact of NPs on platelet function and the procoagulant activity of NPs, respectively. Based on the results obtained, we suggest guidelines for testing NP hemocompatibility which responds to a request of scientific community due to lack of recommendations for the evaluation of nanomaterial hemocompatibility.

### Biography

Julie Laloy obtained her PhD in 2012 at the University of Namur on *in vivo* and *ex vivo* evaluation of the potential toxicity of manufactured nanomaterials. Her research is focused on the safety assessment of nanomaterials. Mrs Laloy is an actor in the standardization of procedure for nanomaterials and on the reglementation of them in Europe. In fact, she participated in different European projects as NanoValid, QNano and NANoREG. She is european coordinator of the NanoGeCo project. She has published more than 10 papers in reputed journals and serving as an editorial board member of repute.

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